



Finalists 2010

Stockholm Junior Water Prize

Argentina, Australia, Belarus, Canada, Chile, China, Finland, France, Germany, Ghana, Israel, Italy, Japan, Latvia, Mexico, Netherlands, Norway, Republic of Korea, Russian Federation, Singapore, Slovak Republic, South Africa, Spain, Sri Lanka, Sweden, Turkey, Ukraine, United Kingdom, United States and Vietnam



The Stockholm Junior Water Prize

The international Stockholm Junior Water Prize brings together bright young scientists from around the world to encourage their continued interest in water issues that connect human and environmental health and sustainable development.

In its 14th year, the Stockholm Junior Water Prize has inspired thousands of young people around the world to develop personal interests, undertake academic study, and often pursue careers in the water or environmental fields. This year, 8,000 pre-university people between 15 and 20 years of age entered into national Stockholm Junior Water Prize competitions in 31 countries. The finalists at the international Final in Stockholm are the winners of the national competition. During their time in Stockholm, the international finalists receive an opportunity to participate at the World Water Week in Stockholm, where they can meet and learn from the present leaders of the global water community and make life-long friendships with international compatriots who share a passion for water and science.

The prize includes a USD 5,000 award, and a custom-made blue crystal sculpture crafted by Swedish glass artisans. The Stockholm International Water Institute (SIWI) administers the competition, which is sponsored globally by ITT Corporation.



H.R.H. Crown Princess Victoria of Sweden is the Patron of the Stockholm Junior Water Prize, here with the winner of 2008 Stockholm Junior Water Prize, Joyce Chai, USA.

Photo: Exray



Photo: SIWI

The International Jury

The International Jury includes experts within the field of water who, by committee consensus, appoint the winner of the international contest. The decision is based on the written report and a short presentation of the display material. The Stockholm Water Foundation Board appoints the Jury members.

2010 International Jury members are:

Dr. Magnus Enell (Chair), Sweden; Mr. Björn von Euler, USA; Ms. Charlotte de Fraiture, Ghana; Ms. Linda Kelly, USA; Dr. Piet Lens, Netherlands; Ms. Susana Sandoz, Bolivia; Dr. Fredrik Moberg, Sweden; Mr. Alex Simalabwi, Sweden and Ms. Helene Brinkenfeldt (Secretary), SIWI, Sweden.

ARGENTINA

H2: Drinking Water, Energy and Ecology

By Mr. Ruben Alejandro Vedia

Given the scarcity of both drinking water sources and fossil fuels, and the pollution associated with fuel production, it is necessary to find economical and clean alternatives to produce potable water and energy while minimising pollution at the same time. To this end, the contestant's experimental laboratory tests mixing unusable wastewater and sea water in hydrogen production revealed new possibilities for producing clean, non-fossil fuels, reducing pollution and improving water quality obtained from sources currently unused.

National Organiser and sponsors: Aidis Argentina, AYSA, ENOHS, Sudamericana de Aguas, ITT Flygt, Aguas de Santiago, Aguas Santafesinas, Aguas Cordobesas, EPAS, Agua de los Andes, Agencia de Proteccion Ambiental de la CABA, ERM, Ecopreneur and Enersystem

AUSTRALIA

Artificial Wetlands: Recycling Household Greywater

By Ms. Stephanie Reed

In Australia, there has been encouragement to reuse greywater for non-potable purposes. However, the quality of this water can be of concern. The entry investigates the viability of using artificial wetlands to treat household greywater before reuse. Research was undertaken and models developed with overall findings indicating that the use of artificial wetlands may be a feasible solution to the environmental issues associated with the reuse of greywater.

National Organiser and Sponsors: ITT Water and Wastewater, Allconnex and SA Water (Government of South Australia).

BELARUS

The Usage of Phytoplankton for Testing Water Quality

By Ms. Krystsina Miadzvedzeva

Pollution of rivers due to human activity is increasing every day. Surface water is used for drinking and other purposes. This is why it is necessary to know the quality of water used. The contestant's project represents a method for testing water quality based on information about the phytoplankton





community. The method is adapted for the use of pupils in schools. It doesn't require complex equipment. The validity of the method was verified through wide field researches.

National Organiser and Sponsors: Republican Ecological Educational Center FE and Coca-Cola Beverages Belorussia

CANADA

Novel Biodegradation of Polystyrene

By Mr. Alexandre Allard and Mr. Danny Luong

Polystyrene (EPS) is an environmental problem threatening marine life and water quality. Studies show that EPS can leach toxics such as styrene and bisphenol A into water. A novel biotechnical method was developed to biodegrade EPS. Three strains of microbes were processed for adaptation to EPS. The 3 strains were able to biodegrade 69.5% of the EPS mass in 2 weeks by producing enzymes and biosurfactants. This novel method could be applied to reduce the amount of EPS in waters.

National Organiser and Sponsors: Atlantic Canada Water Works Association, RÉSEAU Environnement – Quebec, Water Environment Association of Ontario, Western Canada Water Environment Association, British Columbia Water and Wastewater Association, Canadian Water and Wastewater Association and ITT Water & Wastewater, Canada

CHILE

Aquaponics: An Integrated Biosystem

By Mr. Nicolas Ignacio Aedo Gallegos and Mr. Victor Moran Ojeda

Aquaponics is the symbiotic cultivation of plants and aquatic animals in a recirculating environment, where plants take up water nutrients, reducing the water's toxicity for the aquatic animal. Based on this method, the contestant recreated an integrated biosystem where fish and plants (i.e. lettuce) grow and feed together, as organic and nitrogen metabolic waste from fish was oxidized in a biofilter. This encouraged plant growth and contributed to the overall health of fish by reducing the need for replacement water.

National Organiser and Sponsors: Chilean Chapter of the International Hidrological Programme, National Water Efficiency from the General Water Directorate, Homecenter Sodimac, Aguas Andinas, Nestle, Colbun, Duschy, AIDIS, ALHSUD and SOCHID

CHINA

Novel Soil Remediation Technology for South China

By Ms. Yingxin Li, Mr. Zhaonan Yang and Ms. Wanling Chen

The excess use of fertilisers causes eutrophication of water bodies. The release of substances and energy is regarded as the focus of this study, which improved the soil carbon-nitrogen ratio as microbes proliferated and humus accumulated in the test area. The soil structure reinvention matrix was developed by using the bagasse, cellulose bacterium and azotobacter. Field applications have shown a significant decrease in fertiliser loss and pollution in the water.

National Organiser and Sponsor: ITT China

FINLAND

Analysis of Orthophosphate Concentration in Seawater at Espoonlahti Bay

By Ms. Venla Ruohonen

An entire aquatic ecosystem may perish because of eutrophication caused by phosphates. The phosphates are present in the bottom sediment of the water body. The rate at which they are released depend on the amount of oxygen in the water. Thus, it can be hypothesised that the phosphate concentration increases with water depth. The purpose of this essay was to investigate by spectrophotometric analysis the effect of depth on the phosphate concentration of sea water. The results did not show correlation between the depth and phosphate concentration.

National Organiser and Sponsors: Water Association Finland, The Land and Water Technology Foundation Finland, Kemira Ltd., Ekokem Ltd., HSY Water and Uponor Finland Ltd



Photo: Rebecca Löfgren, SIWI



FRANCE

“Batikeco” – Development of Treatment Device for Dyeing Workshops in Burkina Faso

By Ms. Justine Abisai, Mr. Maxime Blettner and Ms. Hélène Walach

For the past 15 years, Louis Vincent High School in France has been engaged in an educational partnership with the High School of Yako in Burkina Faso. To widen this partnership, the contestants developed a treatment system for effluents from batik dyeing – a possible source of pollution in Yako. Within the framework of a scientific workshop, they compared various treatment methods. They chose the most suited technology and developed a treatment device to be set up in Yako during 2011.

National Organiser and Sponsors: Ecology, Energy, Sustainable Development and Marine Department, ITT France, VEOLIA Water, Seine-Normandie Water Agency, Artois-Picardie Water Agency and Hydroplus

GERMANY

Developing a Device to Measure Cancer Causing Substances in Sediments

By Ms. Dagny Anna Ullmann and Ms. Gotja Schaffrath

The contestants invented an onsite-sampling device to measure cancer causing substances in marine sediments. The measurement method uses glass fibers with a silicone coating, which absorbs the contaminants. Compared to the common laboratory measuring methods, the device provided higher accuracy for measuring data, cut down the time frame and improved the total cost efficiency. From the results, conclusions can be drawn on how harmful substances are accumulated in the food chain.

National Organiser and Sponsors: Federal Ministry of Research and Education and ThyssenKrupp AG

GHANA

Encouraging Local Actions for Improving Water and Sanitation in the Nyameso Community

By Mr. Theophilus Sagoe and Mr. Raymond Bentum

The project involved educating and raising the awareness of the Nyameso community to take up local actions to improve their environment and to design a water treatment plant using local materials for the use of the community (of 1,600 inhabitants). This addressed issues of environmental sustainability and improved the community's health. It also diversified options for water supply to rural communities. Tests show that the plant can achieve 100% removal of *E. coli* and total coliforms though further treatment is required to remove ions.

National Organiser and sponsors: Ministry of Water Resources, Works and Housing, Ghana IRC International Water and Sanitation Centre, West Africa Programme, UNICEF, Ghana and Rapha Development Institute



ISRAEL

"Aquastop" – A Device for Detecting and Discontinuing Leakage in Water Supply Systems

By Mr. Nerya Stroh and Mr. Gal Oren

The team from Israel has developed system to analyse the consumer's average water consumption over a learning period of time. Subsequently, if a great deviation is identified, it alerts the consumer and gradually disconnects flow. Alternatively, the diagnostic is an unusually prolonged period of steady consumption. Data can be sent to a nearby computer by wireless communication.

National Organiser and Sponsors: The Iby and Aladar Fleischman Faculty of Engineering, Tel Aviv University, The Mellanox Company, Manuel and Raquel Klachky Fund and Water Authority

ITALY

Water for Life – Recreating the Natural Water Cycle for Desalination

By Mr. Massimo Costantino, Mr. Granit Feneri and Mr. Andrea Rabbolini

This project aimed to build a desalination plant with low energy impact to counter the lack of drinking water. It was designed to recreate the natural cycle in a machine called “della'acqua” by recovering the condensate. After the initial survey Peltier cells were introduced to increase production.

National Organiser and Sponsors: Aica, Foist, Sol Group, Miur Patronages of: President of Republic, President of Government, Minister for Youth, Minister of the European Politics, Minister for Education, Research and the University, Milan Municipality, Province of Milan, Anipla, CusMiBio, Inaf, Milset Europe, National Museum of Science and Technology and Science and Society for Public



Photo: Jan Lundqvist, SIWI

JAPAN

Bioremediation to Eradicate Water Hyacinth

By Ms. Nana Goshima, Mr. Keisuke Suzuki and Mr. Shubei Takahashi

Water Hyacinth known as “Blue Devil,” has been reported to cause various adverse effects on aquatic ecosystems. This investigation indicates that dissolved oxygen is rapidly consumed by heterotrophic bacteria using dissolved organic matter with amino acids eluted from the water hyacinth and nitrate is released. It also reveals that gel carriers using aboriginal denitrification rhodobacter isolated from the water hyacinth dominated area can remove nitrogen and eradicate the “Blue Devil.”

National Organiser and Sponsors: Lion Corporation, CTI Engineering Co., Ltd., Nippon Koei Co., Ltd., Pacific Consultants Co., Ltd., Tokyo Construction Consultants Co., Ltd., Japan Federation of Construction Contractors Inc. and Executive Committee of River Day

LATVIA

The Quality of Water in the "Getlini" Refuse Site Surroundings

By Ms. Polina Arbusova and Mr. Andrejs Cesnokovs

In this work the contestants researched how the Baltics' largest refuse site affects the quality of water in nearby reservoirs, which are used by the inhabitants of the surrounding settlements. During the research, they examined samples of water taken from various reservoirs situated near Getlini. Examining the samples, they applied a variety of analytical methods, including spectrophotometry, titration, complexometric titration, gravimetry and others.

National Organiser and Sponsors: SIA "Rigas udens" and Education Culture and Sports Department of Riga City Council



Photo: SXC

MEXICO

Using Human Hair to Separate Lead from Contaminated Water

By José Juan Estrada-Serra

The objective of this project was to remove lead from untreated waste water using human hair. First, 10 ml of lead acetate solution (0.1%) was added to 7 g of human hair and left to react for 24 hours. In the second stage, the lead acetate was replaced by UWW and worked under the same condition. The content of lead was measured using potassium iodide (KI). It was concluded that the lead is retained in the proteins that make up human hair.

National Organisers and Sponsors: Academia Mexicana de Ciencias, la Embajada de Suecia en México, la Academia Mexicana de Ciencias, el Instituto Mexicano de la Juventud, la Comisión Nacional del Agua, la Universidad Nacional Autónoma de México, la Secretaría de Obras y Servicios del Gobierno del Distrito Federal, el Colegio de Ingenieros Ambientales de México, la Cámara de Comercio Sueco Mexicana, Alfa Laval S.A. de C.V., Ericsson Telecom S.A de C.V., Fundación Cola Cola, Grupo Urrea, ITT Water & Wastewater México, S. de R.L. de C.V., Kemira de México S.A., Sandvik de México S.A. de C.V. and Tetra Pak S.A. de C.V.

NETHERLANDS

Disinfection of Water by Ozone Radicals

By Ms. Lianne Siemensma, Mr. Wouter van der Wal and Ms. Evelien van Zwol

Many people become ill by drinking contaminated water, or by transporting water in contaminated jerry cans. This research compares three different methods to disinfect water, using radical particles from hydrogen peroxide, chlorine and ozone. The project team also developed a water pump that adds radical particles to drinking water, taking into account not only technical aspects, but also social, financial and economic aspects.

National Organiser and Sponsors: Netherlands Water Partnership, Ministry of Transport, Public Works and Water Management, NWP, Plan Nederland and Partners for Water

NORWAY

Changing Nutrient Combinations at Skeisvatnet Lake During Fall Turnover

By Ms. Vibeke Aas and Ms. Ingunn Gjærde

Seasonal changes are important for the maintenance of the biological diversity of a lake. During the fall, changes occur in lakes in terms of temperature and substance composition/combinations. The contestants studied these annual changes in the Skeisvatnet Lake during fall 2009. The temperatures measured and the collected data showed substantial changes in the nutrient combinations in the water at different depths of the lake.

National Organiser and Sponsors: Norsk Hydrologiråd, Norsk Vannforening, VA-yngre, Krüger Kaldnes, Bkk, Statkraft, NVE and Godt Vann Drammensregionen

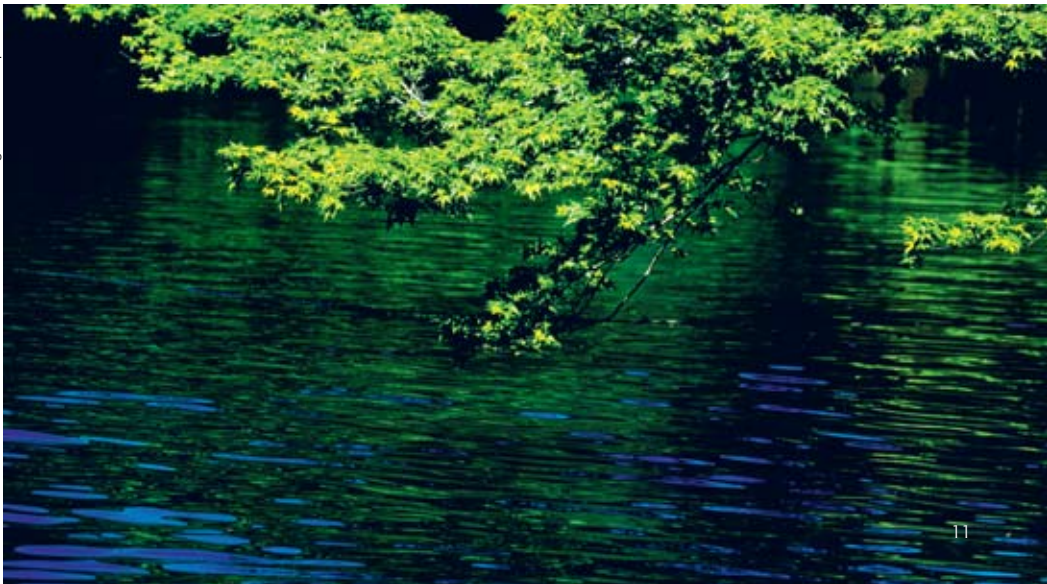




Photo: Vaughan Willis

REPUBLIC OF KOREA

Producing Energy with Household Wastewater

By Mr. Min Choi and Ms. Harry Kim

While looking at the flow of wastewater through a sewage system in household sinks, the contestants thought it was a waste of resources to let the water flow out. Instead, they captured the energy in the wastewater flow with a Kelvin dropper – an electrostatic generator using water drops. The Kelvin dropper was connected to the sink so that the wastewater can be used to generate electricity.

National Organiser and Sponsors: Woongjin Coway. Co., Ltd, Ministry of Public Administration and Security, Ministry of Land, Transport and Maritime Affairs, Ministry of Environment and Korea University

RUSSIAN FEDERATION

Recovery and Utilization of Water Waste at Tomsk Water Intake

By Ms. Ksenia Stankevich

The contestants tried to identify a rational solution for the recovery of iron-containing sediment from effluents of rapid treatment filters at the Tomsk water intake, as well as a method to best utilise this waste. The greatest reduction of turbidity and iron content was observed after application of an electric flotation and coagulation method which uses an using electric chemical device with variable frequency. They also uncovered possibilities for the utilisation of iron-containing sediments as a raw material for the preparation process.

National Organiser and Sponsors: Environmental Projects Consulting Institute, Coca-Cola Hellenic in Russia, Matra/KAP Foundation and Ministry of Natural Resources and Ecology of the Russian Federation

SINGAPORE

Cleaner Water in Urban Areas by Aquatic Plants

By Ms. Kai Hui Lim, Ms. Zhen Jia Low and Ms. Hui Ling Jane Tan

The project team investigated the phytoremediation potential of ten aquatic plants in remediating N and P and their application in cleansing Singapore's waterways. The investigation involved experimental studies under controlled greenhouse conditions as well as an application study on a local tropical waterbody. The study revealed that, for tropical regions, TKN and TN may be more appropriate water quality parameters as compared to nitrate level as the standard adopted parameter.

National Organiser and Sponsors: Ngee Ann Polytechnic, Lien Foundation and PUB, Singapore's National Water Agency

SLOVAK REPUBLIC

The Impact of Organic Pollution from Nitra River Tributary

By Ms. Silvia Hnátová

The aim of this project was to determine the impact of organic pollution from the Nitra River on the diversity of ciliates in the Chotina, a tributary of the Nitra. Experiments included adding boiled water from the Nitra into unboiled water from the Chotina. In these experiments, the impact of pollution on the diversity of ciliates in the Chotina was observed: organic pollution from the Nitra caused a decrease in the diversity of ciliates and killed species less tolerant to organic pollutants.

National Organiser and Sponsors: Bratislava Water Company, Slovak Research and Development Agency, Ministry of Education, Institute of Hydrology of the Slovak Academy of Sciences, Comenius University in Bratislava, Slovak Water Research Institute, Bratislava and Slovak Hydro-Meteorological Institute



Photo: Antonio Jiménez-Alonso

SOUTH AFRICA

Solar Powered Waste Water Management System

By Mr. Mduduzi Dlamini and Ms. Nomfundo Zondi

The project aimed at constructing a system for purifying grey-water from school taps to secure water supply. The high water and electricity bills at schools in Imbali township has on some occasions lead to the municipality cutting water supply. The system is made up of low cost and recyclable material. Renewable energy is used for purification, sterilisation and distillation of the grey-water collected from the school taps. Water quality results are positive with low levels of *E. coli*. The system can be ideal for rural areas and purification plants.

National Organiser and Sponsors: Water Research Commission, Cape Town University of Technology and University of Kwa-Zulu-Natal

SPAIN

Room Temperature Regulation by Water Chamber Windows

By Ms. Ana Esteban Baloira and Ms. Uxia Fernandez Bustillo

The objective of this project was to find a method by which the temperature of a room in a house might be controlled using coloured water inside double-glazed windows. Depending on the outside temperature, the degree of insulation and the dye used in the circuit, the comfort of the room will be modified depending on the needs and requirement

National Organiser and Sponsors: Kemira Ibérica, S.A. and Fundación Agbar

SRI LANKA

Cost Effective Defluoridation using Nano Materials

By Mr. W.M Eranga Buwaneka Warsakoon, Mr. M.R.M Nuwan Menaka Gunawardana and Mr. K.P Hasitha Sahab Kalaha

In most areas of the Dry Zone of Sri Lanka, fluoride (F) levels in groundwater exceed 1mg/l. This research introduced a novel cost effective methodology to provide water with F levels less than to 0.5 mg/l. In this research, F reduction capacities of Layered Double Hydroxide (LDH) was investigated with some other materials. The experimental results show that LDH is the most efficient F reduction material and shows that it can provide F reduced water at a rate of 0.018US\$/l.

National Organisers and Sponsors: ITT Corporation and ISB Environmental Services



SWEDEN

Gambling with the Baltic Sea

By Ms. Joanna Blossner, Ms. Miranda Wiklund Melander and Ms. Anna Lindbäck

Gambling with the Baltic Sea is a simulation, where the players play the different roles of stakeholders around the Baltic Sea. The role play builds an understanding of how different actions affect the ocean. The simulation is supposed to be a fun introduction to Baltic Sea studies, something that is missing today. The Baltic Sea is a unique water body, and its two largest problems are eutrophication and unsustainable fishing. About 85 million people depend on the Baltic Sea and it plays an important role for the region.

National Organiser and Sponsors: ITT Water & Wastewater, Schwartz Communications, Svenskt Vatten, Tyréns AB, Urban Water, SYVAB, Luleå kommun, Scandic, Trosa Tryckeri and Skansen-Akvariet

TURKEY

Removal of Radioactive Uranile Ions from Water via Pan Nanofibers

By Mr. Ahmet Fatih Arslan, Mr. Hakan Kaçar and Mr. İlgin Özbaş

Uranile ion is one of the ions threatening public health. The aim of this project was to remove uranile ions from waste waters via electrospun PAN-oxime nanofibers. The most important advantage of using nanofibers is that nanofibers have a huge surface area. The results of this research indicated that electrospun PAN-oxime nanofibers can be used as an efficient adsorbent to remove uranile ions from waste waters.

National Organiser and Sponsors: General Directorate of State Hydraulic Works of Turkey and International Hydrological Relations Office



UKRAINE

The Project of Micro Power Station with Low-speeded Hydrodynamic Turbine

By Ms. Mariya Mulyarchuk

One of the most promising sources of alternative energy is hydro energy. The aim of the project is to try to develop a micro power plant (MPP) to produce energy in rivers with low flow rates, and to use the hydro energetic resources of Ukraine. The project reintroduced the idea of a self-regulated turbine system with moving blades instead of kinetic devices transforming kinetic energy with fixed blades.

National Organiser and Sponsors: Company DOW Europe and Publishing House Ekoinform

UNITED KINGDOM

Protecting Property – DRY FLOOD

By Mr. Simon Crowther

This project was inspired by the flooding of the contestant's house in the summer of 2007. The aim of this project was to engineer a solution to a problem faced by millions, making an automated electric flood barrier to automatically sense rising water levels, and rise to defend a property. Although the project is only a scale model built from acrylic, it does show an insight into much needed flood prevention.

National Organiser and Sponsors: The Chartered Institution for Water and Environmental Management



Photo: Getty Images

UNITED STATES

Rapid Detection of Viable *E. coli*

By Ms. Rebecca Ye

An immunoassay using a quartz crystal microbalance (QCM) sensor as a platform was developed and optimised for rapid detection of viable *E. coli* O157:H7. QCM is a piezoelectric sensor capable of detecting the deposition of mass on its surface as a result of sandwich immunoassay involving first antibody, bacteria, and second antibody conjugated with gold nanoparticles. The method is highly sensitive, specific and rapid; it has excellent potential for rapid coliform detection in water.

National Organiser and Sponsors: Water Environment Federation, ITT, Delta and Coca-Cola

VIETNAM

Developing a Funny Scientific Story to Raise Awareness on Protecting Water

By Ms. Linh Do Ngoc and Ms. Tra Ma Thi Thuy

Studying the reading and learning process and environmental awareness of students, the contestant developed a funny scientific story on the topic of water resources. Images of water drops were used for a story suitable for kids to learn the importance of water, the water cycle in nature, and the impacts of pollutants and climate change on water. The story has a happy ending: a bright future awaits water drops, thanks to the effort of students.

National Organiser and Sponsors: Vietnam Association for Conservation of Nature and Environment, Canon Singapore Pte Ltd - representative office in Vietnam and Vietnam Environment Administration



Photo: Exray

Stockholm Junior Water Prize Finalists, 2009.

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How can we ensure resources for future generations?

Think about ITT.

Sixteen years ago, ITT and the Stockholm International Water Institute initiated the Stockholm Junior Water Prize competition. Tens of thousands of students, teachers, scientists and water professionals around the world have been involved in this competition. Since its inception they have demonstrated creativity and power to drive change. Most importantly, they have improved people's daily lives and bettered the environment by challenging established solutions and finding new ways to provide safe water and sanitation globally.

To see how the ITT Watermark program is making a difference, please visit www.ittwatermark.com

To learn more about ITT's commitment to a more sustainable future, please visit www.ittfluidbusiness.com


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Stockholm Junior Water Prize Winners

2009

Ceren Burçak Dag, Turkey, for the project "A solution to energy-based water contamination: rain as an alternative environmentally friendly energy source".

2008

Joyce Chai, USA, for the project "Modelling the toxic effects of silver nanoparticles under varying environmental conditions".

2007

Adriana Alcántara Ruiz, Dalia Graciela Díaz Gómez and Carlos Hernández Mejía, Mexico, for the project "Elimination of Pb(II) from water via bio-adsorption using eggshells".

2006

Wang Hao, Xiao Yi and Weng Jie, China, for the project "Application research and practice of a comprehensive technology for restoring urban river channels ecologically".

2005

Pontso Moletsane, Motebele Moshodi and Sechaba Ramabenyane, South Africa, for the project "Nocturnal hydro minimiser".

2004

Tsutomu Kawahira, Daisuke Sunakawa and Kaori Yamaguti, Japan, for the project "The organic fertilizer – an alternative to commercial fertilizers".

2003

Claire Reid, South Africa, for the project "Water Wise Reel Gardening".

2002

Katherine Holt, USA, for the project "Cleaning the Chesapeake Bay with oysters".

2001

Magnus Isacson, Johan Nilvebrant and Rasmus Öman, Sweden, for the project "Removal of metal ions from leachate".

2000

Ashley Mulroy, USA, for the project "Correlating residual antibiotic contamination in public water to the drug resistance of *Escherichia coli*".

1999

Rosa Lozano, Elisabeth Pozo and Rocío Ruiz, Spain, for the project "Echinoderms as biological indicators of water quality in the Alborán Sea coast".

1998

Robert Franke, Germany, for the project "the Aquakat – a solar-driven reactor for the decontamination of industrial wastewater".

1997

Stephen Tinnin, USA, for the project "Changes in development, sperm activity and reproduction across a 105 exposure range in *Lytechinus variegatus* Gametes exposed to pesticides in marine media".



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