



In Partial Fulfillment of the Requirements for the Degree of

**Doctor of Philosophy**  
**Gustavo Leopoldo Garduno Angeles**

Will defend his dissertation

**Sustainable Water Management in Ciudad Juarez**

**Abstract**

Water resources are subject to increasing stress because of the interacting effects of population growth, economic development, climate variability, climate change, and ecosystem protection. However, water scarcity is driven by poor water management rather than physical availability. The United States-Mexican border provides an example of poor water management and increasing stress of water resources.

In particular, Ciudad Juarez, Chihuahua, has attracted foreign investment during the last few decades due to relatively low costs. This has led to economic and population growth, but also to higher demand for public services which leads to congestion and scarcity. In particular, water resources have become more scarce and, therefore, the costs to meet the water demand have increased.

It is claimed in this dissertation that this will cause the comparative advantage of Ciudad Juarez to decline to the point where foreign investment stops. At this point the economy could end with positive or zero levels of capital and employment. Hence, the problem for Ciudad Juarez is to implement a water management regime that maximizes the social welfare given that in the long run the economy reaches positive levels of employment and capital. This constraint is a sustainability constraint.

It is shown that Ciudad Juarez can achieve an efficient and sustainable water management.

Wednesday, April 20, 2011

11:00 AM

GIOS 401

Faculty, students, and the general public are invited.

Supervisory Committee:  
Dr. Charles Perrings (Chair)  
Dr. Rimjim Aggarwal (Member)  
Dr. Jim Holway (Member)