

QUESTIONNAIRE

(*) – mandatory fields

	Details about organisation
* Organisation name	The Center for Ecological - Noosphere Studies, National Academy of Sciences of the Republic of Armenia
Organisation acronym	Ecocentre NAS RA
* Organisation Activity Type (RES - Research, HE - University, SME - Small and Medium Enterprise, IND - Industry, OTH - Other)	RES
* Keywords of main research areas	environmental geochemistry, biogeochemical cycles, biomonitoring, radioecology, bioenergy, assessment and mapping of landscapes and natural resources, geopathogenic zones, computer technologies and databases in the field of environmental protection
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* Description of organisation and its research achievements for the last five years (~ 5000 signs)
<p>The Center for Ecological-Noosphere Studies is a state non-profit organization founded in 1989 by a governmental decree as a principal research organization engaged in fundamental and applied studies in the area of ecology and environmental protection.</p> <p>The Ecocenter`s laboratories provide atomic-absorption, mass-spectrometric-gas-chromatographic, spectro-emission, spectro-photometric, radiometric, colorimetric, chemical, etc. methods of analysis.</p> <p>The Central Analytical Laboratory has been accredited (N AST-001, Q-0001-2008)</p> <p>The Ecocenter is equipped with up-to-date devices including an atomic-absorption spectrometer AAnalyst-800 (PerkinElmer), MS/GC (Thermo Electron Corp.) a spectrophotometer (Hach, Dr-2004), a gamma-spectrometer (Canberra), a water multi-analyzer (Horriba U-10), a radonmeter RAD-7 (DurrIDGE Comp.Inc.) etc., and disposes of a well-developed computer basis.</p> <p>Publication. Between 1989 and 2006 over 486 scientific papers including 7 monographs and 12 transactions were published by the Ecocenter`s researchers.</p>

Between 1994 and 1997 the EcoCenter published annotated transactions “Problems of ecology and nature protection”. In 1997 the first Ecological Explanatory Dictionary in Armenian language was published, which contains some 2500 terms and their English and Russian equivalents. In 2001, the second edition of the Ecological Explanatory Dictionary was issued. In 2002 the materials of a workshop “Ecotoxicological risk assessment of environmental pollution in the Caucasus” were published. In 2004 a monograph “Peculiarities of heavy metal distribution on Armenia’s territory” was published. In 2005 a monograph and a teaching methodical manual “Life safety” (in Armenian), proceedings of an international conference “Problems of river monitoring and ecological safety of the South Caucasus”, a methodical manual “Pedagogical fundamentals of ecological education” (in Russian and Armenian.), were published. In 2006 a teaching manual “General geology” was published for students of geography faculties. In 2007 proceedings of an international conference “Mountain areas-ecological problems of cities” were published.

Applied works. “Development of the map of Yerevan’s ambient air pollution from permanent sources”, “The assessment of ecological state of soils of Armavir marz”, “The assessment of ecological state of the territory of the city of Kajaran”, “Studying environmental impact of tailing repository of the Zanagezour set of enterprises”, “Studying iodine transfer in grapevine and wine”, “Studying and testing a new complex fertilizer Tseocarbodos-1”, “Visual surveys of the territory, mapping and taking photos of a tyre manufacturing plant territory pollution”, “Ecological monitoring and assessing environmental impact of treatment process of a “Melange”-type component of rocket fuel and application of the obtained nitric product as fertilizer”, “Ecological monitoring and evaluation of the project “Elimination of rocket fuel component stocks (Melange) in the Republic of Armenia – Phase III – “Implementation ”, development of a target tree planting program for Yerevan, “Studying atmospheric pollution of the city of Kajaran”, “Assessing environmental impact of tailing storage sites from mining and dressing production and activities of the Kapan copper enterprise on the territory of Kapan town (Syunik marz)”.

Scientific meetings. In 1993 a republic conference “Fundamental problems of planting trees and gardens in urban areas” was held to develop a tree-planting strategy for deforested sites.

In 1996 a republic scientific conference “Environmental contamination with heavy metals” was organized and held.

In 2000, 2001, 2002, 2003 youth conferences “Future of ecological science in Armenia” were organized and abstract books published.

In 2005 in cooperation with Tbilisi State University (Georgia) an international conference “Issues of river monitoring and ecological safety of the South Caucasus” was held.

In 2007 under support of the OSCE Office in Yerevan and the UNESCO Office in Moscow an international youth scientific conference “Mountain areas-ecological problems of cities” was held.

International Recognition. The Center for Ecological-Noosphere Studies is recognized worldwide. In particular, relevant information is included in Directory of Ecology and Conservation in Russia/CIS (Edinburgh, 1998), “The World of Learning” 1997, 1999, 2001, 2004, 2005 (London, UK), European Directory of Environment and Health Organization (UNED-UK 1999), The Environment Encyclopedia and Directory 2001 (London, UK), Directory “Eastern Europe, Russia and Central Asia” 2000, 2003, 2004, 2005 (London, UK).

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<p>International co-operation / Participation in EU RTD programmes or other bilateral / multilateral actions</p> <p>INTAS, TACIS, TEMPUS, COST, EUREKA, other RTD programmes (please specify programme/s, project title/s and year/s)</p>
<p>In 2001 a NFSAT/CRDF grant was awarded to the project “Wood biomass of fast growing poplar plantations as an alternative source of energy” (Armenian Engineers and Scientists of America Ltd. Company, California, the USA).</p> <p>Since 2001 the Ecocenter has been collaborating with ADAS Nutritional Sciences Research Unit and the Reading University (the UK): in 2002 a NATO Expert Visit Grant was awarded to the project “Quality assessment of some non-traditional forages in Armenia”, in 2002-2003 the British Council awarded a grant to the project “Estimation of Armenia’s forage resources”.</p> <p>In 2002 in the framework of the NATO “Science for Peace” program a grant was awarded for performing a regional project “The South Caucasus River Monitoring (2002-2008)” supported by OSCE, too (participating countries: Armenia, Azerbaijan, Georgia, the USA, Belgium, Norway).</p> <p>In cooperation with the WS Atkins Environment Firm (the UK) the Ecocenter is engaged in the Armenian Nuclear Regulatory Authority’s project “Mapping and GIS of radioactive pollution in case of emergency on NPP site”.</p> <p>In 2002, a NFSAT/CRDF grant was awarded for the project “Paleoecology and paleoradioecology of Lake Sevan (Armenia)” (2002-2004) (Florida and Louisiana Universities, the USA).</p> <p>In 2002 in the frame of International Risk Assessment Network the Ecocenter held an international workshop “Ecotoxicological risk assessment of environmental pollution in the Caucasus” supported by a NFSAT grant (Armenia, Azerbaijan, Georgia, RF, USA, Holland).</p> <p>In 2003 the Ecocenter started implementing a UNESCO/MAB project “Identifying priority territories for creation of biosphere reserves, creation of databases, development of GIS, and preparation of project documents for the South Caucasian countries” (Armenia, Azerbaijan, Georgia).</p> <p>In 2005 a program “Organization of ecological courses in the frame of sustainable development of Armenia” was performed based on a grant of the Armenian National Committee of UNESCO; courses were organized on the subject “Life safety”.</p> <p>In 2006 a regional project “Assessing Rivers Kura-Araks radioactivity” was developed through a grant from the UNESCO Office in Moscow (Armenia, Georgia, Azerbaijan).</p> <p>In 2006 a Marie Curie RTN: FP6 – 035805, Mobility-1 a research and training grant “The re-invention of sainfoin: an example of a novel resource for sustainable</p>

agriculture” was awarded (2006-2009).

	* Please, use “X” to indicate the scientific area/s of your potential project
CHEMISTRY	
SOCIAL AND HUMAN SCIENCES	
ECONOMIC SCIENCES	
ENGINEERING SCIENCE	
ENVIRONMENT	X
AGRICULTURE AND FOOD	X
HEALTH	X
MATHEMATICS	
INFORMATION SCIENCE	
PHYSICS	
NANOTECHNOLOGIES	
ENERGY	X
TRANSPORT	
SPACE	

*** Summary of potential research project envisaged hosting of European researcher for the period of between 1 and 2 years**

Organic Research. Air Quality monitoring for environmental compliance, land screening, brand protection and complete product quality ensuring in beverage manufacture, drug discovery of pharmaceutical industry united by a common goal, namely the development of novel therapeutic agents, clinical investigation and toxicology facing an increasing demand for sensitivity and accuracy of their assays, wide variety of food processing applications starting from ingredient handling to inspection of food products, encompassing a broad range of organic substances.

Ecotoxicological assessment of city of Gyumri (the calamity zone of the Spitak earthquake of December 1988).

A complex analysis of pollution by heavy metals, nitrogen and chlorine compounds of vegetable species grown on the city’s territory.

Phyto-indication of the city’s territory pollution with heavy metals, indication of metal-, gas- and dust-resistant plant species aimed to development of a set of trees and shrubs for functional planting in the city of Gyumri.

Studying heavy metals migration forms and modeling their spatial transfer for River Hrazdan

River Hrazdan is the major tributary of the Araks – a transboundary river of the South Caucasus. The river basin is a home to 70% of the republic's industrial and municipal enterprises. The river waters are actively used for irrigation of agricultural lands.

The outcomes of long-term studies indicate that the river waters (soluble forms) are polluted with toxic heavy metals – nickel, chromium, arsenic and mercury. Studying water soluble forms only is insufficient for indicating a complex ecological situation and assessing pollution levels. Extremely important is studying heavy metal accumulation both in suspensions and bottom sediments.

The obtained outcomes for heavy metals will be applied for creating a model of their

transfer and balance all along the river.

The assessment of ecological impact of Sotki ore deposit upon the environment

The issue of assurance of ecological safety of the Lake Sevan has acquired a special topicality due to man-made pollution of the lake. The increase in the quantity of man-made streams flowing into surface waters is accompanied by synchronous quality changes manifested in formation of transitive flows, which travel from lithosphere to hydrosphere and reach water objects with no involvement in biological turnover. Major factors predetermining chemical element transfer are vertical and lateral runoffs. Their intensity can sharply increase particularly as a result of ore excavation, transportation and treatment. To specify transitive pathways of chemical element travel from ore deposits to surface waters envisaged is the development of research mechanisms on the assurance of ecological safety of streams emptying into Lake Sevan.

Geochemical mapping of water and soil pollution through collation of remote and field methods

Revealing polluted sites (as well as water surfaces) through interpretation and classification of satellite images. Treating methods of determination of quality composition of separate pollutants through interpretation and classification of multi-zonal and hyper-spectral satellite images. Indication of spectral characteristics of separate pollutants. Determination of credibility level of data obtained as a result of interpretation and classification of satellite images and collation of field data.

A seismic factor of radiation safety of seismically active areas (including the impact not only on the population but also on the biosphere) (Actual for all seismically active areas)

At the first time on the example of the Spitak earthquake (Armenia, December 1988) a new approach was applied to the earthquakes as a factor causing not only catastrophic destruction but also extended radon radiation that affects the health of the population. The latter – territorially and numerically - exceeds manifold destruction-conditioned consequences.

The interval of radon action is from first foreshock to the last aftershock, i. e. several months. The area affected by radiation is larger than Armenia's territory. The scales of this impact on the affected population is 12 times higher than the number of people injured in Spitak, in Leninakan (Gyumry) and other settlements (toll of injured - 25000 , compared to the projected diseases caused by high levels of radiation in non-adapted population-over 300000). The basis for this conclusion is a set of data on indoor radon monitoring in the city of Yerevan. The data were firstly recorded in 1987 (120 km from epicenter) and presently include 5450 samples and 13350 measurements. Indicated was total extinction of bees and morpho-genetic changes in mice and rats.

The research goals are to (I) reveal, investigate and assess geological risk factors of radon under different geodynamic states of the earth crust (stable and extreme-earthquakes); (II) to calculate and assess annual effective doses of the population received by breathing in radon and its short-lived decay products at zones areas of the megapoles, and (III) to identify and characterize risk groups with respect to exposure to radon and its short-lived products.

	Please, confirm your agreement on data publication and dissemination
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I agree with the publication of the data on the web-site http://www.inco-ecca.net , and dissemination among Mobility National Contact Points of the EU MS and AC (YES / NO)	YES
Date	22.10.08