

التغير المناخي و البيئي

Climatic and environmental change



وجود نباتات مورقة مثلثة الشكل - نيل طير - ونباتات هلال القمر - آثار الحيوانات الثلاثة (3+2) يمكن أن يكون هذا أول علامة للتجمعات البشرية الحديثة المتسارعة، مختلفا عن ثقافة الكتابة القديمة كومي.

Northwest Sudan is a key area for the reconstruction of past climates and environments of the Sahara. Field evidence obtained during the last two decades indicates new detrital watercourses and lake deposits (1) that once covered large expanses of the present-day extreme desert. These sources of water were the basis for plant and animal life, and for early human occupation.

20,000 years ago, the Sudanese desert was much larger and even drier than today, covering half of the country and reaching about 400 km further south than today. About 11,000 years ago (8,800 BC), an abrupt climatic change turned most of the south-eastern Sahara into a savannah. This was the result of a major northward shift of the tropical rainfall belt bringing monsoonal rains some 700 km further north than today, up to the Sudanese-Egyptian border (about 22°N). During the early-Holocene humid phase, the 1,100 km long and up to 10 km

بحسب شمال السودان من منطقة صحراء لباد وكذا في بلدان وديلت المسراء القديمة. يوجد الآن نيل طير، هلال القمر، آثار الحيوانات الثلاثة (3+2) يمكن أن يكون هذا أول علامة للتجمعات البشرية الحديثة المتسارعة، مختلفا عن ثقافة الكتابة القديمة كومي.

في سنة 22,000 سنة قبل الميلاد (8,800 BC) حدثت تغير مناخي كبير جلب معه هطول الأمطار الموسمية على 700 كم شمال السودان (حوالي 22°N). خلال هذه الفترة الممتدة من 11,000 سنة قبل الميلاد حتى 10,000 سنة قبل الميلاد، تحولت معظم الصحراء السودانية إلى سافانا. هذا نتيجة من التحول الكبير في حزام الأمطار الموسمية المدارية الذي حدث شمالا من السودان نحو الحدود السودانية المصرية (حوالي 22 درجة شمالا).



wide Wadi Howar - now a dry wadi -, was the Nile's most important tributary from the Sahara. According to the geological evidence, it must have resembled present-day environments in Northern Kordofan 550 km to the south (4+5). Remains of a wide range of aquatic and savannah animals including fish (6), crocodile, hippo, elephant, rhino and giraffe, and abundant prehistoric artefacts attest to most favourable living conditions.

The increased rainfall allowed for intensive human settlement and also led to a high regional groundwater table that supported numerous lakes such as the so-called "West-Nubian Palaeolake" west of El Atrun - once Northern Sudan's largest freshwater lake (> 5,000 km², i.e. half the size of the Geneva).

About 5,300 years ago (3,300 BC) was the beginning of the desiccation of the Eastern Sahara. The desert fringe shifted southward crossing the Wadi Howar about 3,000 years ago. The lakes vanished and Wadi Howar turned to a chain of marshes until it ultimately became extinct about 2,000 years ago, leaving the entire region deserted. Recent observations along the Wadi Howar, however, show a remarkably lush vegetation indicating increasing rainfall during the past few years (3). This could be a first sign of a trend towards a renewed "greening" of the Sahara, possibly as a result of global warming.

منتزه وادي هور القومي

Wadi Howar National Park

As an outcome of ACACIA's long-term commitment to contribute in the protection of the natural and cultural heritage of northern Sudan and a joint Sudanese-German mission in 1998, a Protected Area centred at the Nile's once most important tributary from the Sahara has been officially declared in 2001 ("Wadi Howar National Park"). The park area covers more than 100,000 km² and stretches over some 550 km from the Sahelian zone to the hyperarid Saharan desert. Africa's largest country now also owns the earth's largest natural and cultural reserve with an outstanding potential for conservation and economic development.

The Wadi Howar region offers a great scenic diversity and a variety of geographical, biological and archaeological features. The park area (2) includes the northern part of the Meidob Hills with their numerous volcanic craters; the Jebel Rahib which can be considered as a Geological Museum (1); the endless granite plains interspersed with inselbergs (3) and crescent-shaped dunes; and the impressive sandstone landforms of Jebel Tageru and Zolat of Hammad. The Malha and Nukheila lakes (4) as well as the oases of El Atrun and Laqiya are distinctive landmarks of the Eastern Sahara.

The exclaves and access zones also offer spectacular sights such as the true "forest in the desert" (5) in the upper Wadi Howar, the picturesque Selima oasis, the Great Selima Sand Sheet, the blue marble hills near Laqiya Umran, the limestone plateau of Jebel Abyad, the huge escarpment of Jebel Nagashashi with Wadi Milk in its foreland, or the vast dune fields in the foreland of the Ennedi mountains.

A major reason of WHNP is the preservation, rehabilitation or reintroduction of wildlife adapted to desert environments such as addax, oryx, burbury sheep,



كثبان الكثيب مشروحة ACACIA طويل المدى المتنامية في صحراء الشرق الأوسط والشرق الأوسط للسودان، وحملة ميدوبية - علمية مشتركة في 1998 أعلن رسميا في 2000 عمل منظمة أهدية للنيل "منتزه وادي هور القومي". تغطي منطقة المنتزه أكثر من 100,000 كلم مربع وتتمد على حوالي 550 كلم من المنطقة الساحلية في الصحراء القارية الجافة.

السودان أكبر قارة في أفريقيا، ويملك الآن أكبر الجبال البرية، وحملة ميدوبية - علمية مشتركة في 1998 أعلن رسميا في 2000 عمل منظمة أهدية للنيل "منتزه وادي هور القومي". تغطي منطقة المنتزه أكثر من 100,000 كلم مربع وتتمد على حوالي 550 كلم من المنطقة الساحلية في الصحراء القارية الجافة.



of Hussein; the outstanding prehistoric, dune settlements with their extremely rich archaeological remains, the presumably Meroitic fortress, or historic remains along the Darb el Arba'in, the Eastern Sahara's most important ancient caravan route.

The barely populated region also provides a unique opportunity for ecological monitoring of desert fringe environments. It could become the heart of a pilot research project with international reach, contributing to the much disputed problem of desert encroachment within Global Change programmes.

The development of the Wadi Howar area means utilizing the economic potential of a vast, presently almost waste region. It will enhance and complement the country's attraction by environmentally sustainable desert tourism. The involvement and improvement of the living conditions of the local population is a prerequisite for its success. The protection of Sudan's unique desert heritage is of utmost importance for present and future generations.

