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NOMINATION OF AN INSTITUTION TO SERVE AS STOCKHOLM CONVENTION REGIONAL OR SUBREGIONAL CENTRES FOR CAPACITY BUILDING AND TRANSFER OF TECHNOLOGY

RELEVANT INFORMATION PURSUANT TO DECISION SC-3/12 BY NOMINATED STOCKHOLM CONVENTION CENTRES

ANEX IV: Institutional profiles

Name of institution: RECETOX, Masaryk University, Central and Eastern European Regional POPs Centre (CEEPOPsCTR)

Institutional Profile

Please attach separately a brief institutional profile that includes summaries of relevant activities undertaken by the institution within last 2 years.

Regional POPs Centre for the Central and Eastern Europe together with Czech National POPs Centre belongs to the organisation structure of RECETOX, EU DG Research Centre of Excellence for Environmental Chemistry and Ecotoxicology which is a part of Faculty of Science, Masaryk University, Brno, Czech Republic.

From coordinating the region III (Europe) of the UNEP/GEF Project Regionally Based Assessment of Persistent Toxic Substances (2001-2002) RECETOX gained reasonable amount of knowledge about the whole Europe including convergence regions which can be used further. Acting as an implementing agency of the UNIDO programme focused on the implementation of the Stockholm Convention brought important know-how in the field of national POPs inventories, development of the national implementation plans (NIPs) and development and performing of the monitoring programmes. All of this, together with the experience from scientific, networking and training activities performed in frames of two FP5 projects led us to conclusion that a common platform for sharing the problems and ideas, transfer of know-how and technologies, development of local and regional environmental strategies, building the research and educational capacities, training programmes, exchange scientific stays and other activities supporting a development of the research potential is desperately needed in the Central and Eastern European region.

Based on this conclusion, RECETOX initiated an establishment of the Central and Eastern European Centre for Persistent Organic Pollutants. This centre was formally established at Masaryk University in 2006 as a common contribution of the Central and Eastern European Countries to the activities connected to the implementation of the Stockholm Convention. It is a part of MU and RECETOX organizational structure. The main goal of this centre is to provide support for the research and development institutions, universities, private companies, governmental and non-governmental organisations from the region of Central, Southern and Eastern Europe in the research, education and decision making in the field of environmental chemistry, ecotoxicology, risk assessment and management of environmental data. In present time, this Regional Centre serves more as a thematic centre mainly focused on the research, monitoring, education, training and awareness rising in the connection with the POPs and environmental chemical pollution problems. This programme was offered to selected partners from the target region with the very positive response – many institutions expressed their interest to become an associated member of the Centre and take an active part in the Centre activities. Association letters were received from some of them with more still on the way. Centre associates country representatives, institutions and experts from CEE countries as well as interested parties out of CEE region. Recognizing the importance and potential of the new Centre, Czech government and Ministry of Environment acknowledged its establishment and expressed their support and intention to cooperate and financially participate in the activities of the Centre.

Czech government also officially announced the establishment of the Centre to the Secretariat of the Stockholm Convention with a suggestion that this Centre can act as a regional Central and Eastern European Centre serving the purpose of the implementation of the Stockholm Convention. Based on the Czech experiences from the development of the Czech NIP, RECETOX participated/participates on the transfer of the Czech know-how and development of the NIPs in many countries of the region and also out of this region (Armenia, Hungary, Croatia, Macedonia, Serbia, Montenegro, Egypt, Oman). Since at the same time the Czech National POPs Centre was established as a joint project of Masaryk University and Czech Ministry of Environment, very high potential was created for an efficient enhancement of the research and development activities, transfer of know-how and technologies, and scientific capacity building in this EU' convergence region. As a first international activity of the CEE POPs Centre a passive air sampling campaign was designed and performed in participating countries. This activity is closely connected with the development of the Global Monitoring Plan as a tool of the effectiveness evaluation of the Stockholm Convention measures. RECETOX and CEE POPs Centre play very active role in this process and organized one from the meetings of the ad hoc Technical Working Group which was established by the 2nd Conference of Parties of the Stockholm Convention for this process. Centre acts as a scientific and technical platform for EU, CEE and NIS countries to bridge and harmonize the national POPs activities at the regional level. The Centre promotes the joint initiatives focused on POPs involving UN Agencies and UN Institutions operating in the field of environmental protection. Possible future partnership with UNEP Chemicals, UNIDO-CPC, ICS-UNIDO and other UN bodies, as well as with European Union and regional institutions is to be discussed in future steps.

Activities of RECETOX/CEEPOPsCTR in the field of inventories and monitoring are focused on the development of the regional research capacities, establishment of sampling, analytical and testing procedures based on the European standards; establishment of Central and Eastern European POPs monitoring network with the special attention to the effectiveness evaluation of the measures of international conventions at the regional level.

Activities of RECETOX/CEEPOPsCTR in the field of scientific research are focused on the study of the fate of POPs in the European region, development of new sampling and analytical methods for POPs and study of effects of POPs on various types and levels of biota with the special attention to (1) the effects of environmental mixtures, (2) the “unknown” effects – phytotoxic effects, effects on soil microbial populations and soil fauna, aquatic biota, (3) a development of the mechanism-based biomarkers

RECETOX has been active in the field of POPs determination for many years (see: <http://www.chem.unep.ch/databank/Search/Result.aspx> or <http://recetox.muni.cz>). Its long-term scientific and research focus is on the development of sampling and analytical methods for determination of POPs (polycyclic aromatic hydrocarbons, organochlorinated pesticides, polychlorinated biphenyls, naphthalenes, short and medium chain chlorinated paraffins) in all abiotic and selected biotic matrices (mosses, needles, selected types of plants).

These methods have been applied on the European level in the long-term POP monitoring program in Kosetice observatory which is a station of the UN ECE EMEP POPs background monitoring network (since 1988).

RECETOX was selected as EU-DG Research Centre of Excellence for Environmental Chemistry and Ecotoxicology (EVK1-2002-00519), in the FP5 programme “Energy, Environment, and Sustainable Development” which was focused on the support for the integration of Newly Associated States (NAS) in the European research area. In frames of this project, the scientific networks on the European as well as Czech national levels were established in very close cooperation with industry, industrial associations and governmental institutions. These networks provide a platform for scientific cooperation in the field of environmental chemistry, ecotoxicology and risk analysis.

Besides the FP5 project mentioned above, RECETOX Centre has a broad experience from participating in the UNEP/GEF Project Regionally Based Assessment of Persistent Toxic Substances (co-ordination of region III - Europe) and acting as the implementation agency of Stockholm Convention implementation in the Czech Republic (GEF/UNIDO project). Participation in the FP6 project APOPSBAL (ICFP501A2PR02) - „Assessment of the selected POPs in the atmosphere and water ecosystems from the waste materials generated by warfare in former Yugoslavia” (coordinator of the project) brought a partnership with several institutions from the Western Balkan region. Currently RECETOX is also participating in the FP6 project ECODIS focused on the environmental impact of disastrous situations.

RECETOX can serve as a training facility for capacity building in developing countries. RECETOX/CEEPOPsCTR organized annually the Summer school focused on the trends and advances in environmental chemistry and ecotoxicology. From 2006, this Summer school is organized in the co-operation with the Secretariat of the Stockholm Convention with special attention to the training of experts for Global POPs monitoring.

RECETOX acted as a national implementation agency for development of the Czech National implementation plan of the Stockholm Convention. Currently the Czech National POPs Centre is hosted by RECETOX. This national body responsible for the realisation of NIP conclusions and for the sound management of POPs in the CR was established as a joint activity of the Czech Ministry of Environment and Masaryk University Brno.

As was already mentioned above, RECETOX research activities include the co-operation with the industry in the field of determination of possible environmental impacts of applied technologies and identification of potential hot spots. New monitoring tools are employed such as passive ambient air POP samplers based on the polyurethane foam as a sorption medium. This type of sampler was developed in the co-operation with Environment Canada and Lancaster University and represents very promising tool for POPs monitoring and determination. It has been used for development of the model passive POP monitoring network in the Czech Republic.

Starting in 2005 passive air samplers have been employed to develop the long term monitoring network in Central and Eastern Europe. Polyurethane foam passive samplers were applied in 50 sites in the Czech

Republic in 2005, a first phase of the pilot study in the Central and Eastern European countries was performed in Estonia (5 sampling sites), Latvia (5), Lithuania (5), Slovakia (11), Romania (15), and Serbia (7) in 2006. Second phase is planned on 2007 – Armenia, Poland, Hungary, Slovenia, Croatia, Montenegro, Macedonia, Bulgaria, Moldova – the number of sites will be specified in March, 2007.

RECETOX and Central and Eastern European POPs Centre have organized together with the Secretariat of the Stockholm Convention the 1st Meeting of the Technical Working Group on Effectiveness Evaluation (09-12 October, 2006, Brno, CR).

RECETOX/CEEPOPsCTR is a very active participant in the BAT/BEP Expert group. In co-operation with the Secretariat of the SC it organized the Regional workshop to raise awareness on the revised draft Guidelines on Best Available Techniques and Best Environmental Practices in Brno (02-04 October, 2006).

RECETOX gained an experience in coordination of international scientific activities in the frames of 5th Framework Programme APOPSBAL where it was a manager and coordinator of the joint project of Czech Republic, Slovenia, Croatia, Serbia, Bosnia and Herzegovina, as well as in frames of 5th Framework Programme Centre of Excellence focused on scientific networking in European region.

Professional training in the field of environmental analytical chemistry was provided to the scientists from Armenia (activity supported by the Czech Government) and Serbia (part of the APOPSBAL project). Post docs and Ph.D. students from Bulgaria and Belarus are a part of the RECETOX team. Annual summer school attracts the international students from many countries including the Southern and Eastern Europe.

Professional training in the field of environmental analytical chemistry provided to the scientists from Armenia (activity supported by the Czech Government) and Serbia (part of the APOPSBAL project).

RECETOX Centre was awarded a title of EU Research Centre of Excellence in Environmental Chemistry and Ecotoxicology. Centre was/is a principal investigator of 8 international (UNEP Chemicals, UNIDO, EC, USA, Canada, Belgium, Norway) and more than 40 national grants and projects since 1990, predominantly concerning the topics suggested in this research plan.

Regionally Based Assessment of Persistent Toxic Substance - European Regional Report. UNEP Chemicals. Project GF/CP/4030-00-20, subproject: GF/XG/4030-00-86, 2001 – 2002.

Project GF/CEH/01/003: Enabling activities to facilitate early action in the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs Convention) in Czech Republic. 2002 – 2004.

EC DG Research 5th Framework Programme - Centre of Excellence for Environmental Chemistry and Ecotoxicology, 2002-2005.

EC DG Research 5th Framework Programme – Project APOPSBAL - Assessment of the selected POPs (PCBs, PCDDs/Fs, OCPs) in the atmosphere and water ecosystems from the waste materials generated by warfare in former Yugoslavia, 2002 – 2005.

EC DG Research 6th Framework Programme – Project ECODIS - Dynamic Sensing of Chemical Pollution Disasters and Predictive Modelling of their Spread and Ecological Impact” with acronym “”.

Polar Programme Norway - Expedition Svalborg - The Photochemistry of PBT Compounds in Ice, 2001 – 2002

Project Account No:SC/4030-06-01 - Measurements of POPs concentration in ambient air in two UN regions: Africa and Central and Eastern Europe, 2007 – 2008.

RECETOX Centre is located in the new campus of Masaryk University in Brno. Centre with its activities occupies some 2 500 m², part of which is 1 000 m² of reconstructed and recently equipped laboratories including trace analytical labs as well as process labs and educational facilities. RECETOX uses the background observatory of the Czech Hydrometeorological Institute in Kosetice for the POPs monitoring and field experiments.

Basic equipment of RECETOX laboratories is used in experimental activities including the research on the fate of organic pollutants in environment, toxicity mechanism studies, environmental chemistry, and ecotoxicology. There are laboratories for extraction and fractionation of environmental samples (Büchi

automatic extractor, SFE extractor, gel permeation chromatography), and for chromatography and mass spectroscopy (GC-MS Agilent - EI and CI, GCQ Finnigan, GC-ECD/FID and GC-FID/NPD Hewlett-Packard, LC-MS Agilent Triple Quad, HPLC-DAD and HPLC-FLD/DAD Hewlett-Packard, ICP-MS Agilent), sophisticated air sampling equipment (high volume air samplers Graseby Anderson, Smyrna, USA, and multifunctional air samplers URG, Chapel Hill, USA) is available as well as organic carbon analyzer. Photochemical degradation laboratory equipped with cryostats, deep freezing boxes, photochemical reactors, and solar simulator serves for the photochemical transformation studies. Experimental systems for simulation of various environmental processes (volatilization, sorption, partitioning) are available.

Ecotoxicology laboratories are equipped with incubation air-conditioned rooms for soil as well as aquatic research (flow-through systems), various types of incubators and shakers, AURA flow-boxes for sterile handling of biological material and CO₂ incubators for cell cultures, microscopes, microplate Thermo Luminoskan Ascent luminometer with injectors, UV-VIS spectrophotometer VARIAN, fluorometer Polarstar optima - BMG Labtech and spectrophotometer BioTek – PowerWave, equipment for PCR and quantitative real time PCR (RotorGene RG3000A), electrophoretic and blotting equipment OWL, processing instruments such as lyophilizers (Heto Power Dry and CHRIST), speed vacuum evaporator (Heto DNA Mini), autoclaves etc.

The RECETOX division of the environmental informatics and modelling is equipped with wide range of mathematical and statistical software (SPSS, Statistica, SAS, ArcGIS, GRASS GIS, R-language, Matlab, Maple) for the data analysis and modelling as well as with background for the database, software, GIS and information systems development (ORACLE, MS SQL, XML, JAVA, C++, PHP). The risk assessment division is using own database aid in assessment of potential human health and environmental risks (RISK_BASE_2007) and software (Risk Assistant TM, Smart Risk, Crystal Ball, ArcGIS). Centre possesses all hardware and software needed for this kind of activities, and uses own information server <http://recetox.muni.cz> for the presentation of its activities. It will be used for the presentation of all activities of the project activities.

All listed facilities, instrumentation and equipment will be used for training courses, summer schools, workshops and other activities serving the purpose of know-how and technology transfer free of charge. No additional equipment is needed for successful completing of proposed project.

Research and development activities of RECETOX (including personnel, equipment, consumables, dissemination costs) are covered from national and international sources, both public (Czech ministry of education, Czech Ministry of Environment, Czech Science Foundation, FP6) and private (industrial sources). Own resources of RECETOX will be used to support activities of several work packages of the proposed RECETOX BRIDGE project. Pilot air monitoring campaigns in CEE countries (sampling equipment, analytical work, data interpretation) will be supported from the financial resources coming from private industrial and remediation companies as a contribution to the monitoring efforts of RECETOX. Similarly, development of the GENESIS expert system, databases and software will be a contribution of RECETOX to the success of the project. Furthermore, a capacity of employees of Masaryk University Brno (RECETOX and IBA) will be partially used for teaching the summer school classes, leading the training courses, supervising the exchange programs, participating in the workshops and other activities related to the transfer of know-how and technology of Masaryk University.