SECOND CONFERENCE ON COASTAL ZONES IN SUB-SAHARAN AFRICA
CoZSSA II

Climate change, arts and politics in the sustainable growth of Sub-Saharan African cities

"This year offers a unique set of opportunities. I am committed to using the UK's G8 and EU Presidencies to try to make a breakthrough on Africa and climate change." Rt Hon Tony Blair MP, World Economic Forum, Davos, Switzerland, January 2005

November 7-9, 2005
Location: Accra, Ghana

Co-chairs:

- **Lord Hunt of Chesterton, President, Advisory Committee on Protection of the Sea (ACOPS)**

- **Hon. Jake Obetsebi-Lamptey, Minister of Tourism and Modernisation of the Capital City, (Ghana)**

1.0 SUMMARY

Following the successful Conference on Coastal Zones in Sub-Saharan Africa (CoZSSA I) held at the Natural History Museum, London in May 2003, the second international conference (CoZSSA II) was held at the British Council in Accra, Ghana, on October 24/25/26 2005. The conference involved scientists, politicians, urban planners, academics, artists, financial experts, architects, writers, environmentalists and developers. It heard authoritative reviews of the problems of environmental change in coastal zones (including climate change) and critical issues of urban development, but also artistic, cultural and political perspectives that showed how communities were in fact thriving in very challenging conditions. The conference agreed about the need to reinforce and connect existing networks and initiate cross-disciplinary projects concerned with sustainable regeneration in the coastal zones and urban areas of sub-Saharan Africa, in collaboration with donor countries and international agencies. This report introduces the background, objectives and organisations involved in the conference, summarises the main findings and recommendations for future actions both in Africa and internationally.

2.0 Introduction

2.1 The need for sustainable urban growth in coastal cities of Sub-Saharan Africa

The unplanned and uncontrolled urbanisation of the Africa's coastal zones is an issue of major concern. According to UN-HABITAT, Africa's rate of urban growth is the fastest in the world, with 72% of the population, or 187 million people, living in slums or

informal settlements. It is estimated that the percentage of Africans living in cities will rise from the present 37% level to 53% in 2030.

Up to 38 per cent of the African coastline is considered to be under a high degree of threat from developments which include cities, ports, road networks and pipelines. In 1995 projections showed that western and central African coastal populations would double to 50 million by 2020, leading to a continuous chain of cities in the Gulf of Guinea. The demand for resources and infrastructure development in the coastal zones is now putting immense pressure on fragile ecosystems which are under severe threat from development-related activities. Pollution from major coastal cities is already widespread and has reached alarming levels in many areas, with industrial pollution, mining and oil exploration activities adding to the strain. Although the current level of industrial development in Sub-Saharan Africa remains relatively low, it is accelerating along the coastal zone and many industries still discharge untreated wastes directly into rivers and the oceans.

2.2 Urban Growth in Sub-Saharan Coastal Zones

The rich and diverse resources of Africa's coastal and marine environments have encouraged rapid population growth, industrial expansion and infrastructure development. Many early colonial settlements in Africa were established on the coast in order to maximise trade opportunities. As a result, all but three of theAfrican countries from Mauritania to Namibia have their capital cities on the coast. In the 32 coastal countries in sub-Saharan African, more than 50% of the population lives within 100 km of the coast. This varies between less than 2% of the population in Ethiopia to 100% of the population in the island states of Seychelles, Mauritius, Comoros and Cap Verde. In Nigeria, for example, about 20 million people (22.6% of the national population) live along the coastal zone; about 4.5 million Senegalese (66.6% of the national population) live in the Dakar coastal area. About 90% of the industries in Senegal are located within the Dakar coastal zone. In Ghana, Benin, Togo, Sierra Leone, and Nigeria, most of the economic activities that form the backbone of the national economies are located within the coastal zone. With a high level of education and literacy of the population in these zones, and the availability of natural and economic resources, there is every opportunity for economic lift-off over the next 20 years.

2.3 Overcoming the degradation of coastal eco-systems

While coastal and marine resources in Sub-Saharan Africa have not been completely assessed, many studies have shown that they are under increasing threat from development-related activities, with loss and modification of habitats, unsustainable exploitation of living resources, pollution, coastal erosion and climate change as major causes of marine biodiversity loss (ACOPS, 2002; DFID/DEFRA, 2005). Some of the

exploitation is foreign, and some is local, so programmes to overcome the degradation of the coastal ecosystems have to be international. New technologies may play an important part in future sustainable development.

Africa's coastal ecosystems and marine biodiversity contribute significantly to the economies of many coastal countries, notably through fishing and tourism, and also in an uncontrolled way to the economies of developed countries who exploit these resources. Coastal zones in Sub-Saharan Africa are especially important for the tourism industry, which generate significant employment and foreign exchange revenues for an increasing number of countries. As the tourism industry in most sub-Saharan African countries is heavily dependent on the quality of the marine and coastal environment, coastal zone degradation has serious and profound implications for the industry. At the same time, unless managed in a sustainable manner the tourism industry itself can impact negatively on the marine and coastal environment.

2.4 Growth of Rural Poverty

With the growth of coastal cities, rural poverty increases as young people and those with marketable skills are attracted away from their homes and villages in the countryside. Sustainable urban regeneration demands an understanding of rural, suburban and peri-urban poverty and the measures required mitigate the effects of the massive exodus to the city.

3.0 Conference

3.1 Objectives and Participants

This conference was a follow-up to CoZSSA I, which reviewed the priority issues of coastal ecology: erosion, climate change, and the degradation of coastal habitats. CoZSSA I used the best available scientific evidence to promote the commitments made at the 2002 World Summit on Sustainable Development (WSSD). Many of the more successful and innovative measures taken in Africa, as well as the outstanding practical, political and conceptual problems were described and compared. A significant outcome was the presentation by three ministerial representatives on the importance of the environment in African development, held in the House of Commons in Oct 2003. The UK Secretary of State for International Development, Mr. Hilary Benn attended and noted in his remarks how dealing with environmental issues was critical to meeting the Millennium Goals agreed by the UN in 2000.

CoZSSA II was one of the first conference over to be held that combined the contributions of science and the arts in the study of urbanisation and regeneration. This presents particular challenges and opportunities in the coastal zones of Sub-Saharan

Africa in environmental, economic, social and political terms. In 1997, the United Nations Population Division stated, "At the start of the 20th century, 95 per cent of Africans lived in rural areas... in the 1960s, Africa remained the least urbanised continent, with an urban population of 18.8 per cent. By 1996, this had doubled, and at least 43 per cent of the population is expected to live in urban areas by 2010". Recent statistics suggest that 50% of the global population are now living in urban areas.

CoZSSA II was held in the year that the G8 group of major industrial countries met with other world leaders to consider the development needs of Africa. A supportive letter from MrTony Blair , UK Prime Minister and the 2005 chair of G8, to Lord Hunt was read to the conference in the opening session .

The aim of this conference was to bring together scientists, academics, politicians, artists, architects, urban planners, and the business communities, to consider the issues affecting sustainable development of coastal cities in sub-Saharan Africa especially in the context of threats from environmental change, population growth, health problems, and at the same time to ensure economic growth. The participants came from Europe and Africa, with the majority from Ghana.

The specific objectives of the conference were to :

- bring together scientists, artists, academics, writers, urban planners, technologists social scientists and financial experts to present and discuss scientific, technological and artistic wok relating to these issues, especially to review current research and data (environmental, economic, social, demographic) and identify critical issues and deficiencies on environmental issues and trends in coastal cities in Sub-Saharan Africa, especially mitigating and adapting to the effects of pollution and erosion of coastal eco-systems: in the planning and design of sustainable cities and relate these studies issues connected with the major on-going developments for industries, infrastructure development agriculture, fisheries , tourism and urbanisation.

- discuss practical proposals for remediation, especially in the context of development plans, continued scientific, technical and artistic collaboration and capacity building through exchanges on coastal cities management experiences in Africa and elsewhere.

- consider to connect, reinforce and perhaps initiate scientific, artistic, literary, technical, and political networks around these questions and facilitate North-South collaboration (e.g. by twinning cities and institutions).

- discuss development policies and strategies aimed at poverty alleviation and the implementation of the Millennium Development Goals, particularly in slums and informal settlements and explore the contribution of novel and wider uses of alternative energy sources, energy efficient technologies and greater reliance on renewable energy sources and technologies

- legal and institutional frameworks for good governance and project development, democracy, civil society and cultural diversity in urban development, including private and public sector partnerships, micro-credit and new financial instruments: small and large projects for regenerating coastal cities

- participation of school children (13-15 year olds) who made a power point presentation on climate change in Africa

Site Visits

An integral part of the conference were two half site visits followed by a report back with the Minister present when the findings were discussed

1: Visit to Kwame Nkmmah mausoleum and Jamestown, the historic harbour area; a traditional, highly dense, urban fishing community, affected by pollution and coastal erosion and high degrees of urban poverty, but with the potential for growth as a vibrant hub for cultural-tourism and creative and cultural industries

2: Visit to an organic farm, winner of the International Green Apple Award 2004; located in a poor rural area, this is a small family business with a scholarly and enterprising owner who has aspirations to create a centre of excellence for tropical biodiversity. The visit also included Ghana's National Botanical Gardens.

3.2 Organisations

The Conference was jointly sponsored and organised by:

- Shell
- Hilden Trust
- University College London's Environment Institute
- Arts Council England
- British Council
- International Institute of Environment and Development
- Ministry of Tourism and Modernisation of the Capital City, Ghana (MOTM)
- Royal African Society (RAS)
- Royal Society of Arts
- UK Society of Black Architects (SOBA)
- Advisory Committee for Protection of Sea (ACOPS)
- **World Rythms Ltd**
- **Elsie Owusu Architects**

- **Transport for London**
- **Greater London Assembly**

University College London's Environment Institute coordinates a programme of research (with other academic institutions in London) on Urban Environment and Climate Change, especially coastal cities. London's environment is a major focus (Hunt 2005). Because of the environmental footprint of coastal cities and the greater vulnerability of their populations to environmental degradation and natural disasters, the issue of coastal cities has been taken up by several UN Agencies, the World Bank and IOC-UNESCO. The first Conference on Climate Change and Coastal Cities was held in Houston, Texas, in February 2005, with support from the Foreign and Commonwealth Office (http://www.britainusa.com/houston/ccc.pdf). The second was held in London in April 2005 in collaboration with the German government (http://www.britishembassy.de/en/embassy/environment/climate_change/workshop_climate_change.pdf).

ACOPS' participation is a continuation of its role as executing agency of the Global Environment Facility Medium-sized Project for the Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa (GEF-MSP), also known as the "African Process" which

(a) identified the major issues and threats impacting on the coastal and marine environment in Sub-Saharan Africa; and

(b) developed portfolio of 19 regional and sub-regional project proposals to promote sustainability and poverty alleviation, addressing such threats to the coastal and marine environment.

ACOPS also co-organised, together with UNEP, the World Conservation Monitoring Centre (WCMC) and IOC-UNESCO, the first Conference on Coastal Zones in Sub-Saharan Africa (CoZSSA I) (see www.acops.org).

Participants in the conference will be drawn from Africa, Europe and the external partner community. Various international agencies will be invited to provide their support. In particular, it is anticipated that UNEP may wish to contribute to the conference in view of its role as the Co-ordinator of the Global Programme of Action Protection of the Marine Environment from Land-based Activities (UNEP-GPA).

Ghana's Ministry for Tourism and Modernisation of the Capital City was established in 2003, by H.E. President Kufuor, to promote the regeneration of Accra. The link with

tourism confirms the importance of Accra's location with the coastal zone and the primacy of international cultural links to the future of the country's economy. This is the sponsoring ministry for the Heart of Accra (HOA) a strategic framework for sustainable regeneration of the city. With its mix of deteriorating coastal areas, dense and congested Central Business District and unregulated suburban development, Accra is a typical African city. HOA seeks to analyse the current urban dynamic within Accra, in order to make strategic proposals for future growth and development of the city, particularly the CBD and the neglected seafront. Comparisons can be drawn between Accra and Thames Gateway as a European coastal zone (see Hunt 2005).

4. Highlights of the presentations

Presentations were made on many important aspects of African coastal zones, especially the urban areas. They were followed by many vigorous and revealing discussions. The key points of the presentations and discussions are summarised below (with names of the presenters in brackets) .Recommendations are listed in the final section 5.

4.1 Climate change and environmental hazards in coastal zones

(i) The climate, geology and environment of the coastal zones of West Africa, like those of other areas of the world are undergoing long term change, some of which are natural and unrelated to human influence while others seem more likely to be explained by global and local human influences.

Data shows that sea level has been rising relative to the level of the land along the coast of Ghana for at least the past 100 years (Kporku). 1 km of land was lost near the Volta River estuary and lagoon at Keta over this period.. This may be caused by subsidence along a slowly moving fault system running close to and parallel to the Ghanaian coast. Accra is located near the intersection of the Akwapian fault zone directed towards the North East and the fault system parallel to the coast. Both fault zones are presently active .In the past earthquakes at the Eastern end of the fault zone have caused severe damage in Accra, the last one in 1939 was of magnitude 6.5.Another earthquake is quite likely in the future and might well lead to tsunami damage along the coasts; the lack of preparations were criticised at the conference.

The rising sea level is likely to be accentuated in future with the contribution of the global sea level rise of up to 0.8m in the next 100 years. The extensive engineering project ($85m) at Keta in 2001-2004 (Kporku) has not only halted the loss of coastal land but has encouraged sand to accumulate so that new land has been created and a substantial coast road has been constructed. The wider environmental impact has been considered in this

case here to be favourable, though it was reported that major coastal projects in other countries in W. Africa have been delayed because of these concerns. The Keta project is being closely monitored (Armah).

The climate data presented by the African Centre for Meteorological Applications for Development (ACMAD) in Niger (Kamga) showed how rainfall in the Sahel region at the southern edge of the Sahara varies over a period of decades - it was falling until 1999 and is now rising again. But the systematic rise in temperature, which is not oscillating, and which is associated with global warming is causing greater evaporation and a net reduction in the flow along the major rivers in the Sahel region. However the increase in precipitation over the past five years has caused the desert to retreat northwards, as also happened in the 1980's - there appears to be a regular cycle over about 20 years. This has a serious impact on irrigation and food supplies. Recent analysis of data shows that the rise in temperature may be much greater in certain months; a 2^{o}C rise in average February temperatures over the past 30 years has been recorded on the coast of Gabon. New data analysed by the Ghana Meteorological Service (Misri) confirmed the seriousness of climate change along the W. African coast, where it is found that the rainfall has steadily decreased by 20% over the past 30 years, while the average temperature has risen faster than the global average. It was noted that this detailed data had not previously been made public and that the exchange of such critical data ,even for scientific purposes, is restricted. Another important development in the use of improved meteorological data and computational modelling is to provide forecasts of precipitation and temperature three to six months in advance, to help farmers and to warn emergency services. Recent seasonal forecasts have been successful, eg in predicting heavy precipitation on the West African coastal zones in 2004.These forecasts were developed with the help of the UK Met Office and other international agencies and are issued in collaboration with many countries across Africa. But ACMAD is concerned that this information, which is provided freely, is not reaching all the relevant government agencies, the local communities, and the private sector who need it.

Several speakers (Armah, Biney, Allotey) described the environmental degradation of the coastal zones and how these areas are further threatened by the growth of urban areas and by climate change. With population growth, as we saw on our site visit, coastal lagoons are very polluted and biologically degraded. Without active policies to protect the traditional uses of wood for fuel (including curing of fish), mangrove trees and their associated ecological benefits being lost. This reduces protection from storm-waves (as in 2004) leading to accelerated coastal erosion. In one area all the insects from the mangroves invaded the nearby town when the trees were felled which quickly led to a realisation of their importance. These wetlands may be critical for other aspects of public health since migrating birds can bring in alien species - a subject that needs discussion

between government agencies. Sea level rise, which will be accentuated by global warming, is causing salt water from the sea to penetrate the aquifers inland, poisoning wells and agriculture on land which is not particularly fertile.

There is now a general recognition about the link between the environment of coastal land areas - 'all cities are world cities', 'white water to blue water' are two recent catch phrases. Much of the fuel used by coastal communities comes from inland forests, which are rapidly diminishing. There are now replanting schemes with rapidly growing trees, but the fish-smoking businesses are apparently not yet ready to use these different kinds of wood. The conference was told about initiatives to maintain and restore natural habitats and local plant and animal species in organic forms (Danso), community projects to encourage eco-tourism (Bellamy), and zoological projects organised by NGOs.

In his opening address the Minister (Hon. Jake Obetsebi-Lamptey) explained how the loss of fish stocks and the natural state of the sea bottom are equally serious, along all the coasts of Africa. International agreements using new technology to track large rogue fishing boats combined with national enforcement policies are beginning to be effective in some countries. Without such efforts the whole fishing communities are endangered, putting further pressure on limited land based food supplies. An equally serious international environmental problem is caused by the release of oil from shipping, especially oil tankers. Tar balls are regularly seen on the beaches; as the oil sinks it damages the ecology of the sea bed. The excavation of sand and coral form the coastline for buildings continues to accelerate coastal erosion, and is not adequately controlled.

Tourism is a growing economic activity in Africa as in every country; but in African coastal zones it is based to a great extent on the beauty of the coasts, and the whole natural environment as well as on the unique historical heritage in some areas (such as Ghana).Because this point has not been sufficiently appreciated in economic planning ,there has been inadequate investment in preserving the environment, especially in coastal zones (Yoro Fall).

Understanding, predicting, and dealing with environmental degradation, including the effects of climate change, is also critical to human health (see below) especially for the elderly, very young children and the sick (Danso). This was apparent from the site visits to poorer communities in Accra.

4.2 Planning, governance and business in coastal cities

In African coastal cities there are rapidly growing populations living at very high density, comparable with that in other world cities (100,000 per square kilometre). To live, people need jobs which can in practice only come from the informal sector. **(240,000 children**

enter the job market each year; there are only 4,000 'formal' jobs being created - mostly outside the city). In Accra these jobs are predominantly in the informal settlements along the coast and on open ground near the lagoon. Plans to develop and improve these settlements are being considered for other areas on the outskirts of the city. But to be acceptable these settlements have to provide similar opportunities for business, jobs, transportation, facilities and space for building and extending houses. Without the provision of these 'basics' in the new areas people will not move from the existing inner city settlements, even if the sanitary and waste facilities are much better in the new areas and almost non-existent in the existing settlements. This point was made forcibly by the minister (Hon Obetsepi-Lamptey) when it was suggested in discussion that 'strong' leadership is needed to resolve these difficult planning development problems. The need to combine planning with accommodating the informal sector was emphasised in presentations dealing with overall urban policy for the developing world (Krishnan) and with the wider issues of transportation planning (Owusu, Ween). It was suggested that experiences of urban development in other cities such as Bogota, Curitiba (Brazil), London and Copenhagen could be relevant to African cities. In all these cases people are making significant changes to their living patterns, particularly by making more use of public transport and bicycles. (However in some Chinese and some Indian cities the there are large changes, but in the opposite direction, with the greater use of more private cars).

The transportation policy is not only important for ensuring the efficient movement of people and freight, but also for improving air quality. According to WHO, over the whole globe, about 800,000 people (mainly elderly) die prematurely per year as a result of air pollution. In Accra, respiratory illness leads to the second highest number of outpatients (the highest being malaria) (Hammond). Although lead has been removed from petrol in Ghana (though not everywhere in Africa) the level of air pollution remains high, since vehicles are not regularly maintained or inspected. A strong public education programme was called for. Comparisons were made with Lagos and other African cities which have recently experienced episodes of very high pollution. It was pointed out that in Europe and USA air pollution forecasts are now regularly provided for urban areas as a whole and hot spots near busy roads and airports. Providing this information on a daily basis enables those people who are vulnerable to air pollution to take appropriate measures to lessen the impact.(eg www.cerc.co.uk). Ghana is currently collaborating with the US Environmental Protection Agency in monitoring its pollution.

From our discussions, the governance and planning of cities in Ghana is clearly highly controversial, with different kinds of plans being proposed; the government plans are based on building new settlements and improved transport links; while local communities in the informal settlements are urging an acceptance of their existence while calling for provision of local improvements in infrastructure. The government accepts that the

former plan will require external funding, massive investment and determined administration of transfer arrangements over several years. There does not seem to be any way that the latter plan could realistically be consistent with cleaning up the water along the coast and in the lagoon.

The methods being applied in many countries to achieve efficiency in large public infra-structure projects were discussed with emphasis on the use of public-private partnership or wholesale privatisation. The UK's and Ghana's experiences over several years have shown how to run such schemes (e.g. from buildings to whole transport systems) both effectively and , latterly, with some flexibility (Rynsard). Ghana has begun to follow this approach, first with its privatisation of the railways, whose efficiency was reported to be steadily improving.

The strategies for the sustainable development are now a high priority for UN agencies, especially UN Habitat (Krishna), which is organising with the Canadian government, the UN Urban Forum in 2006 in Vancouver. The main objective there will be to show how ideas can now be taken forward to action.

Other aspects of investment to improve the economy of coastal cities (Ofusu-Amaah) were also discusses; restoring and publicising historical areas for tourism (Owusu, Yoro Fall); facilities for conference-tourism (Accra has a big centre planned); higher education and research institutions which are now participating more fully in governmental and private sector projects (e.g. Armah); developing entrepreneurship and financial and managerial expertise. In Latin America, stimulated by NGO competition for entrepreneurs (Cohen).there have been examples of rapid growth of small IT and industrial companies .But throughout the developing world such developments are limited by difficulties of establishing property rights. (It seems as if the concept of cooperatives is not being encouraged, which might avoid some of these problems?)

4.3 Cultural and design aspects of cities

The contribution of artists and designers are increasingly being drawn into the planning and redevelopment of cities; designers and architects can work with artists to relate the disparate aspects of jobs, transport, materials, ecology, and people's perceptions and expectations . They understand the great variations between communities in a city. Very original presentations to this conference reinforced this message, giving us new insights and suggestions about how artists could be involved more fully in future. At the same time through art we gain an external perspective and as conditions change art can be a 'cultural barometer'. Although climate change is beginning to transform our natural environment , whether in the retreating polar ice caps or dwindling rivers in Africa, and

although people are polluting their local streams and air, artists can both enable us to appreciate the beauty of the nature , while on the other hand to see and feel the importance of these changes (Crimmin). We heard vivid word pictures describing the urban congestion ('pouring water from a calabash into a glass') (Abbey), and the coconut palms 'waving like flirtatious women' along the coasts where 'the sea wants to cover the land like the sky' (Donquah). The transforming visions of modern sculpture help define the new spirit of cities around the world (Crimmin).

Dance can explain our feelings and our intense interactions with the environment whether it is active or passive. Perhaps the stamping on the ground of Zulus is forcing the earth to accept human dominance. This is one view. Another proposed by advocates of sustainable development. is that humans have to live in harmony with the environment (Nii Yartey). A Dutch film by Koolhaas of City of Lagos (introduced by Nash) showed powerfully how art can change one's views.. We saw the unbelievably stressful and dangerous life of young men hustling for business in highly polluted and dangerous streets.Yet we heard them say how much they enjoy their lives there and would not want to be anywhere else, mainly because jobs are so scarce outside the cities.

Presentations on environmental art related experience in Europe and Africa, nationally and locally funded public art projects in informal spaces and derelict land have shown to communities and perhaps legislators and developers the value of these areas, that otherwise are used for formalised buildings, etc. (Holten). But the role of design in the formal landscaping of cities is equally valid. In Accra there are fine examples, especially around Nkrumah's mausoleum. Art using recycled materials is proving effective as public educations (e.g. a dynamic constructions (Greenfort) showed how a plastic water bottle takes several kg of water to make the plastic!). In coastal communities in Africa there are a growing number of projects to recycle plastic into saleable art objects. This is a small contribution to removing the plastic refuse that clogs up waterways and drains everywhere in urban areas.

It was noted how in India sustainable development in communities is being encouraged through local information centres. But in Africa, where internet facilities are available even in the most informal settlements, perhaps they could be used more by government agencies and NGO's to provide free environmental, health and other public information.

Through dance and drama in schools some of the most urgent social problems can be discussed more openly, and change perceptions more effectively than by straightforward teaching. The Digital Interactive Video Online (DIVO) Project presented a film (http://www.divoproject.org) involving performances and discussions between girls in to schools in UK and Ghana on many issues including racial stereotypes, teenage pregnancy and sexual health. The DIVO Pilot phase took place between young Muslim women from Accra, Ghana and

students from Elizabeth Garrett Anderson School for Girls in London, UK. It was a powerful film and seems to have broken down some international misconceptions. This kind of project linking schools would be usefully replicated, using computers and the internet.

Finally the chairman of the opening session (N. Nunoo Amarteifio) a former mayor of Accra, emphasised to the conference that the spirit of every city especially its environment is imbued with myth and religious overtones. The god of Accra's river, according to the local priests affirmed, has been concerned about the river and forecast dire consequences! From their early natural history Rome has its traditional story of a she-wolf ,while London has not forgotten that there used to be whales in the Thames; their ambergris oil still features in coronation ceremonies! (Hunt 2005).

4.4 Contributions to Networks and international agencies

With the formation of NEPAD (New Partnership for African Development; www.nepad.org) networking and collaboration in Africa is entering a new phase across the whole range of development issues. The environmental initiatives of NEPAD have been particularly championed by President Wade of Senegal which has resulted in the formation of the NEPAD Environment Secretariat in Dakar (Cheikh). It is considering all the main issues of (1) land degradation drought and desertification, (2) wetlands, (3) coastal zones, (4) climate change, (5) trans-boundary issues including forests and sustainability of urban areas. Cross cutting themes of health and early warning systems are related to all these issues. With the support of the secretariat ,projects and networks are being organised from centres in many African countries, but detailed proposals have been slow in completion (e.g. the World Bank supported projects with ACOPS on the 'African process' (www.acops.org) have been used as the basis for project proposals, including those on marine coastal ecosystems. External or local funding for these projects is directed to each centre and not via the secretariat, for which the only financial support is currently from the Senegal government.

One of the few networks to have been set up is COSMAR (Coastal and Marine Programme of NEPAD) (Mohamed), which since 2003 is based in and part funded by the Dept. of Environment, Government of Kenya, Nairobi (see www.nepadcosmar.org and www.africanoceans.net). It is also funded by the Intergovernmental Oceanic Commission (IOC) of UNESCO, and it collaborates with other UN agencies, development agencies of other countries and NGO's.

Its work is firstly operational, day to day exchange of environmental information (e.g. tsunamis, pollution, ecological events, etc.), and secondly coordination of the many coastal projects, particularly those connected with urban water/marine pollution this is

increasing rapidly with the growth of cities in Africa. This requires collaboration with many agencies of countries in Africa and also with 'donor' agencies. The work of COSMAR is well explained in their newsletter and website. To progress their work they are planning to increase collaboration with other networks, research centres and agencies. The fact that COSMAR is part of NEPAD gives it considerable political strength and a wide level of support in Africa.

UN agencies recognise the importance of coastal urban areas (Anantha krishnan; Yoroh Fall) for sustainable development. But with limited funds and manpower these agencies welcome collaboration with governments, communities and NGO's. With their international networks, they can provide expertise and a wider forum for exchange of information about best practice. They are beginning to support networks in Africa, such as COSMAR, which collaborates with NEPAD. This kind of development may be extended in future, provided there is a strong support by one or more countries (as the Kenyan government has supported COSMAR).

In the fields of meteorology, health and agriculture there are existing centres for African-wide collaboration, such as ACMAD in Niger and other regional centres in Kenya and South Africa (which are responsible for exchange of weather and climate forecasts and training).

These centres, which are supported by UN agencies and 'donor' countries, have a high reputation for their technical work (Kamga). It was noted that currently the work of these centres is not sufficiently integrated in to other relevant networks or government agencies (e.g. dealing with natural disasters or long term climate change).They do not receive even all the relevant data from member countries .Extra resources are urgently needed for up-to- date books and journals .

5. Recommendations and Conclusions

(i) In order for the seriousness of climate change in Africa to be widely appreciated, it is necessary to publish a report describing the available <u>local</u> data, such as was produced at this conference and its relation to the regional and global trends as measured and predicted by ACMAD and international climate centres. The local meteorological data needs to be exchanged (and where necessary funded), as well as being maintained. The recent UK (DFID-DEFRA) report (2004) on climate in Africa is not well known in African climate centres. It needs to be updated with more involvement with African experts and African data. A collaborative bilingual African climate internet site should be created by the main African meteorological/climate centres, in collaboration with other international

institutions. Equally important is that the information should be available in a form that public agencies and the private sector can utilise it more effectively, to overcome the current problems of lack of information perhaps using public information/internet centres.

(ii) Advice and assistance is needed to deal with offshore international environmental problems, most crucial being monitoring and policing the 200km economic zone to prevent illegal fishing and illegal dumping/release of oil. (Bilateral and multilateral programmes for this problem need to be more effective.)

(iii) Practical measures to improve the environment are urgently needed both in informal and the new settlements. Some of them require action by national or local government, but often can be initiated on individual or local community level. Information and guidance needs to be disseminated at both levels to make progress. Novel developments in local scale energy and waste/water processing systems are not available in the informal as well as the newly constructed settlements (e.g. solar panels/wind turbines for electricity, cooking, sewage processing, water purification, etc.). Demonstration projects of such systems could perhaps lead to self funded systems since TV and satellite aerials can be afforded in many homes. It is important to avoid mistakes of providing municipal provided facilities (eg certain types of toilet) that are not in practice acceptable to communities.

(iv) Assistance with urban and environmental planning is called for at the municipal and governmental level. Currently in most African cities there are very few people in municipal government urban planning departments both for the functions of design and for regulations. With more officers at this level, the cities could make more use of advice, software, funding. One suggestion is that planners from developed countries should be seconded to African cities, or retired officers could be funded to provide such advice. Another suggestion is that software systems used for urban and environmental planning should be made available, e.g. air quality systems developed in the UK and used in China, South Africa, Hong Kong, etc. (www.cerc.co.uk). Information centres (e.g. based on the internet) are essential for communicating public information (with help from IT companies?).

(v) Entrepreneurial advice and micro-banking facilities are needed; the example of a Latin American entrepreneurial competition might be taken up (with help from major banks?).

(vi) Recognise the importance of enhancing and publicising the cultural heritage and natural environment for stimulating international and national tourism, improving local amenities, and for enhancing the self esteem of local communities. Successful experience of the economic value of this approach need to be disseminated both from developed and developing countries. Artists, designers and local communities can play a central role in developing this strategy (see below).

(vii) NEPAD's existing networks for coastal zones in Africa COSMAR needs to be encouraged, connected to other relevant organisations (www.africanoceans.net; www.nepadcosmar.net). Currently based in the department of environment at the Kenyan government, and supported by IOC (UNESCO), it now has the capacity and support from African countries to expand its activities. But it needs both financial support and technical collaboration from other countries to realise its primary goals of coordination and information exchange between all the large number of projects in Africa. It can expand its early warning and disaster response capability using existing national and international networks. As a result of the conference there will now be formal collaboration and data exchange with ACMAD (www.acmad.ne) for seasonal weather/climate forecasts. Earthquake warning and protective measures should also feature in their work. COSMAR's links with university and research institutions and environmental NGO's in Africa and elsewhere need to be strengthened. The African Institute for Mathematical Science could help provide modelling and theoretical capability for the many special geophysical and environmental problems of the coastal zones (see www.aims.org). Climate research in Africa is being coordinated through a world wide network African Monsoon Multidisciplinary Analysis AMMDA (www.mediasfrance.org), but the results of this research could well be applied more effectively by governments and other agencies receiving the data.

(viii) The conference concluded that a new network is needed to promote understanding about information exchange and projects as well as sustainable cities in Africa. **The proposed title for the new organisation is CAUSE "CULTURE, ARTS and URBANISM for a SUSTAINABLE ENVIRONMENT".** This initiative would enable implementation of the objectives shared primarily by NEPAD and UN Habitat, but also by other organisations such as UNEP, WMO, WHO…. This and many other conference studies have concluded that ambitious objectives require involvement of arts and design as well as technical scientific and political aspects of urbanism. The spirit of the COZSSA(II) conference showed that this is not only possible, but exciting and very fruitful.

A steering committee has been formed, the convenor is Felix Abbey, **President** of the Ghana Institute of Architects. An organisation meeting is planned in collaboration with NEPAD environmental secretariat (Dakar) and UN Habitat. It is hoped to present the concept at the Urban Summit in Vancouver 2006.