

# Water, Life and Civilisation Programme: Development Studies Sub-Project

## Draft Implementation Plan

### Aim

The aim of this Sub-Project of the *Water, Life and Civilisation Programme* is to examine the contemporary development-oriented implications of the complex interplay between human activities and planning on the one hand and the climatic and hydrological regimes that characterize the region on the other.

The Sub-Project will thereby place a strong emphasis on policy recommendations and imperatives in the light of the climate and hydrological predications derived from Sub-Projects 1 and 2 of the Programme Proposal, dealing with climate and hydrological models and predictions respectively.

The provision of such high resolution environmental data and predictions as an integral part of the examination of the use of scarce water resources in the fields of agriculture, tourism, industry and domestic use, will render this a potentially groundbreaking project in the field of environment-development interactions. In short, given likely changes in climate and hydrology, how likely is the achievement of sustainable patterns of development and change?

### Background: Development Studies

The United Nations Development Programme's *Human Development Report* categories Jordan as falling within the Medium Developmental category on the basis of the Human Development Index (HDI). Jordan records an HDI score of 0.714 and an HDI rank of 88<sup>th</sup> among world nations. In 2001, the Gross Domestic Product (GDP) of Jordan was \$US 3,955 *per capita*. In the same year, its combined primary, secondary and tertiary education enrolment level stood at 55 per cent (UNDP, 2001).

Given that in 1948 Trans-Jordan was a country of approximately 400,000 population, mostly poor Bedouin, it has in the interim period witnessed a considerable transformation. However, in common with other nations in the MENA region, present-day Jordan, with a population of 5.3 million in 2001, suffers high levels of unemployment, officially estimated at 15 per cent, but in all likelihood standing much nearer to 30 per cent in reality. Jordan has also had to accommodate massive numbers of refugees, currently registering 1.5 million, or 28.3 per cent, of the population. Jordan is also characterized by high levels of poverty, and just as saliently from the perspective of this project, what are often referred to as 'unpredictable climatic' circumstances.

Notwithstanding potash and phosphate mining, Jordan has relatively few natural resources with which to generate foreign currency via exports. Manufacturing activities include cement, beer, toys and matches. Tourism and agriculture are the other mainstays of the economy. Tourism now accounts for 10 per cent of GDP. In 2001 some 1.48 million visited Jordan, of whom 0.96 million or 64.87 per cent were visitors from other Arab states. In any region, the tourism industry is a major consumer of water resources.

Agriculture contributes 6-7 per cent of GDP and is concentrated in the Jordan Valley where irrigation schemes like those served by the King Abdullah Canal make cultivation possible. Indeed, 80 per cent of Jordan's agriculture is watered by irrigation, with just 20 per cent being rain-fed. However, while modern techniques involving plasticulture and greenhouses have served to increase productivity, water supplies are a major issue. In 2000, 2001 and 2002 the Government instructed farmers in the Jordan Valley not to plant summer crops and paid compensation for the loss of income. The challenge presented by such circumstances for given environmental predictions will form the principal focus of the Sub-Project.

It is salient that Jordan has over the years relied heavily on foreign aid and carries one of the highest foreign debts per capita in the world, currently standing at nearly 100 per cent of GDP. This partly reflects the rapid increase in population that has occurred in the post-war period and the associated need for infrastructural development. It is estimated that currently, some 30 per cent of Government expenditure is used to pay off this high level of indebtedness.

## **Project Implementation**

**(1) 1 January – 30 September 2005:** This will represent the preparatory stage of the Sub-Project. Activity will see the lead researchers undertake two visits to Jordan as part of the main project preparation:

(1a) Visit 1: will be to establish links with local scientists (for example, Professors Hasan Salameh Ramadan, Hassan A. K. Saleh and Harb A Hunatie of the University of Jordan), administrators and policy-makers (for example, at the Ministries of Water and Culture) and to overview domestic, municipal, industrial and agricultural demands for water resources. This will involve preliminary discussions with academics and policy-makers and reviews of published reports (for example, by the World Bank etc).

(1b) Visit 2: will take the form of a longer visit involving semi-structured interviews with key analysts, decision-makers and informants. These will be taped and *NUD-IST* (Non-numerical Unstructured Data – Indexing, Searching and Theorising) software used in their analysis. This will dovetail with field visits to identify possible locations for detailed research during the main part of the Sub-Project, the identification of researchable hypotheses and the formulation of detailed research plans. The second visit will also be a key period to establish durable links with the research community in both the agricultural and planning sectors, and to more fully understand the context within which policy decisions are being made.

**(2) 1 October 2005 to 30 September 2008:** This main part of the project will start with the appointment of the Postdoctoral Research Fellow (PDRF) and Postgraduate Student (PGRA). Both will undertake substantial periods of field research in Jordan while based at The University of Reading. During the main part of the project, the Lead Researchers will also make frequent field visits, generally of two weeks duration. (2a) It is envisaged that the PDRF will work specifically on the interactions between urban, industrial, agricultural and tourism developments in the context of water use and demand and supply, including the need to enhance the recycling and re-use of grey water and the development of a regionally-relevant framework to satisfy conflicting needs. The key approach will involve principles of sustainable water development under different hydrological and climatic models and predications. Semi-structured interviews and projective methods of social survey (for example, scenario depictions, personal construct theory and the repertory grid test along with associated multivariate methods of statistical analysis) will be evaluated for possible use as specific field techniques in evaluating social, cultural and political impediments to the adoption of change.

(2b) The PGRA will focus specifically on the potential for the reuse of water and biosolids as additions in agricultural production and regeneration. The focus of the research will be to identify and characterize the nature and function of contaminant pathways (in particular, with respect to metals) and the minimization of risks to humans and the environment. Analytical field approaches are likely to include Redox, TDS, conductivity and carbon fractionation.

## **Some Sources**

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- World Bank (2001) The Hashemite Kingdom of Jordan: Water Sector Review Update, World Bank: New York
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**Rob Potter and Stephen Nortcliff  
September 2004**