



Institute of Technology

Ciência sem Fronteiras / Science Without Borders

Postgraduate Project Template

Institution:	Institute of Technology, Sligo
Title of Postgraduate Opportunity: (include level of study)	M.Sc. in Environmental Science (leading to PhD) Potential of SRC willow for remediation of landfill leachate'
PI Name & Contact Details:	Dr. Ann Marie Duddy Duddy.ann-marie@itsligo.ie 071 91 55358
Department/School:	Environmental Science/Science
Research Centre /Group:	Centre for Sustainability, Research Department, I.T. Sligo
Research Centre/Group website:	www.itsligo.ie
Brief Summary of PI research / research group /centre activity	
<p>The PI has a background in wastewater remediation and has worked/lectured in this area for over 20 years. The PI is currently involved in large scale bioremediation projects involving the use of Short Rotation Coppice Willow for the treatment of wastewater and agricultural effluents. In the course of this work the PI has forged strong links with investigators in cognate areas in Ireland, United Kingdom and Sweden. The PI has also worked with other natural resources of mineral origin for remediation of effluents.</p>	
Brief Description of Masters or PhD Project	
<p>Title of the project is ' Potential of SRC willow for remediation of landfill leachate'</p> <p>This investigation involves the use of Short Rotation Coppice willow to remediate leachate originating from a closed landfill facility. The willow trees (which are planted in a soil medium in contained sites within the landfill facility) will be irrigated with various quantities of leachate and the remediation potential will be assessed over a number of years by analysing the influent and effluent concentrations of key polluting parameters present in leachate. Potential impacts on soil quality will also be investigated by monitoring the physical, chemical and biological characteristics of the planted soil.</p>	
Key Attributes of Project for Brazilian Postgraduate Students	
<p>This project would offer the student a transferable skill-set in the bioremediation of a polluted environmental medium using a naturally occurring resource. The bioremediation of polluted environments using natural resources is desirable, particularly when the natural resources can also be used as an energy source. In this project the student will specifically learn how to characterise a polluted environmental medium, to investigate the remediation potential of SRC willow and to</p>	

monitor the impacts of the treatment process on soil quality.

The use of SRC willow to remediate wastewaters from municipal wastewater treatment plants and from agricultural sources is currently being investigated under a European Union Interreg IVa funded programme known as the ANSWER project (Agriculture Needs for Sustainable Willow Effluent Recycling). In this project the PI from Institute of Technology, Sligo is involved with a number of other organisations (Agri-Food and BioSciences Institute, Northern Ireland, Teagasc, Republic of Ireland, Donegal & Monaghan County Councils, Republic of Ireland and South West College, Northern Ireland). This project grouping has a wealth of expertise in the use of naturally occurring resources for bioremediation purposes and the project student will have direct access to these links.

Name and contact details for project queries, if different from PI named above:

As above

Please indicate graduate disciplines which are eligible for application:

B.Sc. Environmental Science; B.Sc in Sustainability; B.Sc. Analytical Chemistry; B.Sc. Analytical Science;

Alignment with Science Without Borders Priority Areas:

Engineering and other technological areas	
Pure and Natural Sciences (e.g. mathematics, physics, chemistry)	
Health and Biomedical Sciences	
Information and Communication Technologies (ICTs)	
Aerospace	
Pharmaceuticals	
Sustainable Agricultural Production	✓
Green Chemistry	
Oil, Gas and Coal	
Renewable Energy	
Minerals	
Biotechnology	
Nanotechnology and New Materials	
Climate Change	
Biodiversity and Bioprospection	
Marine Sciences	
Productive Inclusion and Social Technologies	
Housing and Sanitation	