

World Commission on Dams

Dams and Cultural Heritage Management

**Final Report
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Working paper submitted to the WCD by:

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This is a working paper prepared for the World Commission on Dams as part of its information gathering activities. The views, conclusions, and recommendations contained in the working paper are not to be taken to represent the views of the Commission

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Executive Summary

Background

Large dams are invariably constructed in river basins where people have lived for long periods of time, often from the prehistoric past to the present. Large dams also impact very large areas that may encompass one or more cultural regions and tribal or indigenous groups. Recognising that the construction of large dams has also led to incalculable loss, destruction, and damage of cultural resources ranging from shrines of local communities to world heritage monuments, the objective of this report is to provide an overview of past and present cultural heritage management (CHM) in areas impacted by large dams, and to recommend internationally acceptable criteria and guidelines for the future cultural heritage management of dam impacted areas.

For purposes of this report, "Cultural Heritage" can be defined as comprising:

- 1) **Cultural resources of living populations** (e.g., their mode of subsistence, social organization, religion, ideology, political organization, language, and the material expression of their ideas and practices which range from sacred elements of the natural landscape to artifacts and buildings;
- 2) **Archaeological resources** (e.g., occurrences and sites which may include artifacts, plant and animal remains associated with human activities, burials, and architectural elements) which may or may not be an integral part of the cultural heritage of the local inhabitants; and
- 3) **Cultural landscapes** which consist of landforms and biotic as well as non-biotic features of the land resulting from cultural practices over historical, or even prehistoric times, by generations of peoples of one or more cultural traditions. These resources constitute the cultural heritage of a people, a nation, of humanity.

The need for such a report grew out of discussions held in Cape Town, South Africa in January 1999 between a select group of participants attending the World Archaeological Congress (WAC), and members of the Secretariat of the World Commission on Dams (WCD). However, for various reasons it was not until October 1999 that the WCD officially commissioned a *Working Paper on Dams and Cultural Heritage Management*, with the following objectives:

1. Assess the importance of cultural heritage management in the context of large dam projects;
2. Identify and analyze the nature and extent of cultural heritage losses;
3. Assess/discuss the importance of these losses for host countries and local communities;
4. Review existing policies and practices with respect to CHM in large dam projects;
5. Document good and bad practices from which lessons could be learned for the future; and
6. Suggest policies and guidelines for improved CHM in dam projects.

In order to obtain as comprehensive a report as possible within the very limited time available, the organisers sent out by telephone and e-mail to individuals and archaeological and cultural heritage organisations around the world, a call for papers dealing with topical, regional or site-specific aspects of CHM and dams. Due to budgetary constraints, the original plan was to invite five to ten scholars, based largely in North America, to the University of Florida, Gainesville, Florida USA in early February 2000 to participate in a week – long workshop where they would compile and edit the submitted papers into a final synthetic report. However, additional funds were obtained from the World Bank and University of Florida, allowing the organisers to invite thirty participants from around the world to an International Workshop on Cultural Heritage Management and Dams, where they would be able to personally present and discuss their papers. This Working Paper on Dams and Cultural Heritage Management is based almost exclusively upon the results and recommendations of the Workshop.

Workshop Papers

The Workshop was held between February 14-16, 2000 at the University of Florida. The twenty eight papers presented over a three day period, plus five additional papers prepared for and distributed at the Workshop (but not presented), were grouped into nine major themes. Open discussion and debate occurred at the end of each presentation and/or theme. In addition, break-out sessions focused upon identifying key issues/problems to be put forward as recommendations, took place during the late morning/early afternoon of the workshop's last day. A summary of the papers presented in each theme is as follows:

- **The Right to a Cultural Heritage:** The two papers presented in this theme¹ considered such issues as: 1) the human right to a cultural past; 2) the impact of displacement upon local communities and their cultural heritage; 3) the alienation of people from their cultural pasts due to the construction of dams and other development projects; 4) the indifference of archaeology and archaeologists to the needs of local people; and 5) the use and misuse of archaeology in "rescuing" the histories of displaced people.
- **International Organizations and CHM:** The two papers in this theme examined international multilateral, bilateral and private agencies' policies toward CHM and large development projects, including dams. The World Bank's current policy is to "assist" in the protection and enhancement of cultural properties discovered in Bank-financed projects, instead of leaving protection to chance. Funding is also available for new initiatives not related to ongoing Bank projects, so long as it relates to the Bank's overall mission of poverty reduction in developing countries. The current policy dates to 1986 and is now under revision. New policy recommendations include: 1) a more detailed definition of what "cultural property" encompasses; 2) more explicitly defined procedures to be followed during the pre, actual and post-construction phases of a project; and 3) the close integration of CHM with environmental impact assessments (EIA). In general, other international organizations lack any standardized policies toward CHM. For example, neither the Asian Development Bank or the Inter American Development Bank has any kind of an explicit policy toward CH, nor does the Japan Bank of International Corporation and USAID. The main recommendation is that those organizations without explicit policies need to establish them as soon as possible, and preferably in cooperation and coordination with the World Bank's initiative of revising it's CHM policy.
- **North American Dams and CHM:** The five papers in this theme considered dams and CHM in Georgia/South Carolina, Alaska, northern Florida, and the Missouri River Basin, and also provided an overview of the National Reservoir Inundation Study undertaken in the 1970's. The American model for CHM of dams on U.S. government land provides one example of "best practice", in that a suite of laws and regulations guarantee adequate funding and systematic surveying, testing and determination of significance. The studies also pointed out the need to consider post-construction impacts upon cultural resources, including the effects of long-term inundation, runoff, flood deposits, dredging, and reservoir margin and downstream erosion.
- **African Dams and CHM:** Nine papers (six presented and four submitted) explored CHM in relation to dams in Egypt, Ghana, Cote d'Ivoire, Sudan, Ethiopia, Eastern Africa, Somalia, Zimbabwe, Lesotho and Namibia. The High Dam at Aswan was the focus of two papers, one of which provided an overview of the pivotal role the Egyptian government played in documenting and protecting cultural heritage, as well as training future generations of archaeologists. The other paper considered the effects of displacement upon the cultural traditions of the Nubian people, and plans for new dams in Sudan. The displacement of people and loss of cultural traditions in Zimbabwe and Namibia were also examined, and

important lessons learned on the loss of ancestral shrines and the importance of landscapes, namely: 1) the need to conduct a feasibility study as early as possible on the impacts of dams upon living cultural resources; 2) involved the local population in the whole process as soon as possible so that they become sensitized to the project and can play an active role in decision making; and 3) develop mitigation plans if it is not possible to save sacred sites and other significant living cultural resources. Another paper compared and contrasted two World Bank-funded dam projects, one in Somalia and the other in Ethiopia, revealing inconsistencies in implementation of World Bank policies toward cultural property. Submitted papers on the Volta River Basin project in Ghana and the Lesotho Highlands Project illustrated the problems inherent in large, complex dam projects, while a paper on environmental impact assessments in Eastern Africa shows how cultural heritage management has been marginalized in the EIA process, but demands a more prominent place.

- **Latin American Reservoirs and CHM:** Latin American dams and CHM were represented by four papers on Brazil, Panama, Columbia and Argentina. Hundreds of dams are currently being built in South America, but CHM is rarely conducted in a systematic way, indigenous populations are rarely consulted in terms of potential impacts upon cultural traditions, and publications are infrequent. There is an urgent need for legislation and trained personnel to remedy this situation, and a conscious effort to link the results of CHM to the political and social needs of the indigenous populations must also be attempted. Government officials and lay people alike need to be educated on the importance of preserving a country's cultural heritage.
- **European Reservoirs and CHM:** The two reports on European dams provided additional examples of "best practice" in CHM, where regulations and adequate funding guaranteed systematic survey, testing, and mitigation. The Alqueva Dam of Portugal provides a model of CHM planning and execution, and is noteworthy for allocating funds not only for mitigation within the inundation area, but also for infrastructure projects associated with dam construction, future lake shorelines, a local museum and publication of results. Funding for high quality CHM of the numerous and extensive Siberian reservoirs has also been guaranteed by Russian laws. However, no funds exist for post-construction monitoring of the reservoirs where annual water fluctuations of as much as 40m has resulted in major erosion along lake margins, thereby exposing new archaeological sites.
- **China: The Three Gorges** Two papers considered the controversial Three Gorges Project, the largest reservoir project in the world. Chinese archaeologists are doing their best to mitigate the impact of the Three Gorges project upon Chinese cultural heritage. Nevertheless, lack of funding and shortage of trained personnel have complicated a project already beset with serious problems related to administrative organization, logistical requirements and political constraints. The lack of an overall research design that fails to incorporate a sampling scheme based on issues of significance, has resulted in a CHM project impossible to complete in the time frame allocated. Furthermore, resettlement schemes have resulted in the damage and destruction of archaeological and historic sites, not to mention widespread looting. The authors argue that international cooperation on the scale of the Aswan Dam project, where hundreds if not thousands of foreign experts and volunteers were invited by the Egyptian government to participate in salvage efforts, should also be undertaken in the Three Gorges. However, this would go against current Chinese government policy toward foreign participation in such projects as Three Gorges.
- **Western, Southern and Southeast Asian Dams and CHM:** Four papers (three presented and one submitted) explored the current CHM situation in Turkey, India and Thailand, respectively. As in other regions of the world, the lack of trained personnel and/or funding, combined with severe time constraints, has resulted in only a fraction of the dams being

investigated for cultural resources. Almost 200 dams have been constructed in Turkey, with another 100 or so being built or planned. Yet only about 3000 archaeological sites are registered in the whole country, giving the false impression that dams are being constructed in areas that do not impact the cultural heritage. Claims that the construction of dams in southeastern Turkey are damaging or destroying the cultural heritage of indigenous populations was also discussed. The situation in India is even worse, with some 3000 dams constructed or being constructed, yet CHM is almost non-existent. To provide one glaring example, only 5% of the area encompassing the 700km Narmada River project has been investigated for cultural heritage sites. To complicate matters, research designs based on issues of significance are few and far between. In Thailand there is a severe shortage of trained personnel in CHM, and cooperation between government and other organizations is poor. There is also a great need for CH managers to work closely with and educate the public in the importance of CHM. Two of the main conclusions are: 1) there is a severe lack of qualified, trained personnel, which can be rectified through a systematic training and education program; and 2) countries have inadequate legislation to deal with CHM issues, and/or they do not implement or enforce their regulations.

- **Privatisation and the Public:** The two papers of the final theme explored the role of the private sector in CHM. The first paper considered the American model where about 80% of all CHM is undertaken by private firms. The argument was made that such organizations as the World Bank should promote privatisation of CHM in the developing world, as private firms have experienced and skilled personnel, are goal oriented and cost conscious, and can contribute to the national CHM infrastructure. The second paper considered the place of non-governmental organizations (NGO's) in affecting change, by focusing upon the mission of the International Rivers Network (IRN). The IRN supports the idea that local communities should have a strong voice in decision making related to dam construction and use. Through political lobbying and public education programs, the IRN has been successful in promoting alternatives to dams, and challenging traditional top-down approaches to reservoirs. CHM, which incorporates both living as well as past cultural heritage, could draw lessons from IRN in terms of publicizing and promoting critical CHM issues.

Lessons Learned and Recommendations

The Human Right to A Cultural Heritage

The right to a cultural heritage is an integral element of humanity, as implied in the Article 27 of the United Nations' Universal Declaration of Human Rights (but still in need of more explicit legislation and codification), and that the diversity of such resources is essential for sustaining our ability to cope with the past, present and future. The loss of the cultural heritage of any population is a loss to all of humanity as it weakens our fabric and diminishes the pool of knowledge and wisdom from which we draw our strength and resilience. We cannot rehabilitate or restore what has been lost, but we can prevent the loss of cultural heritage that is now eroding our stock of experience and ability to respond to adverse conditions

Capacity Building

Mitigating the impact of tens of thousands of large and small dams is hampered primarily by a gaping shortage of qualified CHM personnel and adequate facilities and infrastructure. In view of what has been lost and the impending incalculable loss of cultural heritage, CHM local capacity building is of the utmost urgency. There is also a need for an approach to CHM training that integrates the main categories of cultural heritage resources, namely living cultural traditions, archaeological and historical resources, and cultural landscapes. In this regard, it is imperative to integrate CHM assessment with environmental assessment to elucidate long-term interactions between living and past populations and their environments.

Legislation and Policy

Legislation for the protection and preservation of cultural heritage in many countries is far from satisfactory. There is thus an urgent need to: (1) call upon governments to abide by existing international conventions, charters, and recommendations (e.g. UNESCO, ICOMOS, ICCROM) (2) develop internationally acceptable and feasible cultural heritage legislation, (3) urge international dam funding and building agencies to develop and enforce internationally accepted protocols for conducting cultural heritage management projects, and (4) develop a mechanism for private corporations and government agencies to be certified as meeting appropriate standards.

Funding

Funding at present is woefully inadequate even for stop-gap and partial measures to "rescue" endangered cultural heritage. There is no hope of remedying the current serious inadequacy of CHM in developing countries without allocating a percentage of total dam construction costs for CHM. This can be incorporated into EIA budgets or as separate line items.

Best Practice

The involvement of direct and active participation of local communities in all stages of CHM is a prerequisite for successful CHM, poverty alleviation, and the upholding of human rights. CHM operations must provide on the job training, short courses, and seminars at all levels. CHM should be integrated with culture and development projects to empower and benefit the local communities, especially marginalised, tribal, indigenous populations. CHM operations must begin as early as possible before construction, and include a research design that establishes a methodology to provide a basis for establishing priorities and determining significance. Activities should also include the curation, preservation, and presentation of collections and records. Provision must be made for the prompt publication of technical reports, interpretive materials to the public, and the continued availability of collections and records for future research. CHM must also include post-construction monitoring, assessment and rehabilitation.

Public Outreach and Education

The role of NGOs in CHM must be strengthened as a means of ensuring local capacity building, the enforcement of CHM legislation and public education. The private sector in collaboration with governmental agencies, museums, universities and national centers can also play a key role in local capacity building and in upholding professional standards. There is a need to coordinate the various efforts necessary to bring about a positive turn in the current loss and mismanagement of cultural heritage resources as a result of the construction of dams. First, it would be useful to create a network of relevant groups and individuals, as well as a list of experts in dam CHM, and to establish a mechanism for task forces to design a curriculum for capacity building. An action plan should be formulated within a year to coordinate international efforts to secure funding, develop capacity building and to ensure compliance with international legislation and guidelines, as well as compliance with professional standards.

Conclusion

The loss of the cultural heritage of a people constitutes a destabilisation and demoralisation of members of living communities. It undermines their sense of security and integrity and engenders a sense of loss, bereavement, alienation, disorientation, bewilderment and perplexity that impairs their ability to function as fit, healthy, effective human beings and citizens. This damage extends to the attenuation of the ability of a community to provide proper care and socialization of their children, with severe long-term consequences on future generations. This loss or irreparable damage of the cultural resources of a living community thus constitutes a violation of their human rights as implied in Article 27 of the Universal Declaration of Human Rights.

Today as we face an uncertain future we need more than ever to learn how did people respond to climatic change, what were the cultural mechanisms that enabled them to overcome food shortages, excessive population growth, diseases, and what cultural innovations were necessary to maintain political stability and peace. Our human cultural resources are finite and non-replenishable. Once destroyed they are gone forever. We cannot rehabilitate or restore what has gone, but we can prevent the loss that is now eroding our stock of experience and ability to respond to adverse conditions.

As is clearly reflected in the Workshop papers, the magnitude of loss from different parts of the world wherever large dams are constructed is staggering. The impact of large dams on cultural heritage is both long-term and far-reaching. It is also irreversible. Long after dams are constructed they continue to impact cultural heritage resources in the dam area and beyond it. The impact of dams extends to the loss or damage of cultural heritage as a result of land reclamation and irrigation projects, the construction of power lines, roads, railways, and workers' towns. Dams also dislocate huge numbers of people who either live in newly established communities or in the historical parts of nearby towns, adding to the ongoing impact of urban expansion on cultural heritage. The construction of dams also leads to the erosion of nearby sediments along the shoreline of reservoirs, and in the upper floodplain and backshore zones, as well as downstream from the reservoir. The erosional processes expose subsurface archaeological remains which encourage looting and illicit digging for artifacts and valuable remains.

Given the colossal magnitude of the loss and damage of cultural heritage in every case where large dams are constructed, the ongoing impact of dams on cultural heritage resources well beyond the immediate area of the dam and reservoirs, and the woefully inadequate means to cope with the ongoing and impending loss of cultural heritage in developing countries, the situation must be regarded as a crisis of unprecedented dimensions. Therefore the Workshop participants urge that every effort be made to rectify this situation immediately through the recommendations specified in this report.

**Papers Presented or Submitted(*) to the International Workshop on
Cultural Heritage Management and Dams**

University of Florida, Gainesville
February 14-16, 2000

Theme 1: The Right to a Cultural Heritage

- Schmidt, Peter (University of Florida) Human Rights, Culture, and Dams: A New Global Perspective
- Oliver-Smith, Anthony (University of Florida) Cultural Heritage and the Discourses of Dam Displacement

Theme 2: International Organisations and CHM: Lessons Learned

- Fleming, A. and D. Ritchie (World Bank) World Bank Policy on Cultural Property
- Brandt, Steven A. (University of Florida): Beyond the Bank: The Role of Other International Agencies in Funding Dams and Policing CHM.

Theme 3: North American Dams And CHM: Lessons Learned

- Anderson, David G., Bennie C. Keel, John H. Jameson, James E. Cobb, and J. W. Joseph (National Park Service): Reservoir Construction in the Southeastern United States: The Richard B. Russell Program as an Example of Exemplary Heritage/Cultural Resources Management
- Smith, George S. (National Park Service) and E. James Dixon (Denver Museum of Natural History): Sustina Hydroelectric Project, Alaska, U.S.A. Cultural Resource Study Significance, Impact Assessment, and Mitigation.
- White, Nancy (University of South Florida): Archaeological Recovery After the Dam
- Faught, Michael (Florida State University): National Reservoir Inundation Study 1975-1980.
- Banks, Kimball, Snortland, Signe (Bureau Of Reclamation): Dam(n) the Land and Full Speed Ahead: A Case Study of the Missouri River Basin

Theme 4: African Dams: Opportunities Lost And Found

- Gachuruzi, Shally B (University of Ottawa) Large Dams and the Destruction of Cultural Heritage in Africa
- *Inskeep, R. (Oxford University) The Kariba Dam, on the Middle Reaches of the Zambezi River.²
- Pikriyari, Innocent (University of Zimbabwe) Hydro-electric Dams on the Middle Zambesi
- Kinahan, John (Quaternary Surveys, Namibia): Lessons from the Joint Angolan-Namibian Lower Cunene Hydropower Scheme.
- Hassan, Fekri (University College London): The Aswan Dam and CHM
- Gamal, Arif (University of California, Berkeley): The Effects of Dams upon the Nubian People's Cultural Heritage
- Brandt, Steven (University of Florida) A Tale of Two World Bank-Financed Dam Projects in the Horn of Africa
- *Posnansky, M. (University of California, Los Angeles) The Volta Basin Research Project In Ghana 1963--70 And Other West African Dam Projects-Learning From Experience.³
- *Mitchell, Peter (Oxford University) Archaeology and The Lesotho Highlands Water Project
- *Campbell, I. (IUCN, Addis Ababa, Ethiopia) Environmental Impact Assessment, Cultural Heritage And Dams In Eastern Africa

Theme 5: Latin American Reservoirs And CHM

- Blasis, Paulo de (University of San Paulo) and Michael Heckenberger (University of Florida): Dam Contract Archaeology in Brazil: some quick prospects and perspectives.

- Norr, Lynette (University of Florida) and Michael Faught (Florida State University) Archaeological Site Location and Assessment n Lake Alajuela, Panama.
- Oyuelo, Augusto (Universidad Nacional, Columbia, U. Pennsylvania) and Ana Maria Boada (Instituto Colombiano de Anthropologia, Bogota, Columbia); CHM and Dams in Columbia: Expedient Archaeology between Bullets and Ideologies.
- Politis, Gustavo and Maria Luz Endere (Universidad del Centro de la Provencia, Buenos Aires) Archaeological Heritage Management and Dams in Argentina: A Brief Review of the Situation.

Theme 6: European Reservoirs And Dams

- Silva, Antonio Carlos (EDIA, Portugal): CHM in Portugal: The Case of the Alqueva Dam
- Derevianko, Anatoly (Institute of Archaeology, Siberian Branch, Russia): CHM and Dams in Siberia

Theme 7: China: The Three Gorges

- Childs-Johnson, Elizabeth.(New York University) The Three Gorges Project: There is No Dragon.
- Shen, Chen (Royal Ontario Museum): Mission Impossible: CHM of the Three Gorges Reservoir, China.

Theme 8: CHM and Dams in Western, Southern, and Southeast Asia

- Ozdogan, Mehmet (U. Istanbul): CHM and Dam Projects in Turkey: An Overview.
- Ota, S. B. (Archaeological Survey of India, Calcutta): Cultural Heritage Management Vis-A-Vis Dams: The Narmada Issue, India.
- Lertit, Sawang (Sipakorn U., Thailand and WSU): Cultural Heritage and Large Dams in Thailand.
- *Mughal, Mohammad Rafique (Pakistan Heritage Society): Dams in the Indus Basin of Pakistan and Cultural Heritage Management. ⁴

Theme 9: Privatisation And The Public

- Wheaton, Thomas and J. Joseph (New South and Assoc, U.S.A.): Privatization and Cultural Heritage Management of Dam and Reservoir Projects in Developing Countries
- Chen, Doris (International Rivers Network, U.S.A.): The Role of NGO's as "Watchdogs": The International Rivers Network as an Example.

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Background

The preservation of the legacy of mankind is no less important than the construction of dams, the erection of factories and the [economic] greater prosperity of peoples. Gamal Abdel-Nasser, President of Egypt

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- Document good and bad practices from which lessons could be learned for the future; and
- Suggest policies and guidelines for improved CHM in dam projects.

In order to obtain as comprehensive a report as possible within the very limited time available⁵, the organisers sent out by telephone and e-mail to individuals and archaeological and cultural heritage organisations around the world, a call for papers dealing with topical, regional or site-specific aspects of CHM and dams. Due to budgetary constraints, the original plan was to invite five to ten scholars, based largely in North America, to the University of Florida, Gainesville, Florida USA in early February 2000 to participate in a week – long workshop where they would compile and edit the submitted papers into a final synthetic report. However, additional funds were obtained from the World Bank and University of Florida, allowing the organisers to invite thirty participants from around the world to an *International Workshop on Cultural Heritage Management and Dams*, where they would be able to personally present and discuss their papers. This *Working Paper on Dams and*

Cultural Heritage Management is based almost exclusively upon the results and recommendations of the Workshop.

Workshop Papers

The Workshop was held between February 14-16, 2000 at the University of Florida. The twenty eight papers presented over a three day period, plus five additional papers submitted to and distributed at the Workshop (but not presented), were grouped into nine major themes. Open discussion and debate occurred at the end of each presentation and/or theme. In addition, break-out sessions, focused upon identifying key issues/problems to be put forward as recommendations, took place during the late morning/early afternoon of the workshop's last day. What follows are syntheses of each paper presented (or submitted) within the theme. We feel strongly that a synthesis of each presentation/submission is necessary given their tremendous diversity in content and perspective.

Theme 1: The Right to a Cultural Heritage

Peter Schmidt (University of Florida) *Human Rights, Culture, and Dams: A New Global Perspective.*

This paper has three interrelated goals: 1) To explore the intersection of human rights and culture, with an emphasis on the human right to a cultural past; 2) To examine human rights abuses when development projects such as dams alienate people from their cultural pasts; and 3) To suggest ways to mitigate human rights abuse in development and in the practice of archaeology that is intended to "rescue" the histories of displaced peoples.

The arena of human rights and culture is perhaps the least developed in the human rights field. Some of this underdevelopment can be attributed to Article 27 of the Universal Declaration of Human Rights, which casts culture in an open and poorly defined manner. It is widely acknowledged among human rights specialists both inside and outside of anthropology that economic, social, and cultural rights have not been a primary focus in the human rights community. Political and civil rights have been our primary concern in the post-war period. The mechanisms set in place to ensure political and civil rights are more highly developed and reflect the priority that these rights have assumed at a global scale over the last five decades. This disparity has naturally led to a disequilibrium of concern over economic, social, and cultural rights, as well as the unfortunate characterisation of these rights as second and third generation rights.

The *de facto* marginalisation of economic, social, and cultural rights is gradually giving way over the last two decades to increasing concern for human rights to development, shelter, nutrition, education, health care, and environmental protection. For example, there is an increased focus on indigenous peoples, including heritage rights. Nevertheless, there is a long way to go as most other domains of culture are out of the mainstream of concern among human rights activists and anthropologists. Immediate action is needed on issues pertaining to the human right to a cultural past and the widespread violations of this right across the globe. This is an issue of great salience in light of human rights abuses committed by governments who are engaged in population relocations to accommodate reservoir storage areas. The scale of population displacement and erasure of cultural heritage in dam projects leaves no room for archaeologist or bureaucrat to escape responsibility for human rights violations conducted in the name of national sovereignty or national need.

Of significant concern is that archaeologists are rarely on the front lines to help mitigate and stop such state abuses of cultural rights. In fact archaeologists may be contributing to such abuses by their silence. There must be a "commitment by the archaeologist to make every reasonable effort, in good faith, to consult actively with affected groups(s), with the goal of establishing a working relationship

that can be beneficial to the discipline and to all parties involved" (Principle #2, Society for American Archaeology, Principles of Archaeological Ethics, 1995). When archaeologists are engaged as consultants in dam projects, we must be certain that ethical guidelines saying we must "consult" with local communities do not become a means by which communities are co-opted into mitigation programs that have little to do with local historical needs and much to do with the intellectual agendas of professional archaeologists and the development agendas of States and international funders – placing the local community in a passive role and retaining power in the hands of the professionals. These same principles also apply to multi-national institutions and national and regional institutions that conceive projects such as dams that will negatively impact the heritage landscape and engage archaeologists to satisfy obligations to mitigate impact on cultural resources.

In the design phase of dam projects are indigenous communities being asked about the cultural meanings of their landscapes? Are they asked to explain which sites form a central core to their identities or how the loss or preservation of certain sites form a central core to their identities or how the loss or preservation of certain sites will influence their cultural well-being? Are they asked to assess the impact on their way of life by the loss of their heritage landscape? In the next phase, as mitigation plans for heritage resources are being collaboratively designed, do we ask, "What do you want to know about your past?" Or, even fundamentally, "What kinds of information are most significant for your cultural and historical needs?", or "How can your participation in mitigation efforts increase your capacity to study your own past, construct your own histories?"

The failure of archaeologists, government bureaucrats, and policymakers in multi-national funding agencies to share power in dam planning and mitigation of impact on cultural heritages perpetuates a colonial approach in decision-making and amplifies alienation of local communities from their cultural pasts. By removing local communities from meaningful roles in decision-making and in history-making, archaeologists and the bureaucrats who hire us are engaged in a process that amounts to the mining of heritage sites to solve problems that are mostly irrelevant to those who identify with and are linked to those sites. Multilateral funding institutions that do not consistently enforce internal policies about the identification, preservation, and mitigation of heritage resources are also complicitous in those human rights violations – illustrated in a number of recent cases such as the Pak Mun dam in Thailand, the Urra dam in Columbia, and the Three Gorges dam in China.

What are the ways out of this dilemma? There may be some alternative approaches that are worth trying, such as those currently being attempted in Eritrea. The central thrust has focused on the university training of young Eritreans in archaeological methods and theory – with the goal that these young people will develop managerial approaches suitable for Eritrean conditions and that future research – both dam related and independent – will be driven by local investigators who represent local communities and their needs.

Anthony Oliver-Smith (University of Florida): Cultural Heritage and the Discourses of Dam Displacement

This presentation examined the underlying models that inform the various forms of discourse, particularly about what is to be valued and how, that are engaged in by all participants and affected parties when dam projects are conceived of, designed and implemented. Cultural heritage refers to the historical memory of a community, to that which links people to others throughout time and is constituted in objects, resources, and practices that locate a people in the universe, giving them a sense of identity through time. The disruption and uprooting frequently occasioned by dam construction separate people from the material context of their cultural identity and threaten them with a loss of vital cultural resources

The proponents of dam construction operate under primarily economically derived definitions of development and their approach involves the strategies of Cost-Benefit Analysis (CBA) and

Contingent Valuation, used primarily to place monetary values on non-market goods. In opposition, Cultural Heritage resources often represent what is referred to as a form of Constitutive Incommensurability. That is, there are some objects, places, conditions or states of affairs that are incompatible with market relations on moral or ethical grounds. The suggestion that payment would be appropriate is morally repugnant.

Clearly the necessity for strong commensuration in CBA and its equally strong rejection by dam impacted people, particularly regarding cultural heritage resources, is a problem of politics, not economics. Economics cannot resolve issues of value. It can only resolve issues of price. In dam projects the attempt through contingent valuation to reflect in monetary terms the values people hold regarding cultural heritage resources in order to set compensation levels simply sharpens political dispute. The resulting resistance movements among dam affected peoples can become more general movements of cultural resistance to hegemonic forms of discourse, debating fundamental questions of development, cultural identity and human rights. Dam construction and resettlement conflicts are at some level conflicts between two forms of knowledge, two forms of understanding reality: science and narrative.

The importance of cultural heritage resources in dam projects impresses with the necessity of finding a way to valorise other forms of knowledge and other decision-making models or means. The idea of forcing all these different forms of knowledge into one single uniform calculus or idiom must be abandoned if just decisions are to be reached. Economic analysis has a place, but it is only one place among many. Different forms of information must make up the knowledge base upon which decisions are made because different kinds of value are at stake.

Theme 2: International Organisations and CHM: Lessons Learned.

Arlene Fleming and Daniel Ritchie (World Bank). *The Management of Cultural Property in Bank-Financed Projects.*

The World Bank is a major player in the development process, providing each year some 30 billion U.S. dollars in financial assistance to developing countries. Since 1986 the "Bank" has had a safeguard policy (Operational Policy Note No. 11.03) to encourage and ensure the consideration of "cultural property" in Bank-financed projects, including such large infrastructural projects as dams. Drawing upon United Nations terminology, the Bank defines cultural property ("CP") as the material remains of locations having archaeological, paleontological, religious, historic, and/or unique natural values, both above and below ground. Funding is also available for new CP initiatives not related to ongoing Bank projects, so long as it relates to the Bank's overall mission of poverty reduction in developing countries. Current CP policy, dating to January 1999, represents minor revisions to OPN 11.03 and is laid out in Operational Policy 4.11 and Bank Procedure 4.11, summarized below.

The Bank normally does not finance projects that will significantly damage CP, and it assists only those projects that are located or designed so as to avoid, minimize or mitigate adverse impacts on cultural property. If Bank-financed projects endanger CP, they are supposed to include measures to: 1) relocate project activities; 2) adjust the project design so that sites and structures can be conserved, documented, and as appropriate, preserved *in situ*, or 3) as a last resort and in consultation with appropriate national authorities, selectively relocate the cultural property.

Assessment of CP is an integral part of a project's overall Environment Assessment (EA) process. As part of environmental screening, Bank staff consider whether a proposed project may affect CP, consulting when appropriate relevant experts, local communities and non-governmental organizations (NGO's). Projects that raise cultural property issues but do not have significant adverse natural environmental impacts are not categorized as "A". Nevertheless, such projects must still include the

following: 1) a full inventory of CP and an assessment of its significance as early in the EA process as is appropriate (including when necessary interviews with local populations to identify sites of sacred or religious significance; 2) identification of potential impacts on such CP; and 3) analysis of alternative project sites and designs that would eliminate or reduce any adverse impacts.

The EA terms of reference for the action plan to safeguard the cultural property must specify the types of background research, expertise and field investigations needed, the expected outcomes of the investigations in terms of mitigation or management plans, and the cost and time frame for the work. The EA also reviews the existing policy, legal and institutional framework for managing CP, as well as dealing with "chance finds" (CP that may be affected or discovered during the course of project implementation. In the case of chance finds, the Bank requires that the project implementing agency notifies the appropriate country authorities and protects the find in accordance with national law (or in accordance with any measures developed in the EA and set out in the project loan documents) until appropriate action can be taken.

The choice of conservation measures depends on the condition and vulnerability of the site, the degree of present and potential threat, the cultural significance of the site, and its potential future use. To ensure the effective implementation of the conservation measures selected, Bank-funded projects include, as appropriate, components to strengthen the institutions responsible for safeguarding and managing cultural property and to promote coordination among these institutions. The Bank may support training, technical assistance, help in reviewing and strengthening the legal framework, and assistance in establishing or improving national inventories of cultural property. The Bank also seeks to provide assistance in conjunction with other international organizations and the private sector.

When preparing a project involving emergency reconstruction following natural disasters and human conflicts, the project needs to: 1) take into account the presence of CP identified in its national inventory, 2) document any damage to such CP; and 3) incorporate measures to conserve and restore such property as appropriate. The project is then designed and implemented so as not to cause further damage to CP.

Revision of the Current Policy

- The current policy, while satisfactory in some ways, is deficient in others. Consequently, the Bank has recently been charged with revising its current policy toward CP, and is seeking recommendations and input from interested parties. Provisional recommendations include the following:
- "Cultural property" needs to be defined in more detail;
- Only natural sites with specific cultural significance should be included
- The general policy toward the protection of cultural property needs to be made more explicit and proactive;
- Clearer definitions on how projects can avoid destruction of cultural property are required;
- There should be better coordination with other Bank "safeguard" policies;
- There is a need for more explicitly defined procedures to be followed during the pre, actual and post-construction phases of a project;
- CHM must be integrated and implemented more explicitly with environmental assessments;
- Specific guidance as to how and when cultural property policy should be incorporated within the project planning stage is required;
- There needs to be an explicit policy towards "chance finds" encountered during project implementation;
- A more explicit policy toward cultural property management in emergency reconstruction projects is also needed

- The role of CHM capacity building in developing countries needs to be more specifically articulated;
- The Bank should establish partnerships in CHM with other international organizations; and
- There needs to be specific conditions and procedures for granting exceptions to Policy.

Once completed, the revised policy should have a major impact on CP management of Bank-financed projects. However, the revised policy must be practical, usable, and sensible, not just for the Bank, but also for the borrowers, CP managers and those people directly or indirectly impacted by the projects.

Steven A. Brandt (University of Florida). *Beyond the Bank: The Role of Other International Agencies in Funding Dams and Policing CHM.*

With about 130 billion dollars a year in development aid, there is no question that the World Bank is **the** major player in the development process, particularly when it comes to providing loans for the construction of dams. However, there are other major organisations that also provide substantial loans for dam construction. This paper presents an overview of the policies multilateral, bilateral and private international lending agencies presently have toward CHM in projects they fund.

Multilateral Agencies

While the EU does not appear to be currently funding dam projects in member countries, CHM in member countries is guided by regulations and policies set forth by the individual member states, the EU's "Culture 2000" program, and their guidelines for conducting environmental impact assessments. Article 3 of the EU's EIA guidelines states: "The EIA will identify, describe and assess in an appropriate manner ...material assets and the cultural heritage". Although Article 3 is extremely vague on what constitutes assessment in an "appropriate manner", perhaps the more important issue is whether any of these regulations govern EU-funded projects outside member states. The EU is one of the largest providers of aid to the developing world. It is uncertain whether the EU currently funds dam construction in developing countries. However, it does appear that CHM regulations for member countries **do not** apply to EU-funded projects in non-member countries (i.e. the developing world).

The Asian Development Bank (ADB), headquartered in Manila, Philippines, provides billions of dollars in development aid to Asian countries, a substantial portion of which goes to dam construction. One estimate has ADB involved with more than 30 current or pending dam projects in such countries as Vietnam, Laos, Burma, Thailand, Nepal and China. As far as this author was able to determine, the ADB does not have a formal and explicit policy statement on CHM in ADB-funded projects. Instead, its Office of Environment and Social Development, the agency responsible for monitoring EIA's (including CHM components) of ADB-funded projects, uses the guidelines of client countries (if available) and the U.S. Export-Import Bank (see below) for assessing the impact of ADB-funded projects upon the cultural heritage. Nevertheless, a quick perusal of project EIA's on-line suggests that CHM is rarely mentioned.

The Inter American Development Bank (IDB, IADB) is based in Washington, D.C. and provides billions of dollars toward the construction of dams in Brazil, Argentina, Paraguay, Venezuela and other Latin American countries. Like the Asian American Bank, the IDB's environmental (or other) guidelines do not provide a specific policy on CHM, while on-line EIA's of IDB-funded projects rarely mention CHM.

Situated in Abidjan, Cote d'Ivoire, the African Development Bank is currently considering funding at least one dam in Western Africa. As far as this author can determine, the African Development Bank has no specific policy on, nor for that matter even mentions in its literature or web site, CHM. This is somewhat ironic, coming from a continent where cultural heritage plays such a critical and integrative role in most societies.

The European Bank for Reconstruction and Development (EBRD) is currently funding one dam in Europe, but no information on the role of CHM in EBRD policy could be obtained in time to include in this report.

Bilateral Agencies

Focus was upon two bilateral international development agencies, the United States Agency for International Development (USAID) and the Japan Bank of International Cooperation (JBIC). As is the case for virtually every other international agency, USAID does not have a formal policy on CHM, although it may look to the World Bank for policy "guidance". Falling under USAID's 'Environmental Procedures', CHM may or may not be part of a project design. Why one project may have a CHM component while another will not, remains uncertain. However, geographical biases may play a role (e.g. when "scoping" a project, USAID may consult experts if the project is in an area of "cultural richness" such as the Middle East, whereas other areas may not "warrant" consideration (see Brandt's paper in Theme 4 for further discussion of this matter). USAID has no current or pending dam projects, but over the last three decades has funded various aspects of dam construction in Africa and Asia.

In April 1999 the Japan Export/Import Bank (JEXIM) and Overseas Economic Cooperation Fund (OECF) were merged by the Japanese government to form the Japan Bank of International Cooperation (JBIC). JBIC is responsible for furnishing billions of dollars of financial aid to developing countries. Section 2 of JBIC's Environmental Guidelines provides an "Environmental Checklist for Hydro Power Projects". Countries applying for hydropower project loans must answer the questions posed in the checklist. Part 1 covers natural environments, while part 2 considers the social environment. Part 3 is focused on "Cultural Heritage", and asks the question: "Is there any possibility that the project will damage properties or historical sites that are of great historical, cultural or religious value"?

Once the country applying for the loan provides answers to the checklist and other concerns, the loan application is accepted or rejected. Once the project is funded, JBIC works closely with the Japan International Cooperation Agency (JICA) to implement the project. However, once the project begins, all aspects of compliance and implementation evidently become the recipient country's responsibility; there appears to be NO monitoring or quality assurance by JBIC or JICA. JBIC is currently funding, or is considering funding, a number of dam projects in Kenya, Tunisia, Philippines, China, Malaysia, Vietnam, Pakistan, India and Peru, as well as other countries.

Export Credit Agencies and Private Banks

The United States Export-Import Bank (Ex-Im Bank) provides dam construction loans to countries whose projects generate jobs for U.S. companies. In 1992 Congress required the Ex-Im Bank to demand EIA's of all projects under loan consideration, but this was not put into effect until 1995. In the "Hydropower and Water Resources Management" section of the Ex-Im Bank EIA handbook, the part dealing with Socioeconomic and Sociocultural factors states: "The effects of the project on the presence of any artifacts or sites of cultural significance should be evaluated and mitigation measures proposed". The Engineering and Environment Section of the Ex-Im Bank is responsible for reviewing EIAs, which must be submitted by the country applying for the loan. Ex-Im's Senior Environmental Specialist reviews the EIA for potential impacts of a project on cultural heritage, and may request further investigations if necessary. Nevertheless, once again there are no specific policies or guidelines on how CHM evaluation should be conducted.

Although CHM factors may delay funding of a project, they rarely if ever actually prevent funding. For example, when the Ex-Im Bank rejected the Chinese government's request for a loan for the Three Gorges project, it was not because of concerns for the cultural heritage only, although such concerns may have factored into the final decision. Current or Pending hydroelectric project loans

being considered by the Ex-Im Bank include Cojedes, Venezuela and the controversial Illusu dam in Turkey.

Other export credit agencies involved with providing loans for dams are, to name a few: 1) the German export credit agency, which has funded the Three Gorges Project; the UK export credit agency (ECGD), which just recently agreed to provide funds for Turkey's Illusu Dam; and 3) the Swedish export credit agency is considering funding the Kishenganga dam in Kashmir. Finally, private American (e.g. CitiCorps, Bank of America, Morgan Stanley) and most likely European lending institutions also provide loans for dams and other large development projects. Needless to say, to my knowledge none of these institutions have an explicit policy and set of guidelines toward CHM.

Conclusions and Recommendations

Clearly, there are many other institutions besides the World Bank that provide funding for dams. What is very surprising is the almost uniform absence of formal policies toward CHM in dam or other development projects. In fact, the World Bank's 1986 policy toward cultural property, which is currently under revision, is vastly superior to any other agencies' policies, and hence is the reason many of these agencies "look to the World Bank for guidance". What policies or guidelines on CHM that do exist within these organisations are extremely vague and almost totally lacking in explicit definitions, procedural guidelines, and mitigation policies.

At the very least, each agency should formulate a policy that provides minimal CHM standards and requirements as part of project EIA's. Ideally, the best solution would be for the organisations to work with the World Bank in developing an international standardised policy that is acceptable to most if not all funding agencies.

Theme 3: North American Dams and CHM: Lessons Learned

David G Anderson, Bennie C. Keel, John H. Jameson, James E. Cobb, and J. W. Joseph (National Park Service): *Reservoir Construction in the Southeastern United States: The Richard B. Russell Program as an Example of Exemplary Heritage/Cultural Resources Management*

This presentation focused on the Richard B. Russell Reservoir located on the Savannah River. Archaeological reconnaissance was conducted between 1969 to 1985 in both Georgia and South Carolina. The authors believe that the Russell project can serve as a model or template of the things that can be considered, and the approaches that can be taken, on large scale heritage management projects around the world.

The Richard B. Russell Reservoir project, completed in the early 1980s, illustrates the potential contributions to knowledge that can occur when these projects are well funded and, even more importantly, well managed by agencies with CRM oversight roles. A conscious effort was made by agency managers to examine the widest possible range of cultural resources during the Russell investigations. Research encompassed domestic and industrial architecture, history, prehistoric and historic sites archaeology, oral history, and paleoenvironmental conditions. Some 20 volumes of technical reports were produced in sufficient numbers to meet professional demand, and two popular volumes were prepared and distributed in large numbers. The collections were organised and curated in a state of the art facility and continue to be used to this day, including in a public exhibit in place near the Russell dam.

The cultural resources program undertaken in the Russell project area was the result of a detailed compliance process, mandated by Federal legislation, and administered by a number of dedicated state

and Federal archaeologists and land managers. From 1969 to 1985 an extensive program of cultural resource investigations took place in the Russell Reservoir area, conducted by scholars drawn from across the United States, and under the overall management and guidance of the staffs of the Atlanta office of the Interagency Archeological Services Division of the National Park Service and the Savannah District, U.S. Army Corps of Engineers. Hundreds of archaeological, architectural, and historical sites were found and documented, and extensive investigations were conducted at over 30 locations. Upon completion, project results were quickly published and made available to interested parties. Total cost of the cultural resource investigations was approximately \$4.5 million dollars through 1985.

In conclusion, the authors discuss the importance of engaging and educating the public about archeology. The culmination, and one of the most important aspects, of the Richard B. Russell Cultural Resources Mitigation Program was the production of the Richard B. Russell popular history volumes. In producing these volumes, the National Park Service and the Corps have placed heavy emphasis on producing popular accounts that are both informative and entertaining.

George S Smith (National Park Service) and E. James Dixon (Denver Museum of Natural History): *Sustina Hydroelectric Project, Alaska, U.S.A. Cultural Resource Study Significance, Impact Assessment, and Mitigation.*

The Susitna Hydroelectric project was located in Alaska U.S.A., along the Middle Susitna River, which was designed to provide electricity to south central Alaska. The purpose of the Susitna cultural resource study was to: 1) locate and document cultural resources, 2) address their significance, 3) assess the impact of the hydroelectric project on cultural resources, and 4) to develop a mitigation plan to avoid or lessen adverse impact of the hydroelectric project on cultural resources. Based on a review of all factors a decision was made not to build the hydroelectric project and work was curtailed. As a result it was not necessary to undertake any mitigation to avoid or lessen the impact of the project on cultural resources. Before the decision was made to not to build the dam, archaeological survey and testing was conducted as part of the overall hydroelectric feasibility studies, which were conducted between 1979 and 1985.

Following baseline studies, implementation of the research design consisted of: 1) conducting survey to locate and document sites, 2) recording and testing sites to evaluate their significance, 3) assessing project impact of facilities and features, pre-construction studies, and dam operation on cultural resources, 4) formulating mitigation recommendations, and 5) curating collections and supporting documentation, and disseminating information. In evaluating site significance and formulating mitigation recommendations: 1) a cultural chronological framework was constructed for the area based on actual sites located and evaluated, 2) research questions and important themes to address site significance were defined, and 3) sites were articulated to research questions and important themes.

Smith and Dixon recommend the following strategy when conducting a large cultural resource project:

- In addition to developing and implementing adequate methods to locate and evaluate cultural resources associated with dam construction, it is important to understand the impact potential of all phases of the project on cultural resources.
- Equally as important is the need to evaluate these resources and develop a sound, justifiable, and quantifiable plan for assessing significance and determining the level of impact.
- Accurate and demonstrable assessment, at this time, is critical to developing a mitigation plan and defining and defending the associated cost, a plan that will be subject to rigorous review and evaluation.
- It is no longer appropriate for archeologists to simply look where they want and excavate only those sites they are interested in.

- Hydroelectric projects are big business. Archeology must be conducted with the same vigor as engineering and environmental studies because they will be subject to the same review process. Archeologists must be able to prepare scopes of work and budgets that meet strict regulatory and professional requirements.

In conclusion, archaeologists must be prepared to write adequate and justifiable research designs and procedure manuals, undertake strict quality control and assurance, justify methods, evaluate results, manage funding and personnel, work with a variety of other project personnel, understand and comply with appropriate regulations and guidelines, prepare acceptable reports, develop plans for curating collections and supporting documentation, work with descendant communities and the public, and be able to document such through accurate recording keeping. In doing so dams serving public needs will be built while cultural resources are given full consideration, while at the same time the understanding of our collective heritage will be enhanced.

Nancy White (University of South Florida): *Archaeological Recovery After the Dam*

What happens to archaeological sites after they are professionally documented and investigated, and then the dam is constructed, the reservoir flooded, and the landscape radically altered? Even when attention is paid to cultural resources before/during the construction of dams and reservoirs, longer-term impacts are seldom anticipated or realised. Data from shoreline resurvey of 2 reservoirs in the southeastern U.S. (Lake Seminole and Andrews Lake, Florida) constructed in the 1960's and one dam/reservoir built in the late 1970s (the Caesar Creek dam and reservoir in southwestern Ohio) demonstrate that human and natural processes have damaged or destroyed many archaeological sites. Some effects, such as better access for looters and increased recreational and commercial traffic, could have been anticipated. Other processes, especially natural erosion, can be expected though perhaps not quantified. Still other impacts might be unexpected. Advance preparation for continued management and monitoring of sites should be built in during the planning stages, with provision for regular evaluation and reporting, and inclusion of local people in the entire process.

White provides ten summary issues that might be addressed and questions asked concerning the management of long-term post-construction effects on cultural resources.

- What conditions in the project area affect the visibility and location of archaeological sites before and after dam and reservoir construction? For example, in heavily alluviated valleys sites may be very deeply buried and not able to be located by traditional hand excavated tests. Yet these sites may be exposed and destroyed by the dam and its effects. What survey methods can be utilised, from close inspection and hand-excavation of subsurface tests to machine testing?
- What are all the specific tasks involved in dam and reservoir construction that might have different impacts upon the cultural resources besides just inundation? Forest clearing, mining fill dirt for earthen dams and causeways, grading and levelling, not only within the reservoir but for staging platforms for construction machinery and facilities, and other activities, such as the construction of fish traps noted above, all have huge effects upon the landscape.
- What is the pool elevation (or range of water levels expected, both annually in normal years and for 100-year floods or worse) and how does that compare with the elevation of significant sites? This can be used as a quick way to evaluate initial impacts, from inundation to erosion on near-shorelines. What sites might now become islands and thus be more vulnerable? Could they not be protected with coverings of earth, riparian, or other materials?
- How will use and character of the water be changed/increased after construction? What are the types of impacts expected? Recreational impacts can include everything from fishing and water-skiing to looting, and should include expected volume of boat traffic, size of boats and wakes, etc. Other impacts to the reservoir could be industrial (from commercial fishing or harvest of other),

erosional, biological (native or introduced species could impact inundated or terrestrial sites), chemical, and so forth.

- How will use and character of the land change/increase after construction? Again there are impact categories from recreational (hunting, looting, more lakefront lodging) to commercial/industrial (commercial and housing construction) to natural (change in biota, greater erosion from more farmland opened up, etc.).
- How will archaeological science and method change such that sites may need to be investigated with new techniques?
- How would a hypothetical disaster resulting from dam failure or other related tragedies affect cultural resources?
- How are continued management, monitoring, protection, research, and public interpretation of cultural resources incorporated into the operating plan and budget of the project on a yearly basis? This should include involving local residents in site and erosion monitoring, documenting their collections and making sure they know the laws about looting but, on the other hand, educating them as useful and knowledgeable paraprofessionals in the quest for resource conservation. In poorer regions of the world subsistence looting has always been a conundrum for the anthropological archaeologist; would not small payment for site monitoring by local people be worthwhile for mitigating not only archaeological but social impacts of the whole project?
- Is formal resurvey scheduled periodically just like regular inspection of the dam? Changing land use will always reveal more archaeological evidence, and changing, more sophisticated methods and techniques in archaeology should always produce new, different, and/or more evidence.
- What are the indirect impacts to cultural resources outside the immediate dam and reservoir vicinity but nonetheless affected by increased traffic, pollution, development, etc. related to the presence of the dam? We also cannot forget that many dams affect rivers that may be boundary lines or may flow through different local and regional government and management agencies. Co-ordination among city, state, provincial, and national government agencies is crucial for management of protection of resources.

In conclusion, in developing guidelines for managing cultural resources impacted by large dams, the long-term post-construction effects of both human and natural processes must be well understood and considered, optimally in the planning stage well before the first ground is disturbed. Beyond the inventory and assessment of archaeological resources impacted by actual construction, including indirect impacts upon adjacent lands from bringing in the construction machinery, there is a great deal of direct and indirect impact that can be projected for decades, centuries into the future. Engineers dealing with hydrology and sedimentation rates always estimate future needs in these areas, and can even predict the eventual filling-in of a newly created reservoir. Archaeologists could just as easily assess short-term and long-term future effects upon cultural resources.

Michael Faught (Florida State University): *National Reservoir Inundation Study 1975-1980.*

Michael Faught's presentation discusses the important contributions made by the Reservoir Inundation Study, which focused on whether cultural resources have been preserved or destroyed by being inundated from reservoirs. Daniel Lenihan, and his co-workers Larry Murphy and Toni Carrol, were the core of a team of underwater archaeologists who assessed the condition and processes which pertained to 15 dammed lakes around the US from 1975 to 1980 as part of a National Park Service Reservoir Inundation Study. This research resulted in a two-volume report that is of value to this day.

The reason for the inundation study was to address a fundamental interpretive problem: whether everything about to be flooded should be left alone as a databank for the future, or whether anything to be flooded should be excavated to save it from destruction. This dichotomy became a matter of opinion, and argument without supporting data. So a five-year project was formed.

Drawing upon the study, Faught, who is also an underwater archaeologist, makes six recommendations and observations:

- plans need to deal with the artifacts in silt deposits in terms of collecting and how to store the artifacts in the silt zone;
- there is a need to address the erosional impact from boat wakes on the shoreline;
- dredging should occur where the impact on cultural resources is negligible;
- diving and underwater archaeology is difficult in these lakes, because siltation occurs, and visibility is poor;
- remote sensing should be a viable option, such as side scan sonar, magnetometry; and
- in certain settings there may be resources that could be protected underwater, or made into tourist attractions.

Kimball Banks and J. Signe Snortland (U.S. Bureau Of Reclamation): *Dam(n) the Land and Full Speed Ahead: A Case Study of the Missouri River Basin*

The Missouri River basin is the longest drainage in North America as it encompasses over half a million square miles. The basin is the historic homeland of numerous Plains Indian tribes, and the archaeological record extends from the Paleo-Indian period up through the Historic. In 1944 the U.S. Congress passed the Flood Control Act which authorised construction of dams on the mainstem and its tributaries. At that time this was the largest civil works project ever authorised by Congress. The result is that 7 federal dams now control the mainstem and another 60 dams regulate the tributaries.

The River Basin Survey, created by the Smithsonian Institution, operated from 1945 to 1969, and concentrated much of its work on the Missouri River Basin because of the amount of construction planned. Over 4 million dollars were expended on archaeology in the Missouri Basin. The biggest impact to archaeology has been on the mainstem in the Middle Missouri area of the Dakotas where reservoirs inundated numerous Plains Village archaeological sites. Prior to dam construction reconnaissance surveys recorded over 800 archaeological and historic sites in the Dakotas and 90 major excavations recovered over 1,500,000 artifacts from the proposed flood pools. Modern, intensive pedestrian surveys of reservoirs indicate that the pre-dam surveys found only **one-fourth to one-sixth** of the cultural resources.

Archaeological research picked up again in the Middle Missouri reservoirs in the mid to late 1970s and are still in progress. Both the U.S. Army Corps of Engineers and the Bureau of Reclamation began to inventory the public lands surrounding their reservoirs. Whereas the River Basin Survey recorded over 800 sites, the U.S. Army Corps of Engineers estimates that over 3000 sites on their lands have now been recorded. This represents four times as many resources than originally recorded.

Presently, reservoir and downstream riverbanks hold inundated, eroding, and endangered sites that are the material record of the Arikara, Mandan, and Hidatsa tribes and their ancestral legacy. These historic properties represent a unique aspect of the archaeological record; these villages are found only in the Missouri River drainage system. Managing non-renewable archaeological resources is an ongoing financial, legislative, and cultural challenge for federal agencies.

A total of 556 village sites have been identified along the Missouri River in the Dakotas. In both North and South Dakota, some of these sites have been designated as state or local historic sites. Unfortunately, within the Dakotas, the location of majority of these sites coincides precisely where most of the dam construction has affected the Missouri River. Consequently, only a few of these sites remain in a pristine condition; the majority has been adversely affected by dam construction or reservoir operations.

Today, the management of archaeological and historic sites around reservoirs in the Middle Missouri area are impacted issues:

- The operation and maintenance of the dams and reservoirs: Reservoir operation and maintenance activities affect archaeological sites in three ways. The first is erosion, exposure or inundation due to fluctuating water levels of the sites on federal land surrounding reservoirs. The second is erosion or inundation of sites on private lands downstream due to water releases from the reservoirs. The third is impacts to sites due to construction activities, recreation activities, or looting.
- Site vandalism and looting: Increasingly, looters and off-road vehicle drivers damage sites on federal lands in the Middle Missouri area. Because of the wealth and density of artifacts, earthlodge villages are a prime target of looters in this region, especially when low reservoir levels expose previously inundated sites. Two collectors were prosecuted in South Dakota under the Archaeological Resources Protection Act (ARPA) for looting an earthlodge village exposed by low reservoir levels. Looting and vandalism is increasing and is of particular concern to the Native Americans in the region, since these sites are their heritage. Recently, the Standing Rock Sioux Tribe in North Dakota, in conjunction with Reclamation and the Corps sponsored a 40-hour training course on the Archaeological Resources Protection Act.
- Fluctuating federal budgets: The Federal funding and budget process is a management issue because it determines the federal effort to protect or mitigate endangered archeological sites. Although federal laws and regulations require federal land-managing agencies to properly manage their historic properties, no two agencies take the same approach. In many ways the advocacy role played by the agency's archaeologists directly determines the funding levels or effort that the agency is willing to devote to cultural resources. The extent to which the archaeologist or cultural resource manager is willing to interject himself/herself into the funding and budget process reflects the success of the archaeological resource program. Even the most reluctant manager can be worn down by persistent persuasion.

In conclusion, what is the price we pay for the archaeology that has been lost, and what is the cost for managing those resources that remain? These questions can be addressed in three different ways:

- The first is in terms of economics; specifically, what is the cost of managing the resources that remain? Between 1946 and 1967, Congress appropriated \$4,256,860 for investigations in the Missouri River basin. This amounts to approximately \$202,707 per year for this 21-year period. These costs have increased tremendously in the intervening 30 years. Today, the funds expended in one year could be expended on the excavation of a single earthlodge village.
- The second is archaeological -- what is the cost to archaeology of the resources that have been lost and that are being lost? About a decade ago Brooks and Snortland of the South Dakota and North Dakota State Historic Offices, assessed the costs to mitigate and stabilise earthlodge villages threatened by erosion and looting along the shorelines of the Missouri River reservoirs. This cost estimate was prepared to focus the attention of Congress. The projected entire cost for stabilising, excavating and curating the recovered material for 30 sites is almost 4 times the amount that Congress appropriated over the 20year period for activities in the Missouri River basin. Furthermore, costs of stabilisation and mitigation for most sites exceed the average annual appropriation. The third is that management today emphasises preservation over excavation; preservation saves the site to ensure that future generations have access while excavation only preserves the data. Subsequently, an additional 253 sites have been recorded, which brings the

estimate of stabilising and mitigating the 253 sites to roughly \$60,278,720!! Obviously costs will only continue to increase.

The third is in terms of the social impacts -- what are the social implications for those resources that have been lost and managing those that remain? The impacts of the destruction of ancestral sites on tribes reach far beyond lost data. Most of the reservoirs along the mainstem border reservations. Construction not only adversely impacted tribal heritage but also inundated prime farm land that included traditional use areas, sacred areas, and areas elders considered historically important. Missouri River tribes are frequently confronted with the loss of their heritage through erosion and looting. They repeatedly encounter eroding burials and exposed human bone. Tribes have repeatedly expressed concern about the impacts on their well-being. They have successfully lobbied Congress to amend existing cultural resource laws, especially NHPA, to provide them with a more active role in the management of archaeological resources. They also backed passage of the Native American Graves Protection and Repatriation Act which provided for the return of human remains, funerary objects, sacred objects, and objects of cultural patrimony to tribes and individual Indians. The law also provides that Native Americans be consulted and must concur with the intentional excavation or the inadvertent discovery of these items.

Theme 4: African Dams: Opportunities Lost and Found

Shally Gachuruzi (University of Ottawa): *Large Dams and the Destruction of Cultural Heritage In Africa*

During the last four decades, studies on large dams in Africa have focused on demonstrating the positive impacts of large dams and their contribution to development. Unfortunately, investigations into their negative impacts are still few. Discussions relating to the destruction of living cultural resources such as cemeteries and sacred forests, animals, birds and trees, etc, are almost completely missing in this debate. Therefore, Gachuruzi's paper focuses upon population displacement and the destruction of West Africa's living cultural resources, especially sacred forests, due to the implementation of large dams.

In 1970, the government of the Ivory Coast decided to build the Kossou Dam on the Bandama River. Constructed essentially without a feasibility study or consultation of the local people, the Kossou dam provoked the displacement of 75 000 people and flooded 1,750sq. km. Initially, some people refused to leave their ancestral lands. They argued that it was impossible to leave their social environment and their ancestors who lie in cemeteries.

Indeed, we know that African communities are composed of both the living **and** the dead, and that each of them has a specific role to play within that community. To paraphrase Camara Lay, a famous African author: "The dead are not dead; they are in rivers which flow, they are in forests and woods, they are in fields". For this reason, it is out of the question for many Africans to abandon their ancestors who lie in cemeteries and holy forests, where they are venerated. When the population is forced to leave their ancestral lands without the hope of return, most of them, particularly the elderly, suffer from psychological trauma that leads to mental health problems, even to suicide.

In the case of the Kossou dam, an elderly man who refused to leave his land said: "You want me to leave my ancestors' land? What will I do with my fetish that I can not displace? How could I move the holy trees that keep the secret of my family? How could I leave my parents and grandparents who lie in our cemeteries?" In the end the elderly man committed suicide just before being evacuated by force.

Other large dams in West Africa have also caused population displacement and flooded vast regions. For example, the Volta River dams in Ghana displaced 80 000 people and flooded 9000 squares km (3.5% of Ghana!), while the Kainji dam in Nigeria caused the displacement of 44 000 people and flooded 1200 sq. km. These forced movements often had dramatic effects upon the people because they forced a complete break with the motherland and the destruction of symbolic and cultural values.

The Destruction of Sacred Forests.

In much of West Africa, sacred forests are the living memory of the relationship between the community and its environment. The boundaries of sacred are based on tradition. They escape degradation because they serve purposes which are greatly appreciated and which contribute to the life of the community. These purposes can vary from initiation and magic to commemoration, from purification and socialisation to medicinal reserves, etc.

There are specific animals and plants in these forests that are of particular importance and in need of protection. This is because of an anthropomorphic notion that animals and other resources of nature have a soul similar to that of humans. Because certain creatures have power over nature, human must court, venerate or befriend them in order to enjoy powers that they are able to confer. No family or clan member should harm or destroy the habitat of these creatures. These beliefs are transmitted through stories, legends and myths, and are inextricably bound up with survival of the community.

Sacred forests play three important roles in many African societies: worship, socialisation and medical treatment. Sacred forests serve as the place where such activities of worship as initiations, commemorations, sacrifices to divinities, and other rites take place. Indeed, it is in the sacred forests that many women drop off placentas after giving birth, representative of the community implore God(s) to bring rain during droughts, and where young boys are circumcised.

Other sacred forests are used as centers of socialisation or punishment/rehabilitation. Individuals who have committed theft, murder, incest, or have become pregnant without a known husband are isolated in the forest as punishment or for rehabilitation. Before an individual can leave the sacred forest, a representative of the community has to make sure he/she is rehabilitated, and to convince the rest of the community that the deviant act has been corrected and the spirits forgiven.

With their readily available medicinal plants, sacred forests serve also as centers of medical treatment and purification. When a member of the community is very sick, he is taken to the forest to be purified against the evil causing the sickness. The sacred forests are also used to isolate people with contagious diseases until they recover or die. Furthermore, sacred forests provide excellent places for relieving stress and other psychological problems. Perhaps it is not surprising then, that when people are forced to leave their lands, they suffer from psychological trauma and other mental health problems.

In closing it is important to ask what can be done for the protection or mitigation of sacred sites impacted by the construction of large dams. Three recommendations for guiding policymakers come immediately to mind:

- Conduct a feasibility study as early as possible on the impacts of dams upon living cultural resources.
- Implicate the local population in the whole process as soon as possible so that they become sensitised to the project and can play an active role in decision making.
- Develop mitigation plans if it is not possible to save sacred sites and other significant living cultural resources.

R. Inskip (Oxford University) *The Kariba Dam, on the Middle Reaches of the Zambezi River.*⁶

Pikirayi, (University of Zimbabwe) *Hydroelectric Dams on the Middle Zambezi River: The Impact of their Construction on Local Communities and Implications for Cultural Heritage .*

The Zambezi River saw the construction of two large hydroelectric dams in the 1950s and 1960s, each more than 300 km long and as wide as 50 km in places. The two large dams, Kariba and Cabora (Cahora) Bassa, occupy over 33% of the length of the Zambezi and cover areas of over 5,641 and 2,675 square kilometers respectively. Their construction resulted in the displacement of thousands of people. Dam construction has been proposed upstream of Lake Kariba for the Batoka Dam Project. Such a dam project should consider lessons learned from the Kariba dam.

In 1946 the Central African Council appointed the Inter-territorial Hydro-Electric Power Commission. Both the Zambezi (Kariba) and the Kafue Rivers were under consideration as sources for hydroelectric power. The commission made no mention of what would now be termed cultural heritage other than a five-line item headed "Displaced Africans" estimating the numbers likely to be affected. That item stated that "no provision has been made in the estimates for the re-establishment of these persons." Similarly, there was no reference to cultural heritage in the 1950 report on relative merits of the Kariba and Kafue projects. The Kariba proposals were adopted in 1955, and in 1956 the World Bank promised a £28.6 million loan and contracts were awarded. Three years later inhabitants were relocated and the dam wall was completed.

In 1956 and 1958 the Federation Government issued a 33 page publicity booklet with one page devoted to "African Resettlement." It explained that 51,000 people were to be moved, 29,000 on the north, 22,000 on the south. Full costs of the moves were to be met with project loans and later reflected in the price of electricity. New villages were to be laid out prior to resettlement. On page 32 the document stated that "Funds have been voted by the Southern Rhodesia Government to enable to the National Museums of Bulawayo to carry out a series of researches on geology, archaeology, material cultures, and zoology in the area."

As early as 1954, the Rhodes-Livingstone Institute (RLI) planned anthropological study of the Tonga people on both sides of the area to be flooded. An anthropologist who worked in the region in the 1940s requested funds to conduct studies. The director of the RLI recognised the urgency and used Rhodes-Livingstone Museum (RLM) funds to complete a material culture survey in 1956-57. The director and a geologist had mounted an expedition in 1950 to study geology and archaeology in three sections of the area to be impacted. Teams uncovered archaeological remains from the Pleistocene and Holocene, including Iron Age remains. In 1957-58, and 1962-65, the RLM and the RLI supported physical anthropological and nutritional research. Two musicologists spent time in the valley in 1957 recording local music. Individuals and institutions raised most funds for work that might be termed cultural heritage management, independently of the project. It is probably true to say that the Kariba dam project made no provisions for cultural heritage matters in a way that would be expected today.

Today the National Museums and Monuments of Zimbabwe Act sets out Zimbabwe's policy on the preservation and recording of archaeological remains during rural and urban development. These guidelines discuss the need for archaeological impact assessments, that any prescribed activities in or likely to affect national monuments and important archaeological sites must be subject to a project review. Archaeologists must assess the archaeological potential of an area designated for development. Evaluation may lead to mitigation or avoidance of impact. Developers must budget for the costs of these evaluations and mitigations. Most archaeological sites are destroyed as a result of

road and dam construction, mine and quarry activities, agricultural expansion, urban, rural, and resettlement housing, and industrial development.

The Batoka Project is proposed to generate hydroelectricity 50 km downstream from Victoria Falls. It took into account the environmental concerns raised by stakeholders, including the World Bank, who provided funding for the pre-development surveys. Batoka is a large dam, though not as extensive as Kariba. It will have a wall height of 180 m, crest and base thickness of 12 and 97.8 m respectively, a crest length of 766.5 m, dam volume of over 4 million cubic meters and generating capacity of 1600 MW (800 MW_{x2}).

Environmental impact studies in the early 1990s recommended additional studies. About 60 archaeological sites were recorded. Sites date from Early Pleistocene until recent times. One significant site is Chemapato 'Island,' which has substantial pottery remains and mostly-complete vessels. Iron Age sites were also recorded. These sites were going to be impacted by infrastructural development near the dam wall, since dam water would be confined to the gorge.

Chemapato Island was created by river downcutting and is regarded by Tonga as a significant rainmaking site, and others claim links to it. The site seems to have a history back to prehistoric times. Flood levels must be monitored for water could undercut and destroy the site. Excavations are required to determine the length of occupation, depth of stratigraphy, and full cultural importance of the site, which could be declared a national monument. Tourist visits require control. More ethnographic surveys on the Zambian side would help determine the site's cultural links. A museum could be built in Zimbabwe for the archaeology and culture of the area.

The Batoka project contained a social and cultural impact survey to see that local people were adequately informed, to include a "far reaching" development package, in line with the World Bank, rather than compensation. This involved consultations with local government authorities, traditional leaders, NGOs, and the Zambezi River Authority (ZRA), and drawing up socioeconomic profiles of affected people. Through field visits to communities and villages living close to the proposed project, the history and culture was documented. Approximately 25,000 people live in the area to be affected, over 21,000 on the Zimbabwean side.

In conclusion, environmental impacts on the area to which people are resettled should be evaluated and incorporated into an environmental management and impact assessment plan. Downstream impacts are also necessary to determine the degrees to which people who rely on the river and its catchment will be affected. Beyond legislation and policy guidelines for development projects like Kariba, Cabora, and Batoka, governments and developers must show political will and practical commitment in implementation, from inception through operational stages. Alternatives to the projects must be explored and debated with stakeholders, including the possibility of taking the unlikely but bold decision to abandon such projects all-together when the supposed benefits fall short of the social and cultural costs in the long and the short term.

J. Kinahan, (Quaternary Surveys, Namibia) *Lessons From The Joint Angolan-Namibian Lower Cunene Hydropower Scheme* .

Angola and Namibia seek to generate hydroelectric power by building a dam in a remote part of the lower Cunene River, the boundary between the countries. Namibia favours a dam at Epupa Falls, which would inundate an area of 380km²; in the same area, Angola favours an alternative site that would raise the cost by more than US \$500 million and bring a range of important infrastructural benefits.

The Cunene Hydropower Scheme was the first major development initiative in post-independence Namibia to include detailed environmental assessment. Feasibility studies involving 23 specialist

reports greatly added to knowledge of the area. Inundation of Epupa Falls would submerge a 70km stretch of riparian palm forest and leave large areas of grazing land barren and exposed when the reservoir is drawn down during dry periods. These studies, however, did not resolve a debate over the potential impact of the scheme. This debate arose partly as a result of incompatibilities in specialist studies.

At the heart of the debate lie Himba pastoralists, who face direct impact by the scheme. The palm forests and the terraces of the Cunene River endangered by the scheme provide a wide range of traditional plant products, as well as garden sites and dry season browse for livestock. The riverbank has a high concentration of ancestral graves and Himba pastoralists believe that they will die, in a sense, if these are lost to them.

The Himba and other smaller groups number approximately 10,000. They live mainly by cattle pastoralism, with some cultivation and minor participation in the wider cash economy. Himba have semi-permanent homesteads in the dry woodlands and hills that flank the Cunene at Epupa, where there are a number of dependable springs. Patchy rainfall, usually less than 350mm/yr, leads Himba to move livestock among outlying grazing camps several times each year. Grazing rights are subject to formal claims of access but remain negotiable and large areas are held in reserve for the ever-present possibility of drought. Himba express no interest in the benefits of the hydropower scheme but hostility due to its potential to threaten the cattle economy, which Himba see as of paramount importance and sufficient unto itself.

Namibian Environment Assessment Policy is undergoing change but requires that all major projects include detailed environmental assessment. In pending legislation, the definition of the physical environment includes archaeological and palaeontological sites. An archaeological survey of the project area was carried out in 1998 and registered a total of 155 sites dating to within the last 500,000 years. Sites include extensive late Pleistocene artefact deposits and recent rock engravings in the vicinity of Epupa Falls. Although none of the sites were directly dated, half (81) were clearly of pastoral affinity and with no obvious evidence of European contact. In a few instances it was possible to identify diagnostic evidence of Himba spatial arrangements, including ritual hearths where lineage elders maintained contact with the ancestors. However, the relative scarcity of mid-Holocene and later sites that immediately predate pastoralism, together with the fact that none of the pastoral sites appeared to be more than one or two centuries old, suggests that Himba settlement on the lower Cunene River is a historically recent phenomenon.

The earliest traces of pastoral settlement in Namibia date to approximately 2,000 BP, and evidence of pastoralism in the second millennium is practically ubiquitous in the thornbush savanna and in the Namib Desert. However, the impact assessment report claims that Himba presence on the lower Cunene is of great antiquity, citing without supporting evidence a period of "at least 4,000 years." If the authority of traditional ownership were sufficient for Himba to claim exclusive rights to the area, length of occupation would be irrelevant; historical perspectives would be unnecessary to cultural heritage impact assessment and there would be no requirement for an archaeological survey. But an archaeological assessment was required and its findings in no way influenced the final report.

The environmental impact assessment for the Cunene Hydropower Scheme contains unresolved contradictions between what are intended as complementary studies. Anthropologists neglected archaeological evidence and focused on recent land use, as apparently did botanists, since floral surveys in the feasibility study do not systematically address the role of the Himba in shaping the vegetation of the lower Cunene River. If archaeological findings had been considered, the study might have considered the possibility that the woodlands are at best marginal as cattle country and that the Himba may have moved to this area rather more recently than is supposed.

Extension of the baseline into the archaeological past allows better appreciation of cultural historical consequences of large projects such as hydropower schemes on dynamic the relationships between biophysical components and human land use systems. If archaeological studies are used to their full potential, they can greatly advance our understanding of the human and natural systems that impact assessment is intended to address. The Cunene River project shows that there is a need for conceptual integration of multidisciplinary studies at the project formulation stage to design appropriate field investigations.

An effective, integrated assessment would attempt to specify the environmental relations of traditional land use systems both on the scale of inter-annual fluctuations in production and on the longer-term scale describing shifts in the location and intensity of settlement. The integrated approach would attempt to estimate time-scales of traditional land use impacts on soils and vegetation, and try to relate such estimates to traditional perceptions of environmental potential and productivity. Such an assessment would broaden the scope of archaeological methods to provide essential time-depth where the scope of investigation generally rules out long-term monitoring of environmental processes prior to the inception phase of the project. The Cunene River project shows that the concept of cultural heritage impact should be broadened for the purposes of such assessments and that terms of reference as well as criteria of competence for specialist studies should be reviewed accordingly.

Fekri. A. Hassan (University College London) *The Aswan High Dam and the International Rescue Campaign.*

The construction of the Aswan High Dam was one of the major achievements of the Egyptian government following the revolution of 1952. In retrospect, it would have been impossible for Egypt to meet the demands for water, energy and land without the Aswan High Dam. Moreover, it has proved to be vital for safeguarding Egypt against the droughts that hit Africa a decade following the construction of the dam.

The potential adverse impacts the dam would have on the monuments of Nubia were initially realised by the first Egyptian director of the Antiquities Service (now replaced by the Supreme Council of Antiquities), Mustafa Amer as early as 1954, just a year after the site for the project was chosen. What followed, when Amer alerted his minister, Kamal el-Dine Hussein, was not only to save the threatened antiquities of Nubia, but to change forever the practice of archaeology on a global scale. For the first time, a global international effort was mounted with UNESCO's help to rescue the antiquities of two countries, Egypt and the Sudan. In his appeal on March 8, 1960, Vittorio Veronese, Director General of UNESCO made the following points:

- It is not easy to choose between heritage and the present well-being of people.
- Treasures of unrivalled value are entitled to universal protection.
- The rescue operations will not just preserve something which may otherwise be lost but will, in addition, bring to light as yet undiscovered wealth for the benefit for all.
- The monuments can only be saved by the participation of governments, institutions, public and private foundations and people of good will everywhere.

Veronese emphasised the need for services, equipment and money, and what he anticipated was truly prophetic. Not only were the monuments saved, but much more was learned about the civilisations of Nubia and the peoples and cultures of Nubia from archaeological sites that were not initially included in the call for action. Moreover, the campaign has led to decades of archeological activities everywhere in Egypt, that have radically altered our knowledge of Egyptian archaeology. This includes the remarkable rewriting of the prehistory of the Nile Valley by the Combined Prehistoric Expedition led by Fred Wendorf, whose work within the Nubia campaign opened a new chapter in Egyptian archaeology. On a world - wide scale, what Veronese called "a task without parallel in

history", led to the launch of numerous operations supported by UNESCO to save world cultural heritage.

The success of the Nubia Campaign lies in the managerial co-ordination of activities between nations and between various specialists, e.g., engineers, Egyptologists, archaeologists, and surveyors. Moreover, the campaign would not have been successful without an effective mechanism of raising funds and the means to guarantee that funds are allocated properly.

The co-ordination of activities between nations was based on a respect for national sovereignty and the creation in 1961 of an office in UNESCO (Service for the Monuments of Nubia) within the Department of Cultural Activities to co-ordinate with similar services in Egypt and the Sudan. Co-ordination and planning was also the responsibility of an International Action Committee. Its role was to assist in the organisation of a worldwide campaign to ensure contributions in money, services and equipment and thus the fullest participation by member states in the international action. Working parties were also convened to discuss the exact role of UNESCO. The parties recommended the creation of an Executive Committee to advise and comment on the allocation and employment of the money collected and on the co-ordination and execution of the work. The Executive Committee issued directives in 1962 and authorised payments from a Trust Fund that had been established to receive contributions and other revenues for the operations in Egypt and the Sudan.

The scholarly aspects of the project were handled by an international panel of experts set up as a consultative Committee in February 1960 to advise on offers received to undertake archaeological surveys, excavations, documentation and removal of antiquities. More advisory committees were created in time, such as the Board of Consultants, created by Egypt in 1961 in consultation with UNESCO, the Group of Archaeologists and Landscaping Architects, as well as the Panel of International Experts which convened in 1963 to study the various proposals for salvaging Abu Simbel.

The campaign would not have succeeded without a strong commitment from Egypt and the Sudan, as well as the international support given by an Honorary Committee of Patrons led by King Gustaf VI of Sweden. The Patrons were instrumental in securing funds additional to the funds allocated by UNESCO. The provision of funds also depended on the major role played by the mass media. Representatives of various media were first invited to visit Nubia. Before dinner, lectures were given on all aspects of Nubian life and ancient history. Funds were also generated from an exhibition of Tutankhamen treasures in the UK, France, Germany, Norway, Belgium, USSR, Canada and the USA. A tourist tax of two dollars on each entrance visa to Egypt was also a source of substantial funds. The media not only assisted in securing funding, but has also created an awareness of the importance and value of world cultural heritage that had since transformed on a global basis our sensibilities toward our common human past.

On the down side the campaign suffered from the following shortcomings.

- No long-term monitoring
- Capacity building was not recognised as a priority and no formal plans were undertaken to train personnel or establish facilities other than a documentation center.
- No Public archaeology program was initiated in Egypt
- No sustainability of capacity building
- No attention to the rescue of areas that have been threatened since as a result of the construction of electric towers, roads, canals, new towns, land reclamation, and factories.
- No consideration for the effects of hydrographic changes, for example the annual pattern and height of the water table, on monuments all along the Nile Valley and in the Nile Delta.
- The rescue operations were undertaken at a great price for Egypt since one of the conditions was that expeditions of member states were entitled to 50% of all finds for the museums of their

respective countries. Moreover, certain countries expected donations (!) of temples and other antiquities in return for foreign aid. These unfair and now objectionable ethical practices must be excluded from any future international rescue operations.

Arif Gamal (University Of California, Berkeley) *Kajabar Dam: One More Threat To Nubians And Their Cultural Heritage.*

In 1992 the Government of Sudan (GOS) decided to build a dam over Nubia on the Nile River. Kajabar Dam will be about 3,500 meters broad at its base in the riverbed and slop up at the sides to a height of 23 meters until at crest level the width is only 40 meters. The total storage capacity of the dam is projected to be around 188 million cubic meters, enough to flood the entire region south of Kajabar up to the town of Golid and Komi's Island. The stretch from Kajabar south, spanning 150 km, will require the evacuation and displacement of one and a half million people living in approximately 99 villages along the Nile, although the GOS has discussed only 9 villages.

Dams on the Nile are not new. In 1902, 1911, and 1933, parts of Nubia were flooded with dam construction and as earlier dams were heightened. The Aswan High Dam was completed in 1963, flooding a stretch of 650 square km. During that project Nubians on both sides of the Egyptian and Sudanese border were evacuated and resettled.

Nubians have one of the most sustainable agro-ecosystems, based on that practiced in the region over centuries. This region was home to an ancient technological revolution, the invention of the escaly or the water wheel, which allowed expanded exploitation of land through irrigation and flood control. Today Nubians practice a three-rotation cycle that coincides with three different climatic periods and satisfies their needs for food, fodder, and cash crops. Nubians resettled in the eastern part of the country are farmers who grow cash crops for parastatals and grow subsistence crops on small parcels of canal-irrigated land. After repatriation, people rarely cook the so-called Nubian kitchen of indigenous foods.

An important aspect of Nubian culture and history is the relationship between the date palm and social intercourse. Date palms underlie economic life, and as a cultural heritage they are indispensable for everyday life. Nubians inherit the plants; they hand them down to their children and bequeath them to their nephews and nieces when they are married. Marriages and pacts are sealed with the distribution of dates. Dates and date palms suffuse songs and dances and images of love and blessings. Nubians' human interactions are thus symbolised by dates. In the flooding for the Kajabar dam, five million date palms will be lost, as will 1.5 million mango, guava, citrus, and fig trees that Nubians have nurtured for years.

Nubia's historical importance is widely known to scholars. One time viewed as vassals and trading partners of the Egyptian Pharaohs, now ancient Nubians are understood to have created an impressive civilisation of their own. Nubia has temples and inscriptions dating from 3,000 BC. Great Pharaohs of Egypt--Dojer, Hatsapsut, Tohotomus, the Amenhotps, and Ramses II--built temples in Nubia. The Nubians later drove them to Memphis and regained control over Upper and Lower Nubia. The Egyptian 25th dynasty was Nubian, and for 67 years Nubia administered both lands.

Archaeologists have worked in Nubia for the past 40 years but have only just begun to understand the complex heritage of that region. Monuments, temples, and churches shed light on ancient Nubia. We are only beginning to answer questions about the Kushitic and Meroitic era and the relationship with Ethiopia. The Cathedral excavated at Faras in the late 1950s is of invaluable record to the Coptic or Orthodox world. The Kajabar dam, however, will inundate the area.

The GOS is seeking to raise \$1.5 million to build the Kajabar dam. In July 1998 the Minister of Energy commissioned Kajabar project personnel with a handsome budget from the central

government, and those personnel now reside in Kajabar. Donor countries have not been declared, as most of the construction of the dam is a closed affair conducted in secrecy. The GOS refused a Nubian petition to halt the project. Fifty people were arrested and imprisoned when they blocked a Chinese delegation that came to Kajabar to inspect the region. The Chinese have denied all relation to the project, although it is commonly believed that they agreed to help construct the dam. The GOS is currently looking for private investors to help fund the project. Affluent Sudanese from Khartoum and Gulf have been contacted, and some have shown interest in the project.

Given the history of dam projects on the Nile and the knowledge of the cultural heritage that comprises the region to be impacted by the Kajabar dam, this paper recommends no more dams over the Nile, and no more dams over Nubia.

Steven A. Brandt (University of Florida): A Tale of Two World Bank-Financed Dam Projects in the Horn of Africa.

The last two decades have witnessed a remarkable surge in the construction of hydroelectric projects in developing countries. These projects, rightly or wrongly, are seen as major engines in long-term development, and as such are usually considered high priority items that, come hell or high water, must be built at any cost and at maximum speed. Over these two decades S.A. Brandt was involved with two hydroelectric projects which clearly reflect inconsistencies in the way that international lending agencies, and in particular the World Bank, manage Cultural Heritage within these projects. This report tries to identify these inconsistencies and makes recommendations to rectify them.

The Baardheere Dam Project, Somalia

Since the 1930's the Italian colonial and Somali governments have proposed the construction of a large dam on the Jubba River, just north of the town of Baardheere in southern Somalia. In the early-mid 1980's USAID decided to fund a comprehensive environmental assessment study of the Baardheere Dam Project. S.A. Brandt was contracted to design and lead the archaeological component of the project. From discussions with USAID officials in Mogadishu, Brandt learned that the main, perhaps only reason archaeology was included in the project was the personal interest of the USAID Mission Director (Luis Cohen) in the archaeology of Africa, which he had acquired while USAID Director for Botswana.

Brought into the project from the very beginning and provided with sufficient funds and logistical support, the archaeological team had adequate time to plan a comprehensive program of investigation in order to minimise the loss of archaeological information resulting from the construction and impoundment of the ca. 200 km-long reservoir. An initial 10-day reconnaissance of the project area resulted in the formulation of an "American-style" three-phase field program, although USAID was to fund only the first phase. Phase I, conducted in 1987, consisted of intensive surface survey by camel caravan and car of the proposed reservoir in order to locate the range of archaeological sites present. This resulted in the discovery of over 600 archaeological sites ranging from Middle Stone Age through Neolithic rock art cave sites to early Islamic cairns and graves.

Following completion of the USAID-funded Environmental Impact Assessment study, the World Bank decided to provide financing for dam construction. Since Phase I archaeological investigations had already been completed, the World Bank also agreed, albeit somewhat reluctantly, to finance the second phase of archaeological fieldwork, which evaluated the significance of a wide range of prehistoric and historic sites through test excavations and artifact analysis. The Somali Civil War of the 1990's quickly put a stop to all further dam-related work, which would have included Phase III archaeological investigations, the full-scale excavation of significant sites.

The Gilgel Gibe Hydroelectric Project, Ethiopia

Since the early 1960's the Government of Ethiopia (GOE) has desired a dam on the Gilgel Gibe River in southern Ethiopia for purposes of generating hydroelectric power and irrigation schemes. After a series of planning studies in the 1970's and 1980's, a section of the river was targeted for the proposed dam and resulting reservoir. In 1988 an Ethiopian/North Korean consortium began construction of key components of the dam, but for various reasons construction was terminated in 1994 before the dam was completed. In 1995 GOE signed a new agreement with the ENEL/ELC Italian engineering consortium to upgrade and complete the design of the dam, as well as conduct an environmental impact assessment. In 1998 the World Bank approved a development loan to GOE for completion of the Gilgel Gibe Hydroelectric Project. The final design of GGHEP calls for the construction of a 40m high dam and a ca. 65km² reservoir, not to mention numerous access roads, quarries and dumps.

Upon learning of the impending construction of the dam, S.A. Brandt was asked in 1998 by the Ethiopian government's Center for Research and Conservation of the Cultural Heritage (CRCCH) to help determine what measures the World Bank had taken to evaluate the impact of the project upon the cultural heritage (CH). This project was of particular concern since nothing was known of the archaeology of this region of Ethiopia. According to World Bank Operational Directive 4.01, a "Cultural Properties" (CP) survey is supposed to be conducted as part of the environmental impact assessment (EA) of hydroelectric projects as early as possible by specialists in the field (see Fleming and Ritchie in this report). However, after a series of calls to the World Bank's headquarters in Washington, D.C., Brandt was told by the person responsible for overseeing the environmental aspects of the Project, that nothing had been done about CH because the Bank "can't do everything". Furthermore, that same Bank representative had personally visited the project area and did not see anything of cultural property "significance", nor did the EA report indicate that such was present. When Brandt asked what the EA said specifically about CP in the Project, the representative said he "couldn't find the EA" and that Brandt should look it up on the World Bank's Web page (as it turns out the only thing posted on the Bank's Web page is a brief, ca. two page outline of the Project EA, with no mention of CP).

In late 1998 Brandt and CRCCH were finally able to view a copy of the Gilgel Gibe EA. An 18 member assessment team composed of Italian and Ethiopian specialists representing ENEL/ELC, the same consortium selected to design the dam, completed the EA in November 1997. The only mention within the EA report of any aspect of cultural property was an extremely brief section entitled "Cultural Features", which simply stated:

"In the area to be affected by the project, there are four mosques and a primary school, but there are no known features of historical or archaeological importance".

How the assessment team was able to come to this conclusion remains a mystery. Not a single member of the EA team was listed as having any background in cultural heritage management or archaeology, nor was any kind of a CP survey reported to have been undertaken. Furthermore, there wasn't a single reference in the EA bibliography to previous archaeological studies anywhere in Ethiopia. Nevertheless, the World Bank approved the EA and gave the green light for construction of the dam. The end result was that no provision was made for the impact of the dam and reservoir upon the cultural heritage.

It is hard to imagine how a fertile river valley, where 15,000-20,000 people currently farm, could be completely devoid of past evidence of human occupation. Consequently, in January 1999 S.A. Brandt and two other archaeologists paid a one day visit to the dam area, and within a matter of a few hours discovered many prehistoric stone and pottery artifacts littering the surface of the dam construction and reservoir zones. In May 1999, the World Bank agreed to fund a brief four week emergency survey by Ethiopian and American archaeologists, but because of limited time and resources, only the dam

construction zone (ca. 2 km²) was surveyed. This small area alone resulted in the discovery of 30 prehistoric sites and over 6000 stone and pottery artifacts ranging in age from Early Stone Age (>200,000 B.P) through the Neolithic.

Conclusions and Recommendations

Clearly, and not surprisingly, the Gilgel Gibe project area is rich in prehistoric archaeological remains. But while additional World Bank funding has recently been obtained to conduct excavations at a stratified open-air LSA/Neolithic site threatened by dumping, no funds are as yet available to survey the vast 65 km² impoundment zone.

Why then was the Bardheere Dam Project such an excellent example of a successful CHM project, while the Gilgel Gibe Project was such a failure? The answer can largely be attributed to the power of individuals to make informed or uninformed decisions regarding CHM.

- When such agencies as USAID have weak or non-existent CHM regulations, cultural heritage studies can be at the mercy of project or mission directors who may or may not have a personal interest in CH. If they do, then CH will be looked after. If they don't, then CH is ignored or forgotten.
- Even if government or lending agency regulations are in place, they do not guarantee CH implementation if uninformed or poorly trained individuals have the power to accept or reject EA's. This evidently is what happened in the case of Gilgel Gibe, in spite of the fact that the World Bank has the strongest CH policy of any international organisation. An EA clearly out of compliance with World Bank regulations on Cultural Property was first approved at the Bank's Ethiopia office by engineers who accepted without question the two line statement on "Cultural Features" because they were not trained to recognise deficiencies in CHM. Then the EA was approved at the Bank's headquarters in Washington, D.C. by an individual who should have known better, but for whatever reason chose to ignore the EA's deficiencies, perhaps because he simply didn't want to bother about CP or it was just not important to him.

How unusual is the case of Gilgel Gibe, or is this more common than we think when it comes to large infrastructure projects? There are as yet no available statistics on this matter, but even one project is one too many. What then can be done to rectify this situation? Four recommendations come immediately to mind:

- CHM programs must be in place at the very beginning of a project to insure adequate time for planning and implementation.
- International lending agencies must properly train their relevant personnel in CHM. This must be done at the country-level as well as headquarter offices. Furthermore, such agencies must employ CHM specialists in relevant bureaus, particularly those offices where EA's are evaluated. Currently the World Bank **does not have even one** CHM specialist employed in Washington, D.C. to review EA's. What use are comprehensive regulations and policies when there is no one to monitor and implement them?
- A series of checks and balances must be put in place so that no single government or lending agency individual has the power to approve or reject CHM components of EA's.
- Government agencies such as Ethiopia's CRCCH desperately lack the capacity to monitor, police and implement their own and/or lending agency regulations concerning CHM. This should be

resolved by developing training programs in CHM policies and procedures, as well as providing logistical support in the form of vehicles, equipment and supplies.

M. Posnansky (University of California, Los Angeles) *The Volta Basin Research Project In Ghana 1963--70 And Other West African Dam Projects-Learning From Experience.*⁷

The dam at Akosombo on the Volta River created the largest man-made lake in Africa. Officially opened to generate power for Ghana in 1966, the dam also provided power for Togo and Benin and briefly for Cote d'Ivoire. Its success led to further dams along the Volta River, such as Kpong in Ghana, opened in 1980, and dams and barrages upstream in Burkina Faso. Because later dams were built when international and national funds were difficult to obtain construction plans did not involve salvage archaeology. In addition to the Volta Basin project (VBRP), archaeology was provided for with the Kainji project on the Niger in 1968, the Kossou dam on the Bandama River in Cote d'Ivoire in 1972, and on the Mono River on Togo-Benin border in 1990. There have been dam and barrage projects in Nigeria associated with the Chad and the Sokoto-Rima basins. Despite a significant amount of research, the impact on scholarship, except for the Volta Basin Research Project (VBRP), has been minimal. Most reports appeared as notes, mimeographed reports with limited distribution, or unpublished conference contributions.

The VBRP was a catalyst for Ghanaian archaeology. In six years 33 excavations were carried out and 20 more sites tested in the area to be flooded. Several sites were long-term projects and represent the most intensively studied sites in Ghana. The project resulted in some of the first radiocarbon dates from Ghana, which enabled archaeologists to place their findings for the first time in a reliable chronological sequence. Of the 33 principal excavations in the flood basin, 25 were either unpublished, appeared briefly in notes in an archaeology newsletter, or were referred to in passing in other publications.

The VBRP provided opening to an area otherwise difficult to work in, infrastructurally and environmentally. Work recovered evidence from the Middle Stone Age, and findings stimulated research into the archaeology of early agricultural communities. More was discovered from Iron Age sites on which most archaeological work was conducted. Work on ceramics enabled archaeologists to contribute to the history of long-distance trade. The VBRP opened many avenues for research on state formation, trade, warfare, and disturbance in the era of the slave trade, which later researchers have followed. Achievements of the other salvage projects were less spectacular and more poorly documented and have not had the same impact on West African archaeology. All produced listings of sites, especially the occurrences of stone industries.

The VBRP had a long time to plan, at least informally, as the project was under discussion for many years. Archaeologists conducted preliminary surveys in anticipation of the project. An active research university in the country provided administrative infrastructure and oversight. Of fundamental importance was the Government of Ghana's generosity and commitment to archaeology. Work was tied into university research so that equipment could be borrowed and personnel trained. Nevertheless there were problems. There were no trained personnel locally available. An emphasis was placed on the most obvious sites, predominantly of the later Iron Age. Later historical sites appear to have been neglected. No deadlines were established for completion of work other than that fieldwork would cease once the lake reached its maximum level. Contracts were not tied into job performance so that after six years on the job few final reports had been published. Rather than writing up material, researchers spread their energies and resources into archaeological projects away from the basin. The situation was similar with the Mono and the Kainji dam projects.

The various dam projects all had advantageous spin-off results. The provision of funds for archaeology in areas of tight state budgets employs archaeologists and emphasises archaeology. Extra equipment facilitates other work on local research priorities. Contract work with outside money enhances low salaries and research funds. New roads, maps, and aerial photographs open up otherwise inaccessible areas to research.

Positive recommendations for future West African dams include the following:

- Archaeologists should be brought into the planning process as soon as dams are considered. Short-term feasibility studies by archaeologists in the initial stage could facilitate recruitment and training of appropriate personnel. Seasonal considerations are of utmost importance.
- Authority over archaeology should be unambiguous and should lie with the research arm of a national university. The discipline of an organisation used to dealing with research situations normally outweighs the problems of bureaucratic costs and delays. Work contemplated or financed through foreign missions should be tied into local co-operation and the employment of local professionals.
- Funds should be allocated separately for fieldwork, laboratory work, and publication. Contracts should contain incentives to cover accrued leave pay, resettlement, and pension upon the completion of fieldwork and submission of publishable site reports.
- Where possible, a conference including historians and social scientists should precede research to suggest research priorities archaeologists might overlook.
- Surveying the area to be submerged should receive priority, with emphasis on maximum survey, made easier with GPS systems.
- Sponsorship by such organisations as the World Bank must include funds for survey and excavation and also for publication, and in many cases assistance with the curation of collections. Stone tools and ceramics require tedious cleaning, marking, and cataloguing. Curation may necessitate the construction of storage units.
- Disparate data should be collected together to provide disciplined integration of archaeological results. Despite considerable spending on rescue archaeology, in most instances the results are less known than from the less well financed programs of national university departments of archaeology.
- As a long-term recommendation the World Bank or an archaeological association to whom authority could be delegated should maintain a roster of archaeologists willing to participate in salvage work and to periodically publicise the availability of volunteer or training opportunities on dam projects in Africa. Preference should be given to projects that integrate training.

Peter Mitchell (Oxford University) *Archaeology and The Lesotho Highlands Water Project*

The Lesotho Highlands Water Project seeks to impound water along several of the rivers of the Lesotho Highlands and transfer it through a series of tunnels into the Vaal River system of South Africa. The primary intention is to provide water for South Africa's principal metropolitan centers in Gauteng Province, while simultaneously generating electricity for internal consumption within Lesotho. Other benefits for Lesotho lie in revenues from the sale of the water and the development of the economic infrastructure of the Lesotho Highlands.

Work on the Project commenced following a 1986 Treaty between Lesotho and South Africa. Four phases of construction were originally anticipated to allow for delivery of the required 70 cubic metres of water/second by 2020, but more recent projections suggest that a further two will be required, although water conservation measures in South Africa may reduce demand there. While the water delivery component of the Project is paid for entirely by South Africa, other aspects of it are provided with funds from international donors and the Lesotho Government. Total project cost is

estimated at US\$ 8,000,000,000. Phase IA involving construction of the Katse Dam along the Malibamatso River, a tunnel delivery network leading from there into the Ash River, a tributary of the Vaal, and the 'Muela hydroelectric scheme began in 1988 and was completed in 1996. Phase IB, which involved construction of a dam on the upper reaches of the Senqunyane River and a connecting tunnel to the Katse Reservoir, is currently under construction; the anticipated completion date is 2003.

Lesotho has a poorly developed archaeological infrastructure, no functioning national museum and recent political events suggest that neither will be a priority for government expenditure in the foreseeable future. Such archaeological research as has been carried out provides baseline cultural stratigraphic sequences for areas in both the Highlands and the Lowlands, but has almost entirely been the work of British and South African based researchers. Such research has shown that the country has witnessed human occupation since the Early Stone Age (> 200,000 years ago) and has a long and rich history of hunter-gatherer settlement, including several thousand rock art sites, the majority of which remain unrecorded in detail. Iron Age agriculturalist settlement, on the other hand, is no more than a few centuries old. The majority of all archaeological sites occur in areas where the Clarens (sandstone) Formation is the exposed bedrock; overlying lavas are at higher altitude and have relatively little evidence of prehistoric occupation. This is important in that while Phases IA, IB and 2 are located in areas where relatively little impact is to be expected, Phases III-V will involve flooding of significant areas of sandstone where numerous archaeological sites, some of international importance, are known or suspected.

The original (1986) Feasibility Study for the Lesotho Highlands Water Project noted the importance of Lesotho's largely unstudied archaeological heritage and recommended that serious attention be given to mitigating the impact on this of the Project. Major recommendations included creating a Heritage and Scientific Research Organisation, taking measures to mitigate impact in the Phase IA area and mounting a detailed survey and reconnaissance project before and after 2000 in the Phase III area of the Project. The importance of these measures and of providing suitably trained archaeological staff, with sufficient laboratory and storage space, to work within the Environmental Division of the responsible parastatal body, the Lesotho Highlands Development Authority (LHDA), was reinforced by a 1989 impact assessment conducted by J.D. Lewis-Williams and C. Thorp.

Thus far, archaeological work in the Phase IA and IB areas of the Project has been at a scale largely commensurate with the level of impact on prehistoric sites. In all impacted areas surveys have been undertaken of for rock art sites, open-air artifact scatters and occupied rock-shelters. Detailed records of painted sites threatened by Phase IA have been made and particularly important panels removed for safekeeping. Four sites have been excavated, three in the Phase IA area, one in the Phase IB area. These add to our knowledge of the prehistory of the Lesotho Highlands, though, regrettably, faunal preservation at one site was very poor and two other sites have been seriously disturbed by recent use as livestock shelters. Survey work was also undertaken on the South African side of the international border, but here no serious potential impact was identified.

LHDA is to be commended for the effectiveness of the archaeological work carried out thus far under its auspices, but several problems can be identified, most especially for the Phase III area of the Project. At a general level, it is regrettable that very little of the archaeological work carried out so far has been published and thus made accessible to interested researchers. Furthermore, most of the work undertaken in the 1990s was carried out by a private agency, lacking in the resources of a major museum or university department. In addition, only one MoSotho has received archaeological training (to B.A. (Hons) level) and very little of the research carried out thus far has been executed with the authorisation of, or in liaison with, the relevant licensing organisation, the Lesotho Protection and Preservation Commission.

Much more seriously, nothing has been done in the Phase III area, still less in those that may be impacted by Phases IV and V. The only archaeological fieldwork carried out in these areas has been

wholly independent of LHDA. Nevertheless, it is sufficient to show that dozens, more likely hundreds, of sites will be destroyed if reservoir construction goes ahead: along an 8.5 km stretch of the Senqu River near Sehonghong, for instance, at least 40 sites will be destroyed. The impact on our understanding of Bushman rock art and of southern African prehistory as a whole will be enormous, comparable in its effects to those of the Aswan High Dam on the archaeology of Lower Nubia. It is therefore essential that LHDA immediately initiate the comprehensive reconnaissance and survey work identified as a priority in the 1986 Feasibility Study for the Project. Only the development of an indigenous archaeological infrastructure and full use of international academic resources, appropriately funded by the Lesotho and South African Governments and international donors, can do justice to the problem that looms. And if this work is not begun in the very near future, it will, given a projected 2013 date for commencement of the construction of Phase III, be too late to adequately deal with the rich archaeological heritage of the affected areas.

Ian Campbell (IUCN, Addis Ababa, Ethiopia) *Environmental Impact Assessment, Cultural Heritage and Dams In Eastern Africa*

The subject of the conservation of cultural heritage management in Eastern Africa is not generally regarded by Eastern African governments as a high priority, so it will come as no surprise that it has not been subjected to much in-depth study or analysis in recent years. On the one hand Eastern African countries are astonishingly rich in cultural assets, including sites of the earliest hominids found to date. On the other hand, *per capita* income is very low, and in several cases, years of mismanagement of former regimes contributed significantly to a steady decline in the state of the environment, including cultural assets. This situation presents both concerns and opportunities for the conservation of cultural heritage. In the scramble for development, conservation of cultural heritage may be regarded as a low priority in both national and regional planning. But equally, there are opportunities opening up, as project development can also offer the possibility of *constructive* actions, if the conditions for such positive change are in place.

Development and the Environment

What do we mean by the term 'environment'? We generally think of it as consisting of the natural world around us - such as the flora, the fauna, the soil, the oceans, the air. Indeed this was the original meaning given to the word 'environment' not long ago. In due course, as there arose in the west a heightened awareness of the impacts of industrial development on the visual quality of the landscape, issues of aesthetics also came to be included. In the developed world, where human life is increasingly divorced from nature, this neat separation between daily life and 'the world outside', which should be 'preserved', seemed to make a lot of sense. But for Eastern Africa, it makes little sense. In a setting where the lives of the vast majority of people - mainly subsistence farmers - are tied, hour by hour, day by day and year by year to the land, human society and the biophysical environment are interlinked and intertwined. Thus in recent years it has been realised that the socioeconomic environment is just as important - and inseparable from - the biophysical environment. The word 'environment' is therefore now understood to mean the sum total of the world in which we live, consisting of socioeconomic and biophysical components. Thus in Eastern African countries, the socioeconomic component is perhaps the most critical aspect of the environment. Despite this, it still tends to be regarded as an 'add-on' in environmental management procedures.

Environmental Impact Assessment and Cultural Heritage Management

Environmental Impact Assessment (EIA) is a procedure for establishing what impacts a proposed project is likely to have on the environment, and for recommending changes to the project to minimise any predicted negative impacts. EIA has become the most widely used technique of environmental management and planning throughout both developed and developing countries.

EIA is a process conducted by a team of specialists qualified in disciplines such as hydrology, economics, sociology, agriculture, soils, biology, botany, etc. It usually takes a few weeks to conduct in the case of a small project, or several months or even years in the case of a large dam project. In the majority of East African countries there is as yet no legislation for compulsory EIA, but we are concerned here with large dams, which are almost always internationally financed, so such projects are usually (though not always) subjected to EIA as a condition of financing.

Although there are many different sets of guidelines published around the world, they are mostly very similar, the majority drawing, directly or indirectly, from those of the World Bank, which has recently emerged as perhaps the most progressive multi-lateral agency in the field of EIA. Virtually all EIA guidelines specify a procedure incorporating in some way the following steps (and all large dam projects would require all of these steps to meet internationally accredited guidelines): 1) *Screening* - determining how detailed an EIA is required; 2) *Scoping* - a statement of the environmental situation prior to project implementation, thereby defining the temporal and spatial boundaries of the baseline data, the next step; 3) *Baseline Data Collection* - a survey of the environment likely to be affected by the project, as defined in the Scoping stage, including socio-economic and socio-cultural data such as cultural heritage assets; *Impact Prediction* - predicting the likely impact of the project on the environment; and 4) *Mitigation Plan* - recommendations for mitigating measures.

Unfortunately, cultural and archaeological resources are often "forgotten" or minimised in EIA's. The reasons for this may include:

- general bias towards the biophysical component of the environment, a legacy inherited from the pattern of early development of environmental management techniques;
- lack of understanding of the importance of cultural issues in influencing human behaviour, and thus environmental condition and change;
- A belief that concern for cultural assets will slow down or stop much-needed development;
- A belief that concern for environment and in particular cultural assets, is a political agenda of the west;
- lack of appreciation of the value to society of cultural heritage resources;
- shortage of published data on cultural heritage, apart from a few famous sites;
- The scarcity of techniques designed to deal with cultural heritage in EIA,
- shortage of qualified people to address the cultural heritage sub-component of EIA, since there is an emphasis upon academic rather than practical learning, and on single-subject studies rather than a multi-disciplinary approach.

Cultural Heritage in the Baseline

In the EIA baseline, data should be collected on many aspects of cultural heritage. In Eastern Africa, this includes both *dead* (i.e. archaeological) and *living* aspects of the cultural heritage. In terms of living cultural resources, these include religious structures, sacred trees, holy waters and other sites, burial grounds and tombs, scenes of aesthetic value, and sites of historic importance like precipices, rivers, and battle-sites. Thus, for example, the analysis of a project's impact on ease of access to historic or religious sites such as an ancient rock-hewn church or a sacred spring, which in the developed world might be viewed mainly as an impact on tourism or academia, will in the case of Ethiopia be more concerned with issues like access by the local people - particularly women and the sick, cultural sensitivities, the role of the local priest, the reaction of the nearby monastic community and its effect on local politics, etc. These resources still belong for the most part to the often highly individualistic and remote communities of which they are a part. Cultural assets of this type often only come to light through the work of the sociologists on the EIA team, and the techniques for dealing with them are generally not well developed.

The issues of whether the related culture is live or dead, whether there is public knowledge about the monument, and whether or not it is registered with the Ministry of Culture, are very relevant in the execution of EIA, because the various categories of ancient monuments are generally dealt with quite differently. In the case of dead-culture assets, registered ancient monuments relating to dead culture are generally dealt with by contact with the national museum or the Ministry of Culture. In the case of known but unregistered ancient monuments, local community sources are typically utilised by the sociologist or socioeconomist on the EIA team. However, the big headache in big dam projects are the *unknown* dead-culture monuments. The chance that such cultural resource will be identified at all in the EIA is very low. If they are identified, it is only by including an archeologist on the EIA team. However, this is not normally the case. In only one EIA of a major dam project in Eastern Africa personally known to the author over the last decade was an archaeologist included in the original EIA team, nor were any funds allocated to such investigations. Why is this? The reasons are typically as follows:

- EIAs are usually assigned to Consultants on a tendering basis, in which budgeted time and price are at some point likely to be selection criteria, so potentially unnecessary staff are excluded;
- By definition, unknown resources are not known to the EIA team nor the project proponents in advance, so the need for an archeologist is difficult to establish before the job has been started;
- Even if information relating to unknown, unregistered cultural assets comes to light during the execution of the EIA, the Consultants are often reluctant to advise their clients of the need for further, expensive investigations, as the timescale and budget for the EIA is usually fixed.
- The party contracting the EIA Consultants is often the Consulting Engineering company conducting the project pre-feasibility or feasibility study, and the location and design of the project may be at quite an advanced stage by the time the detailed EIA is conducted. In such cases, the EIA Consultants may feel under pressure not to come up with problems that might cause difficulties for their clients.
- Many EIA Consultants are of the opinion that they have a professional obligation to identify only those ancient monuments that are public knowledge or are registered with the Ministry of Culture.

If an archeologist is not included in the EIA team, then there are generally the following possible outcomes:

- a) There is no attempt made in the EIA report to identify or even mention the possibility of unknown, unregistered cultural assets, and the subject is never brought up afterwards;
- b) Archeological investigations are recommended in the EIA report;
- c) A salvage survey is recommended or conducted by the EIA team;
- d) The EIA is completed and the budget utilised, but afterwards an objection is raised regarding the absence of consideration for unknown, unregistered cultural assets. There are no funds left to finance archeological investigations. Arguments break out between the project proponents, the financiers and the EIA team, ending in deadlock.

In the past, a) was the most common scenario. However, d) is now occurring in a number of cases. The solution is usually to hire an archeologist to conduct preliminary investigations. The problem then arises when potentially important sites and assets are discovered, because the original EIA failed to recommend funds be included in the project budget for managing or reclaiming such assets during project construction.

The amount of work involved in achieving good coverage of the cultural heritage component of the baseline, which is usually not great in developed countries, can be very considerable in East Africa,

and is almost always underestimated in EIA Terms of Reference. This distinction between developed and developing countries is, in fact, a general one: In developed countries the impact assessment phase is complex and often takes the most time. In developing countries it is always developing the baseline which takes the lion's share of the work and the budget.

Lessons Learned on Data Collection Methods

Methods of data collection are varied and sometimes poorly developed, but over the years, the following lessons have been learned:

- While remote sensing methods are useful, there is no substitute for on-the-ground research. Care should also be taken to conduct ground-truth surveys wherever possible in order to verify map information.
- The 'rapid rural appraisal' method, currently so beloved of development agencies, can be a risky method of cultural heritage resource assessment. The most important cultural heritage assets may be the most well hidden, and the most jealously guarded.
- The "participatory approach" has a great deal to commend it, and has yielded excellent results in many contexts, but in the cultural heritage sector it can have its drawbacks. For example, the presence of a group can inhibit discussion of cultural resources and practices, and can even close the door on access to vital information.
- Oral traditions as a source of data can be valuable, but are also problematic. They require careful cross-checking and verification by other personal interviews, site investigations and a careful study of the literature.

Actions for the Future

Given the complexity of even the few issues touched upon here, it should be apparent that there is much to be done in the field of cultural heritage assessment if the sector is to be properly managed. The cultural heritage sector is lagging behind, and requires our urgent attention if our cultural heritage resources are to be saved from destruction. The following are some of the priorities that need to be worked towards, although the precise form that they should take is, as yet, far from clear.

Methods of Assessment: There is a need for the development of methods of research and analytical models for processing data on cultural heritage resources, methods of presentation of baseline data and procedures for assessing the significance of such resources and of impacts on them.

Site Registration: In most East African countries there is still a need to develop a comprehensive register of cultural heritage sites, locations and monuments. This inventory should include mapping, and should extend beyond the present list of UNESCO World Heritage sites to include other types of cultural heritage resource such as religious sites, potential archeological sites, historic settlements, battle sites, cave sculptures, trade routes, historic gardens, burial sites, examples of vernacular architecture, etc.

Cultural Landscapes: Also included in the register of cultural heritage resources should be cultural landscapes, not hitherto widely recognised in East Africa. However, the cultural landscape as a category of site is particularly relevant in the region, consisting as it does of a geographical area in which activities such as human settlement, cultural and agriculture over a long period have achieved a balance in which mankind's responses to environmental conditions may be seen, in which cultural sites abound, and in which there has been a long-standing continuity between man and the eco-system.

A Multi-disciplinary Approach: We have already noted the need for practical skills, lateral thinking and a multi-disciplinary approach to the management of the cultural heritage component of EIA, and indeed for the execution of EIA in general. The need for a progressive and open-minded approach to education and training for these activities is also apparent. One pressing need is for conservation architects with a wide spectrum of knowledge and interests, particularly in the fields of geography, history and the environment. Only with the contribution of such professionals will we be able to achieve a truly holistic view of East Africa's cultural heritage, and be able to integrate it properly into its socio-economic and biophysical context.

Institutional Arrangements: Skilled human resources alone are not the solution if the institutional arrangements for the conservation of cultural heritage are not in place. Much will need to be done by projects like the Ministry of Culture and the Bureaux of Culture, the Conservation Strategy of Ethiopia and the federal and regional governments in general to bring non-governmental players into the picture, to harness private sector initiatives and to generally create a more sympathetic and facilitating environment for this important activity.

Country-specific EIA Guidelines: One of the most important lessons the author has learned from conducting EIAs in East Africa is that of all the EIA components, the socio-cultural one is the one most in need of country-specific guidelines. Most national EIA guidelines go no further than the generic guidelines of the World Bank, OECD, UNDP etc. For most components of the EIA, this does not matter too much, because the generic guidelines, which in any case are usually well known to EIA consultants, suffice. But in the case of cultural assets, the situation is highly country-specific, and without detailed guidance on what information is available, where it can be obtained, the identity of local experts, etc, the cultural heritage component will continue to be the poorest section of EIA reports in East Africa.

Theme 5: Latin American Reservoirs and CHM

Augusto Oyuelo (Universidad Nacional, Columbia, U. Pennsylvania) and Ana Maria Boada (Instituto Colombiano de Antropologia, Bogota, Columbia); *CHM and Dams in Columbia: Expedient Archaeology between Bullets and Ideologies.*

The first attempt to conduct CHM in Columbia was not until the 1980's, and was more in the form of "rescue archaeology" where workers followed in the footsteps of large earth-moving machines. In 1997 Columbia passed legislation for the protection of its cultural heritage, but there are still no official guidelines for conducting CHM. Responsibility for undertaking CHM lies with the Instituto Colombiano de Antropologia Nacional (ICAN), but there are now only four staff archaeologists responsible for the entire country. ICAN recently created the Comité Nacional de Arqueología Preventiva (CONAP), a democratically elected group of archaeologists from throughout the country to define CHM guidelines, but lack of funds and clear legal definition has rendered it "irrelevant".

Almost 80% of Columbia's energy comes from the 26 hydroelectric plants currently in operation, with another three under construction and 26 more in the planning stages. The Ministry of Environment issues the licenses for dam construction, and are also responsible for evaluating the CHM component of a dam's environmental study. Unfortunately the Ministry of Environment does not have qualified personnel on staff to evaluate CHM reports, and ICAN lacks the political power or resources to assist in the evaluation. There are less than 20 archaeological reports for these dams, and only two complete publications exist. Furthermore, most of the dams affect indigenous populations, yet there has been absolutely no consideration of their cultural resources.

The remainder of the paper focuses upon the large dam of URRA I as a case study of "bad practice". At a cost of over \$650 million, the URRA dam is 73 meters high with a planned reservoir of 7,400 ha.

Construction began in 1993, with the reservoir due to be filled this year. Not only has the archaeological work been extremely poorly designed and executed, but there has been very little interaction with the indigenous people impacted by construction. As a result a very turbulent and violent atmosphere of protest and paramilitary/guerilla activities has permeated all aspects of the project.

In conclusion, the authors argue that the problems with CHM at Columbian dams are due largely to the lack of knowledge and awareness by companies and contractors in dam construction of the importance of recovering and protecting CH. The low level of professionalism of those doing CHM work has resulted in poor quality and poorly organised investigations. The lack of guidelines for archaeology done in dam construction and the lack of a review process that can push for higher standards of research design, execution and presentation of results are also serious problems. Finally, most of the CHM work on dams has had no impact on the academic community or general public, as there have been virtually no publications of the results, nor has the work involved input from the public. This is especially the case for the local communities directly affected by dam construction.

To overcome these problems, Oyuela-Caycedo and Boada recommend:

- The WCD and other international organisations should promote the fact that Cultural resources is as extremely important to local, regional and national populations as is natural environmental resources.
- CHM fieldwork at dams be divided into 3 phases of work: 1) the first phase is a 100% survey of the area to be affected, using techniques of survey appropriate to the area in question. This phase is limited to the location and definition of potential sites and non-sites. Every artifact should be considered a site, and plotted on scaled maps; 2) those sites that have evidence of features (postholes, concentration of archaeological material, roads, evidence of structures, activity areas) should be excavated in a sample manner to establish the significance of the feature or associated features; 3) the third phase is the recovery or excavation of 100% of the sites that are going to be affected by the dam.
- CHM projects should begin at the planning stage of the dam and continue until final construction.
- The WCD or other international agencies need to help Columbia develop standard guidelines for doing CHM, and to create intensive courses to train local archaeologists in CHM, particularly as it relates to dams.
- There is an urgency to develop a more public CHM program. Training should include a course on how to reach the people affected by a dam project by making them active participants.

Gustavo Politis and Maria Luz Endere (Universidad del Centro de la Provencia, Buenos Aires) *Archaeological Heritage Management and Dams in Argentina: A Brief Review of the Situation.*

According to current legislation, CH belongs to the National State or Provinces, whether on public or private lands. Therefore the State has assumed the legal authority and responsibility for its protection. Unfortunately national legislation applied to archaeological resources is antiquated, incomplete and inefficient. Most of the environmental laws enacted in the last few years do not include the protection of archaeological resources. As a result there has been a severe loss of valuable archaeological sites.

Many provinces have updated their legislation concerning cultural heritage, and now require environmental impact assessments to have an archaeological component before large infrastructure or natural resource projects can be carried out. However, most of these laws have not yet been implemented. In some cases, international organizations such as the World Bank have required CH assessments for projects in which they have provided financial assistance. Nevertheless, without a

clear national heritage management policy, CHM activities in Argentina have been carried out without coordination, continuity or control, with obvious consequences for CHM at dam projects.

Most of the dams built in Argentina were not preceded by any kind of archaeological impact study or preservation work. Those dams which were subjected to some kind of fieldwork rarely experienced continuous systematic studies from the planning stage onwards, and instead can be classified into the following categories:

1. Fieldwork performed during the planning stage. Some of these were conducted in short periods of time merely to comply with a formal request, or were interrupted because of the lack of funding
2. Activities carried out during the construction stage (e.g. Salto Grande, Yaciretá in Corrientes Province, etc.).
3. Activities performed after the dam was built to salvage materials exposed by erosion (e.g. El Cadillal, La Florida Reservoir, etc.).

There are very few researchers trained specifically in CHM, nor are there specific courses in Argentinean universities (or for that matter any other South American university) developed to teach students how to conduct CHM projects in dams or in other public developments. Those researchers involved in the rescue archaeology of dams in Argentina are usually scientists with permanent positions as researchers in the main scientific institutions of the country, or are professors in national public universities.

There are no adequate mechanisms to control for the quality of the archaeological investigations as well as the results obtained. There are no national or provincial bodies assigned with the tasks of consciously analysing and evaluating the results of rescue archaeology. There is also no consensus on the criteria for CHM practices in Argentina, although a recently created association of archaeologists has as one of its aims the establishment of basic principles for regulating archaeological work. In this context, it is necessary to determine standards of quality under which CHM research can be done. Most of the reports produced by the researchers have not been published, and those that are printed are often not available in the specialised libraries. Perhaps the only exception is the annual publications edited by PREP- CONICET, which contains a compilation of the results of research carried out by different members of their teams.

In conclusion, there is a general awareness in Argentina of the damage caused to the environment in recent decades, and the local population is increasingly involved in protests against the destruction of the local habitat or traditional way of life as a consequence of dam projects. Local communities have also started to show more interest in preserving their archaeological sites and have asked for more protection from the authorities. Local researchers and museums are now able to carry out projects to help preserve sites and encourage public participation and support. However, these efforts are not going to be enough if there are no deliberate federal and provincial policies of preservation which coordinate and support local initiatives. The time is now right for a major effort to formulate a comprehensive strategy for protecting both natural and cultural resources. Such a strategy would make it easier not only to enact legal protection for both cultural and natural heritage but also to ensure the enforcement of these laws.

In this context, the role of such international organisations as the World Bank (which funded at least three of the large Argentinian dam projects) in helping to preserve cultural heritage, adopt quality control mechanisms, and guarantee adequate funding, is crucial to complementing the gaps in the legislation. Furthermore, the recommendations of the World Bank are useful in promoting a change of attitude in political authorities and developers concerning the need to implement cultural and natural preservation practices.

Paulo de Blasis (University of Sao Paulo) and Michael Heckekenberger (University of Florida): *Dam Contract Archaeology in Brazil; Some Quick Prospects and Perspectives*

The demand for hydroelectric power in South America's most populous country is very high. Of the 939 large dams in South America, 590 (63%) are in Brazil, with Argentina's 96 large dams (10%) a distant second. Given that Brazil encompasses the Amazon Basin, the largest hydrological basin in the world, we can expect that hydroelectric development will continue in the near future at a relatively fast pace. In fact, nine major dam projects are currently under development.

Prior to 1986 CHM studies of dam projects were practically non-existent. However, since 1986 when government laws protecting cultural resources were passed, CHM investigations have increased dramatically. CH resources are under Federal Government regulation, whether on private or public land, and the laws are some of the most advanced in the world. However, as is commonly the case in the developing world, the laws are not enforced. There are a number of reasons for this. First, funding for CHM is extremely meager. Second, there are very few archaeologists trained in CHM (in fact the University of Sao Paulo offers the only Ph.D. course in the whole country!), and third the size and scale of dam projects are immense (e.g. the two dam projects on the Tocantins River in southern Amazonia cover more than 2700 sq. km. of unstudied terrain).

Another major problem is that large dam projects have rarely been investigated using systematic, regional survey approaches, with an eye toward determining significance of finds. Finally, little attempt has been made to investigate the impact of dam construction upon the cultural resources of the indigenous populations that are invariably displaced by the dams.

In conclusion, the authors suggest the following recommendations for improving the state of CHM in Brazil:

- CHM must be incorporated into planning at the very beginning of the project.
- Adequate funding must be provided to allow for: 1) sufficient coverage of the study area; 2) good quality research; and 3) publication of results.
- An intensive program of training professionals and students in CHM theory and method must be developed;
- Uniform field, laboratory and reporting standards need to be established;
- The Government must enforce its own legislation.;

Lynette Norr (University of Florida) and Michael Faught (Florida State University) *Archaeological Site Location and Assessment in Lake Alajuela, Panama*

The presentation by L.Norr and M. Faught focused on Lake Alajuela (Lake Madden), Panama. Constructed in the 1930's to regulate the flow of the Chagres River, Madden Dam was never surveyed for CH sites prior to the impoundment of Lake Alajuela. In the 1960's local residents began collecting archaeological material eroding from the banks of the lake. Ranging in age from Colonial artifacts to Paleoindian projectile points potentially more than 10,000 years old, these artifacts are also collected as souvenirs by eco-tourists who take boat tours to the lake's hill-top islands.

In 1998 a three week pilot study to record the range of existing archaeological sites, and to assess the degree to which cultural materials had been disturbed, became possible when the level of Lake Alajuela dropped almost 80 meters to its lowest legal limit. Using foot surveys as well as GPS and Side-Scanning Radar techniques, Norr and Faught discovered that whole portions of the lakeshore had been eroded away due to heavy wave action, exposing thousands of artifacts on the surface.

Elsewhere other cultural features, including human burials, were found eroding out of the wave-cut sediments, although excavations revealed them to be still intact below the surface.

In conclusion, Norr and Faught recommend that funds for post-inundation monitoring of reservoir lakeshores be included in all dam projects. Although Panamanian law (Ley No. 14) prohibits the nonscientific excavation, ownership, or export of cultural heritage, it has been extremely difficult to implement the law. There is no formalised academic or industrial training of archaeologists in Panama. There are also no private CRM companies. With only a few archaeologists and a small number of government inspectors for the whole country, it is very difficult for the department of Patrimonio Historico, a division of the Instituto Nacional de la Cultura, to manage cultural heritage in Panama. Clearly there is a great need for training and capacity building in CHM.

Theme 6: European Reservoirs and Dams

Abstract: The two reports on European dams provided additional examples of "best practice" in CHM, where regulations and adequate funding guaranteed systematic survey, testing, and mitigation. The Alqueva Dam of Portugal provides a model of CHM planning and execution, and is noteworthy for allocating funds not only for mitigation within the inundation area, but also for infrastructure projects associated with dam construction, future lake shorelines, a local museum and publication of results. Funding for high quality CHM of the numerous and extensive Siberian reservoirs has also been guaranteed by Russian laws. However, no funds exist for post-construction monitoring of the reservoirs where annual water fluctuations of as much as 40m has resulted in major erosion along lake margins, thereby exposing new archaeological sites.

Antonio Carlos Silva (ENIA, Portugal) Cultural Heritage Management and Dams: The Portuguese Case and The Dam Of Alqueva (Alentejo)

CHM and Dams in Portugal

Prior to the 1970s Portugal lacked safeguards for archaeological heritage with projects such as dams. Salvage archaeology dates from the mid-1970s. The Sines project conducted in the SW Atlantic shoreline between 1972 and 1977 comprised survey and salvage archaeology in the face of a state-promoted industrial development project. During construction of a dam at Fratel on the Tejo River, a rescue survey promoted by archaeology students discovered and registered rock engravings between 1971 and 1973 with minimal government involvement. Despite lack of legislation, in 1980 agencies were constituted to conduct salvage archaeology. Regional Archaeology Services led salvage archaeology in construction of dams since the early 1980s. In 1982, the Services recorded rock engravings and other archaeological remains in the flood area of the Pocinho Dam on the River Douro. At the same time, a team surveyed the area to be flooded by the Torrão Dam on the River Tâmega. A 1985 new law in Cultural Heritage recognized archaeological heritage specificity and the need for archaeology surveys on projects that impact the landscape. Legislation began to shift responsibility for archaeology to bodies responsible for construction. The first environmental impact assessment (EIA) involving significant archaeology was carried out in 1985-86 for the Alqueva Dam, work on which had been suspended in 1979. Despite the 1985 law, the form of archaeology on projects remains unclear. Based on analysis of more than 200 EIAs, an independent report concluded recently that most EIAs did not take archaeology into account, few included archaeologists, results were rarely based on fieldwork, and when archaeological impact was detected mitigation was rarely enforced.

In the 1990s, archaeology at the Alqueva and the Cõa dams contributed to changes in impact work. Central bodies assumed direct responsibility for archaeology and established funding accords with

dam companies. But disintegration of official services was underway; Regional Archaeological Services disbanded in 1992. Controversy over archaeological findings culminated in the abandonment of the Coa dam project after US\$ 150 million had been invested, but the prehistoric art discoveries at the Coa Dam Project (1990-95) brought questions of archaeological heritage into political debate. After 1995 elections the government suspended work on the dam and a new agency in the Ministry of Culture was created (IPA- Instituto Portugus de Arqueologia) to supervise archaeology, including mitigation. Several archaeology teams were set up, and new laws were designed for evaluation of environmental and cultural heritage impact. Despite obligation to evaluate archaeological impacts being anticipated in the law, the process of environmental impact evaluations as well as the final decision, including determination of mitigation measures, depends exclusively on the Ministry of the Environment, which lacks the competence and the resources for cultural heritage management. Although today advice is sought from the Institute of Archaeology (Ministry of Culture), its role is not yet clearly defined and its position is not binding.

The Alqueva Dam experience

Currently under construction, the Alqueva dam on the Guadiana River will create a giant reservoir (4,150 hm³). This will drown approximately 250km², creating one of the largest artificial lakes in Europe. Despite the impact, including two legally classified monuments, the project, formulated in the 1960s, planned no work for impact mitigation. In 1975, on the eve of work commencement, archaeology students located new sites in the dam zone, but construction began without a plan for archaeology. Only when construction work was suspended in 1979 were cultural heritage impacts evaluated. Bibliographic study identified 40 archaeological sites and in 1980, faced with the dimension of archaeological impacts at Alqueva, the Council of Ministers included archaeology in the dam budget. In 1985, with Portugal's entry into the European Community and expectation of financial assistance, a first EIA was carried out at Alqueva. A first field survey of the 250km² area identified almost 200 sites, assessing the dam's impact as very high. The project was not questioned, but study conclusions pointed to a need for further archaeology as a form of mitigation.

However archaeological costs met resistance at the restart of the Alqueva project. Only in 1989 was more archaeology accepted. New surveys between 1989 and 1991 enlarged the area's database by ~50% but lack of funding interrupted fieldwork before attaining an integrated survey. New studies between 1992 and 1994 complied with the E, provided first-time evaluation of archaeological impacts downstream from the dam, sited for 100,000 hectares of irrigation, and Spanish area threatened with submersion. However time and the means for surveys were inadequate and conclusions pointed to negative impacts and the need for greater study. In 1995, the government restarted the dam construction, establishing a state company, EDIA (Empresa de Desenvolvimento e Infraestruturas de Alqueva) with an archeology department. Because the flood area had priority, there were new systematic archaeological surveys. The data were published in a report for a colloquium, and other initiatives were taken to involve people living near the project. By the end of 1996, 300 of 1,300 registered sites and other material structures were selected for the *Archaeological Mitigation Plan*.

It was possible in 1997 to begin actions in *Measure A* of the mitigation plan. These included: new surveys in zones outside the inundation area; survey and excavation in areas affected by construction of a resettlement village; excavations at known sites; and integration of archaeological data in a Geographic Information System. However bureaucratic problems, delayed until 1998 the application process and the beginning of the sixteen scientific projects included in *Measure B*, from the Paleolithic to the Medieval and Modern times.

At last, Measure C of these Plan work to place all the mitigation process at the service of cultural, social, and economic development of the local population and will promote value assessment and cultural management of sites and monuments not affected by inundation to be integrated into tourism. Studies exist for a large archaeology museum in the area. In the new village, in consideration of the

traditions of the 400 inhabitants resettled, a memory center is under construction, including a new church (using architectural elements from the original), a cemetery to which will be transferred remains from the old cemetery, and an ethnographic museum.

Although one year of fieldwork and two years for preparation and publication of final reports remain, it is obvious, despite the inevitable loss of a significant percentage of the potential archaeological register, that it would never have been possible under normal conditions to conduct archaeological research on this scale. Indeed, it seems to us today that it would have been very advantageous to have proceeded to the planning phase through one or two years of intense survey, scientifically oriented, supported by evidence at the appropriate time by traditional soundings and by geophysical methods. The final planning of excavations it would have been subjected to a consideration certainly more secure and objective, and the risks of an orientation less productive in terms of investment would have been much reduced.

Anatoly Derevianko (Institute of Archaeology, Siberian Branch, Russia): *CHM and Dams in Siberia*

Between the 1950s and 1980s dozens of major hydroelectric power stations were built in Siberia, the home of the largest rivers of Eurasia. The many dams built on the Ob, Yenisey, Lena, Amur and other rivers and its tributaries now account for about 50% of all electric power generated in Siberia, more than 20,000,000 kilowatts of energy. These hydroelectric projects and their resultant reservoirs and large irrigation systems have inundated several thousand square kilometers of land occupied by ancient and contemporary populations, and as a result have destroyed the largest number of historical and cultural monuments of any single type of construction activity. Moreover, after the construction work is completed, the shores of the lake continue to erode away as reservoir water levels fluctuate seasonally, causing further destruction of archaeological and historical monuments.

Fortunately, over the last forty years the lands impacted by the Siberian hydroelectric projects have witnessed a tremendous amount of protection and conservation of the cultural heritage, due in large part to the an extensive legal framework governing such activities. In the former Soviet Union and in the current Russian Federation, the monuments of history, architecture, culture, archaeology, etc. have been united into a single "cultural and historical heritage". They enjoy the same legal status and are protected by the state.

For the last two and a half centuries, a significant number of different laws and documents governing the cultural heritage have been adopted. The latest law of the Russian Federation, "On the Protection and Management of Historical and Cultural Monuments", was adopted on December 15, 1978. This legislation forbids the demolition, displacement, or alteration of immovable objects and monuments without their preliminary and complete scientific investigation and recording. It is also forbidden to perform any construction work within the restricted areas, which may impact archaeological objects and monuments without special permission of the state organs responsible for the protection of monuments. The legislation protects both the already revealed and recorded archaeological monuments as well as monuments yet to be revealed. Civil engineering, road building and other kinds of work that may jeopardize the objects and monuments of archaeology may be performed only in agreement with the state organs of monument protection and only after measures are taken that provide the safety of the monuments. The 1978 law provides for three stages in the conservation of archaeological monuments in construction zones: 1) planning for activities, 2) coordinating them with the state organs of monument protection; and 3) accomplishing all the research planned.

This report focuses upon the results of archaeological investigations impacted by six large dams. The synopsis provided here does not provide details of the archaeological investigations at these projects,

but instead focuses upon conclusions and recommendations generated by these six and other dam projects.

1. Highly qualified scholars from Research Institutes, Universities, and Museums carry out archaeological field and laboratory investigations. The supervision is executed by the Field Investigation Committee of the Institute of Archaeology of the Russian Academy of Sciences. A practicing archaeologist must apply to the Field Committee for an "Open Conduct Form" (i.e., a permission to carry out excavations). Upon finishing field investigations, an executor must submit a final report, in which methodology and excavation process have to be illustrated in details, including photo-records, plan-maps and draughts documenting the process of works. The reports are reviewed thoroughly in the Committee and in case of positive references, the applicant is provided with the "Open Conduct Form" for a next year.
2. Field investigations carried out under dam projects provide investigators with unique archaeological remains covering all chronological periods. These artifacts have been submitted to the museums of St. Petersburg, Moscow, Irkutsk, Kyzyl, Krasnoyarsk, and other big cities. Masterpieces of architecture have been rescued and transported from submerging areas to other places, where new Museums of history and open air architecture have been constructed.
3. The amount of research conducted at dam projects provides enormous published material throughout the vast territories on old and newly defined archaeological cultures.
4. Many years of excavations in the areas impacted by dam projects have revealed quite a number of bad practices, from which lessons should be learned for future projects. The major drawback of such projects represents shortages of financing and time in which to do the work. For example, lack of funds and time at the Angara power station alone, resulted in the loss of about 360 archaeological sites (e.g., rock art, stratified and architectural sites, and burials) due to inundation of the reservoir. Due to shortages of financial support and other reasons, most of the data obtained in the course of excavations have not yet been published. Furthermore, not a single reservoir has its own services to monitor changes along the shorelines in order to observe changing ecological situation in the areas impacted by large dams, as well as in preservation of cultural heritage sites, which can be lost due to bank washout processes.

Major Inferences and Suggestions.

1. *Ecological expertise and economic reasoning.* Any dam construction project must be subjected to ecological expertise. From our standpoint, the ecological expertise should involve evaluation of the whole range of impacts on environment and human population emerging during the construction and especially filling of the reservoir. Hydroelectric power is traditionally considered as one of the cheapest sources of energy. But, if all the expenses are calculated, including maintenance of the ecological balance within the impacted areas, the overall cost of power increases greatly. Upon such deliberate and comprehensive expertise of the construction project and its impact on the environment, the economic expediency of the given project should be necessarily estimated.
2. *Accumulation of data on designing a draft project.* If the project is shown to be cost effective, the territory in question should be examined for cultural heritage sites. For this sake, aerial photo-recording of the areas should be conducted. The aerial-photographic documenting provides the fullest information on the location of burial mounds and grounds, human-made surface construction including earthen walls and ditches, as well as many other

archaeological and historic cultural sites. Examination of pictures taken from space and aircraft is very important as the sites can occur far from existing roads.

3. ***Reconnaissance at the stage of designing a project.*** During the project design phase, which usually takes from 5 to 8 years, a thorough archaeological survey, mapping and preliminary expertise of all cultural heritage sites is to be executed, including the known ones and newly located sites. In addition to the above mentioned aerial-survey of the territory, all methods of on-land reconnaissance should be employed in order to compile comprehensive lists of cultural heritage sites and to evaluate the costs of their thorough investigations including excavations and rescue of archaeological monuments. Financial support should be provided for the whole range investigations, including subsequent restoration and conservation, scientific recording and registration of all available materials for presentation in museums, and publishing of available information.
4. ***Field investigations during construction.*** Experience has shown that it is impossible to excavate all known sites located in the impacted areas. Therefore, an overall project research and sampling design needs to be developed and carried out in two stages – first in the form of public discussion, and second in a peer-review process so as to provide guidelines on the state of importance and amount of work involved in a particular project. We suggest that excavations and other investigations of archaeological and other heritage sites are to be carried out starting from the dam itself and proceeding upstream, as it takes about 4 to 7 years to fill reservoirs with water, thus providing additional time for investigations in the upper reaches of the lakes.
5. ***Staff.*** The quality of investigations in cultural heritage sites depends on the skills and professionalism of the involved researchers. The range of cultural heritage sites located in vast impacted areas is enormous, comprising different types of sites (i.e. temporary camps, settlements, towns, burial grounds, etc.) attributed to various time periods from the Paleolithic to the Late Middle Ages. Thus, it is very important to engage highly-qualified scholars for director and supervisory positions.
6. ***Draft registration of finds and initial conservation of materials as a part of field activities.*** Another very important and complicated problem is that of storing and displaying archaeological and architectural heritage objects at museums. Previous museum keeping practices in Russia resulted in dissipation of collections obtained from dam areas among numerous museums and storage centers in various cities, and even in disappearances of some collections. An especially bad situation is conservation of architectural objects. Only a minor share of architectural constructions has been rescued from impacted areas, and even these objects have been poorly restored and conserved. Thus we suggest that project estimates should include a separate budget supporting museum management of archaeological collections and creation of open air museums of architecture for the sake of keeping and displaying the most impressive and valuable architectural complexes.
7. ***Management of obtained materials upon completion of field investigations.*** In the course of long-term investigations of various types of archeological sites affiliated to different periods, a whole body of data is accumulated calling for conservation, restoration, and further investigation. During winters, only a very small portion of overall collections is usually properly conserved and recorded. Upon the end of investigations in the dam-impacted areas, a considerably long time is usually taken (another task is to estimate the duration of conservation works with respect to the quantity and state of preservation of the available materials) to carry out conservation and restoration works. We believe that these works

should be carried out under the financial support of exploitation expenditures of hydroelectric power stations.

8. *Processing of archaeological data.* During the course of reconnaissance works and excavations, scholars are able to introduce only a minor portion of obtained data into scientific circulation. The further investigations, laboratory analyses, and publication of the whole body of data should be carried out under the financial support of functioning power stations.
9. *Monitoring of the dam-impacted areas.* In Russia, one of the most important problems is the monitoring of environmental situations in the dam-impacted areas. In fact, tens of meters of bank lines have been undercut annually. Particularly bad are the catastrophic erosional processes in the reservoirs located in the steppe and forest steppe ecozones, where upper deposits are composed of loess, sand, and sandy loam sediments, which can be easily washed out. The results are terrible; for example, in the Ob dam area, as well as in the Angara and Yenisey reservoirs, hundreds of archaeological sites are destroyed annually. We suggest that upon a completion of a dam, a special service should be established that is responsible for monitoring natural processes in the dam area.

In conclusion, from our standpoint, the World Commission on Dams has commissioned a timely global review of past and present cultural heritage management of dams. We are sure that the development of internationally acceptable criteria and guidelines for cultural heritage management in dam-impacted areas will help resolve this extremely important problem in many countries of the world, Russia included

Theme 7: China: The Three Gorges

Elizabeth Childs-Johnson (New York University) *The Three Gorges Project: There is no Dragon.*

As is now well-known, the Three Gorges Dam now being built on the middle reaches of China's Yangzi river is the largest and most expensive hydroelectric project ever undertaken in the world, which is due to be completed by 2009. In 1992 the National People's Congress approved construction of the Three Gorges Dam. The dam was begun in 1994 and in March of that year the Three Gorges Construction Committee designated two units to undertake responsibility for preservation of archaeological sites in the Three Gorges Dam area of eastern Sichuan and western Hubei. Yu Weichao, then Director of the Chinese History Museum in Beijing, was put in charge of "underground archaeology" and the China Cultural Relics Research Institute, headed by Zhang Wenbin was put in charge of "above ground/dishang" preservation in the Three Gorges. Since November of 1995 Professor Yu and committee members worked with the Three Gorges Construction Committee (TGCC), an administrative unit appointed by the government based in Beijing on a proposal and the TGCC agreed to allocate under 1 million dollars, not even close to the \$212 million (3-5% of total dam outlay) needed. In 1995/96 the dam reached a cost of \$15 billion so the international standard for providing for archaeological preservation reached \$500 to 625 million. Only \$37.5 million was allotted and this allotment was tied to population relocation funds for dispersal. Told to forget about international standards for relic preservation, Yu Weichao and others were forced to agree to work with an unrealistic budget.

The major problems of cultural management thus are financial and because of the finances and a just-budding third-world economy, the other major problem is a lack of trained manpower. Currently there is only \$64 million committed by the TGCC to above and below ground archaeology (half of which is \$37 million), and thus perhaps only \$20,000-\$40,000 for individual site preservation and excavation.

Since the funds are classified as part of the allotment for population relocation, serious fraud has ensued and consequently few of these funds provided directly to the units responsible for excavation and preservation. A review of current sites under excavation and how cultural heritage is managed indicates that archaeology and preservation are seriously hampered, due to the priority of technology and national pride at the expense of cultural heritage. As Yu Weichao has proposed and I support, the establishment of a Three Gorges Cultural Relics Protection Foundation that could operate as a non-governmental organisation is desperately needed.

The number of sites within the project area totals 1,271 sites, 829 of which were underground and 442 of which were above ground monuments. Funds for excavation were nonexistent from 1994 through 1997! As of 1997 only one above ground site, the underwater rock island engraved with thousands of historical inscriptions at White Crane Ridge near Fuling, Sichuan, was officially approved as a national-level site, and 8 other sites were awaiting approval. In addition, 10 provincial level sites were approved and 50 provincial-level sites were awaiting approval. The 829 subsurface sites include mostly Paleolithic through the Six Dynasties (ca. ended 580 CE) eras sites. The Institute of Archaeology of Hubei Province sent out various groups to survey and excavate as much as possible within the fall and spring seasons of 1997 through 1999. Since funding was and still is totally inadequate, Yu Weichao has estimated that only 10-20% of the cultural sites and their relics may be salvaged.

In conclusion, the problems facing archaeology in the Three Gorges area are manifold and profound. The most important goal is for scholars and administrators to work together and not separately, as has been the case in the past with organisations as diverse as the World Bank and World Monument Fund. Employ the academic and environmental experts who understand the problems of archaeology, cultural history, and sustainability. For the Three Gorges, the most logical and important next step is to set up a non-governmental "Foundation for Three Gorges Archaeology and Preservation". As made clear, this must be immediate since the dam is already in full swing, soon to enter the second phase of construction. Current work is already eight to nine months behind schedule and thus parts of Badong and Zigui county are not yet completely flooded nor is diversion work completely finished at the dam site of Sandouping, Yichang county. The second phase of dam and powerhouse construction is slated to bring the level of floodwaters to a new level, theoretically 130m. high by 2003. The one goal of the former premier, Li Peng was to get the dam underway so that there would be no turning back at the time that he retired, in November of 1998. Zhu Rongji, the current premier, although more a realist than enthusiast for this engineering feat has not halted or lessened the project, although he has called for international advice.

Chen Shen (Royal Ontario Museum and University of Toronto, Canada): *Mission Impossible: Archaeology of the Three Gorges Reservoir, China*

Introduction and Background

The Three Gorges Dam engineering project is the largest hydraulic structure ever built in China. Officially ratified in 1992, the launch of this project has generated worldwide attention with compelling criticisms and doubts. According to the construction plan, after the completion of the dam in 2009, the water level will have risen by 175 meters. A 660km long channel-type reservoir will be formed, resulting in the submergence of 21 cities and counties, about 632 square kilometres of. It is clear that the outcome of the Three Gorges Dam will not only have socio-economic advantages for the developing nation, but also have a negative impact on the natural environment as well as cultural heritage management.

As an anthropologist, Shen takes a dialectic, impartial approach to evaluations of the overall benefits and/or losses that may result directly from the dam construction. Shen became personally involved in the archaeology of the Three Gorges in the mid-80's when he participated in excavations of a Neolithic site as part of the salvage archaeological missions responding to earlier proposals for the

Three Gorges dam project. From 1987-1990 he was employed as a full time faculty member at the Department of History, Wuhan University, where archaeological research focused primarily upon fieldwork and the study of materials recovered from the Three Gorges area. From 1992 to the present he has served as an archaeology consultant to a Toronto-based non-profit charity organisation, *The Canadian Foundation for the Preservation of Chinese Cultural & Historical Treasures*. Shen's experience at Wuhan University has allowed him to keep in contact with Chinese colleagues, many of whom are now actively working in the Three Gorges area.

All data in this report are from reliable and first-hand accounts; almost all are reports (some yet to be published) to the Three Gorges Project Construction Committee (the TGPC) or to various levels of cultural heritage authorities. Because some of these reports may still be confidential, Shen cannot identify the sources, nor is he able to present the figures and data in original table forms. This report provides credible information in terms of statistical data, but until official release is authorised, Shen takes full responsibility for any errors and misinterpretations in the report.

With dam construction well under way and in its second phase, loss of cultural heritage has begun and will continue to increase. However, what the western world has not been made aware of (at least in Shen's view), is that cultural preservation and archaeological projects are being systematically undertaken and will increase in scale. Therefore, the main goal of this report is to assess the *degree* to which the cultural heritage of the region is being properly protected. This will be done by considering the: 1) current understanding of the cultural heritage and what important tasks still need to be accomplished; 2) the factors and constraints which determine the way in which archaeological fieldwork is carried out differently in the Three Gorges from any other salvage archaeology in China; and 3) the strategic and practical problems of CHM in the Three Gorges area in particular and China in general.

Assessment of Cultural Heritage in the Three Gorges Area

For the purpose of this report, "cultural heritage" is defined as the physical remains of cultural relics preserved from ancient time ("*wenwu*" in Chinese). In the framework of the Three Gorges CHM, two categories of cultural relics are identified. One group includes above ground "cultural sites" such as historical structures, monumental buildings, stone sculptures, and bridges ("*dimian wenwu*"). The other group consists of "archaeological sites" preserved underground to be recovered through archaeological methods ("*dixia wenwu*"). Assessments and preservation treatments of these two groups of cultural relics are very different in the Three Gorges CHM plan. According to statistics available to date, a total of 1,282 cultural heritage localities are identified in the Three Gorges Reservoir. Among these, 453 are cultural sites and 829 are archaeological sites. The total area of these archaeological sites is estimated to be 25,847,500 square meters.

Four categories of cultural sites are defined: ancient buildings (224), stone sculpture (129), bridges (64), and cliff paths or other (36). In Hubei alone, there are 160 above-ground cultural relics in the four counties, including 12 temples, 66 civic residence, 20 bridges, 26 stone sculptures, and others like gates, wells, and modern monuments (Wu 1991). Nearly 30% of these were seriously damaged when the river was diverted and the water begun to rise level in 1997. The 829 archaeological sites in the inundated area are comprised of 478 habitation (mostly prehistoric) settlements and 351 historical cemetery complexes. The 1993-94 survey revealed that human occupations in the Three Gorges existed continuously from the Palaeolithic to the present day. Some sites are multi-component with rich cultural deposits. Most of the sites were discovered for the first time, some revealing distinct cultural features unrecognised before. Cultural heritage sites in the inundated area are both rich in number and variety, far beyond what people had imagined would be found in a region where, compared to the Central Plains of China, nothing much supposedly happened. Instead, fieldwork clearly shows that the ancient inhabitants of the Three Gorges area made early and important contributions to the development of Chinese culture.

There are three preservation measures for cultural sites: (1) on-spot protection, (2) relocation, and (3) data collection. Among 453 cultural sites affected, three important sites have required special treatment from conservation specialists: the Baiheliang Stone Ridge, the Shibaozhai Stockade, and the Zhangfei Temple. For the remaining 450 cultural sites, 108 are to be protected at their present locations, accounting for 24% of total above-ground cultural relics. Seventeen of the 108 sites will be replicated in higher elevations or at other locations. The other 56 % or 251 sites will be moved based on the relocation program. The last 91 sites (20%), mostly cliff pathways and bridges as well as some civic residence buildings, are to be studied with explicit data collection (survey, mapping, photography, replication, etc.) before they are submerged.

Four grades of excavations are defined: large-scale excavation of most important sites (A-grade), moderate-scale excavation of relatively important sites (B-grade), small-scale excavation of less important sites (C-grade), and test-excavation of general sites (D-grade). For those sites that have poor and/or heavy disturbance context, only surface collection, survey and mapping are required. In addition, archaeological reconnaissance with remote sensing and ground penetration radar techniques is also carried out at some sites. The results are as follows:

- Sixty one out of the 829 archaeological sites (7.4%) are to be treated with A-grade excavation. The total area of these 61 sites is 4,777,660 square meters. Through 1996, excavations have uncovered 820,380 square meters, accounting for 17.2% of the total area of the A-grade sites.
- The B-grade excavation involves 175 sites (21.1%), with a total of area of 11,584,900 square meters. The area excavated has been 746,750 square meters, accounting for 6.4%.
- The C-grade excavation involves 281 sites (33.9%), with a total of area of 5,753,875 square meters. An area of 294,940 square meters has been excavated, accounting for 51.1%.
- The D-grade excavation involves 205 sites (24.7%), with a total of area of 3,289,290 square meters. An area of 36,802 square meters has been excavated, accounting for 1.1%.
- The remaining 105 sites with a total burial area of 391,830 square meters are only to be surveyed and mapped.

Factors and Constraints: Policies and Administration

While survey and assessment took place in 1993-94, large scale excavations at archaeological sites within the dam construction zone were carried out by joint archaeological teams consisting of a large number of professional archaeologists from 11 provinces. These operations were the first priority in order for dam construction to officially start in the summer of 1994. These campaigns were under direction of the national cultural authority - the SACH in Beijing, and marked the beginning of the Three Gorges CHM programs.

Unlike any other cultural heritage management program for large-scale construction projects in China, Three Gorges CHM was strictly under control of the central government. In order to co-ordinate the surveys and test excavations in the construction zone, the SACH established in March 1993 the SACH Three-Gorges Cultural Heritage Preservation Hubei Working Station, and the SACH Three-Gorges Cultural Heritage Preservation Sichuan (later Chongqing) Working Station. Both Working Stations, headed by provincial chief archaeologists and provincial cultural authority personnel, are responsible for making annual CHM plans in their territories and overseeing daily operations in the field. They have the authority from the SACH to allocate resources and manpower within the provincial level for emergent tasks.

Given the magnitude of CHM in the Three Gorges, all archaeological institutions in China have devoted large portions of resources in the form of time, expertise and labor. This co-operation and organization was a result of a meeting in Beijing on March 24 - 26, 1994 calling for the immediate

development of CHM programs. The meeting reached an agreement that engineering departments would provide necessary funding for cultural preservation programs, and cultural authorities would assure that the preservation programs are properly planned and managed. The SACH established a joint committee of the Three Gorges Cultural Heritage Preservation Program, headed by Yu Weichao, a renowned archaeologist and then director of the National Museum of Chinese History. The committee designated the National Museum of Chinese History to be in charge of planning and supervising the preservation programs of archaeological sites and the Chinese Cultural Relics Research Institute to be in charge of planning and supervising the preservation of cultural sites. Both institutions were to be responsible for assembling project teams from all archaeological or science institutions, and work closely with the two SACH Working Stations to assure smooth cooperation in the field.

The two Working Stations were then asked to make immediate proposals for both short-term and long-term plans to be submitted to the joint committee in early 1994. From the beginning, local and national levels worked effectively and efficiently with this organisational structure. Resources and expertise were maximally utilised in the early phase of project planning. The joint committee was to evaluate proposed projects and place them on priority lists. They were then to give assignments to suitable institutions. The most challenging task for the committee was to make budget proposals for preservation programs and to bargain with engineering departments for prompt funding to be allocated to operational units in the field.

China's national CHN program has adhered to their written policy of "preserving and excavating key sites and benefiting both cultural relics preservation and basic construction." In the special case of the Three Gorges area, a new principal of "giving priority to the rescue work" was added. While the policy of "giving priority to the rescue work" is essential, because of construction deadlines, CHM cannot be equally carried out at every single cultural/archaeological site no matter how significant and important they are. Therefore, it seemed practical to determine the priority of preservation projects in the different categories and areas, and to make strategic plans accordingly.

Some strict regulations have been set out to ensure preservation programs are being properly carried out. Only archaeologists who have a Certificate of Fieldwork Principal Investigator can direct fieldwork in the Three Gorges area. Because there were not enough certified principal investigators, the SACH has organised several special course programs to train qualified archaeologists for the purpose of the Three Gorges only. Wuhan University and Chongqing Cultural Bureau organised special training courses for Conservation of Cultural Relics.

Each archaeological or research team to work in the Three Gorges must sign contracts with the Hubei Working Station or Chongqing Working Station, accordingly, which is authorised by the SACH. The work by these individual units is monitored and evaluated according to the agreements specifying objectives, procedures, schedules, budgets, data formulation, and report distribution. All original data sheets, field records, photos, video tapes, drawings, maps, and preliminary reports must be submitted to and remain at the Work Stations upon the completion of projects. The final report must be handed in within a year to the Working Station, which will later decide what to publish, and where and how.

In 1996, the Hubei Work Station proposed to the Three Gorge Project Construction Committee 63 projects with a total budget of 19,286,800 RMB (=2,334,900 USD), based on the proposals they had submitted two years earlier in which 50 projects were listed with a budget of 23 million RMB. Only 1 million RMB was approved by the TGPC in 1996, which enabled them to accomplish only 20 projects and start 3 multiple-year projects. In 1997, the Hubei Work Station proposed 60 projects with a total budget of 14.7 million RMB. The TGPC approved 54 projects for 8.4 million RMB. Hubei archaeologists have faced the most challenges in rescuing archaeological sites in the first phase of the Dam Project. Prior to 1995, they concentrated all their resources on salvage operations within the construction zone, where there was a high density of well known, important archaeological sites.

After completing their work within the immediate construction area, their rescue efforts have shifted to new locations in the Hubei part of the Three Gorges reservoir. They had only two years to preserve a total of 133 cultural/archaeological sites that were affected when the river was diverted in 1997. According to a report written in the beginning of 1998, only 64 out of 133 planned projects were completed due to the lack of funding (24 cultural sites and 40 archaeological sites). The report warned that if the work was not carried out promptly on the remaining 69 sites before the flood season of the summer of 1998, they would be damaged permanently.

Problems of CHM in the Three Gorges

Shen recognises two kinds of problems incurred in Three Gorges CHM: strategic problems and practical problems. Strategic problems are defined as obstruction to archaeological work due to policy-making, resource availability, administrative organisation, and political constraints. Practical problems are cases in which archaeological investigations are hampered by expected or unexpected factors influencing operational procedures.

Strategic Problems

- Ignorance of Cultural Heritage Values. The thorough assessment of cultural heritage took place only after the proposal of the Three Gorges Project was ratified. Although the 1993-94 survey brought satisfactory results, it is not acceptable to have only one assessment for such a large-scale operation to manage cultural heritage sites. Nor is it adequate that strategic planning for preservation programs should be made prior to completion of assessments or without re-evaluation of assessments.
- Funding Availability. A major problem is conflicts over CHM budgets between the cultural heritage authorities and the engineering departments. Based on their list of 42 sites for CHM prior to the 1993-94 assessment, the engineering departments budgeted 300 million RMB (37 million USD). However, as a result of the final CHM assessment, the list of sites to be examined increased to 1282. The cultural heritage authorities suggested 1.94 billion out of a total budget of ca. 700 billion RMB for CHM, and submitted in 1995 "the Outline of the Cultural Relics Protection Program in the Inundated Area". To this date, the engineering departments have yet to approve the CHM budget request.
- Cultural Heritage Management Deprivation It is the odd case that the Three Gorges CH program has not been managed directly under the cultural heritage authorities – the SAHC, but under the TGPC which represents mainly engineering departments. With no control of the monetary resources for archaeological tasks, the SAHC remains powerless to implement CHM programs. The result of this mismanagement is that the allocation of funds to cultural heritage departments are always delayed, causing great frustration in planning and accomplishing archaeological projects.

Practical Problems

- Difficulties of Implementing Plans. In the case of the Three Gorges, only when strategic plans for archaeological work are systematically implemented can the loss of archaeological information be kept to a minimum. The previously outlined strategic problems have, to a great degree, determined the failure of implementing the plans of culture preservation programs. With the absence of approval of the "the Outline of the Cultural Relics Protection Program in the Inundated Area," and the constant delay of all funds to the cultural heritage authorities, archaeologists are basically working with no plans or constantly altered plans.
- Impacts from the Resettlement Program. Alleged mismanagement of resettlement programs causes tremendous difficulties in archaeological projects. Uncontrolled construction undertaken in new locations for resettlement, which interferes greatly with the planning of archaeological

projects, has negatively impacted CHM. During 1997 - 1999, 33 cultural sites in Hubei were damaged during resettlement. Local farmers in the resettlement location are unwilling to cooperate with salvage operations. Unrestrained looting is one of the results of disorganised archaeological operations caused directly by the resettlement chaos.

- Time Constraints. Deadlines for the dam construction are set according to political considerations, which tend to limit any compromise from engineering departments to allow for the completion of archaeological operations. Firm deadlines confounded by the nearly unmanageable scale of operations means that archaeological projects which have their own scheduling problems are not accomplishable.
- Shortage of Manpower and Technical Support. Archaeological work is undermined by a chronic shortage of manpower and technical support. It has been estimated that even if all qualified archaeologists, from all over the country, were to participate in the Three Gorges operations, the completion of necessary excavations in the area would take at least 30 years! Lack of modern field instruments, which would speed up the work, also hampers the process. The call for international co-operation along the lines of UNESCO and Egypt's Aswan Dam project has been made, but TGPCC rules and restrictions have prevented this from occurring.

Conclusion

Archaeology in the Three Gorges reservoir is by far the largest CHM project in China. Many archaeologists in China see this as a lifetime opportunity for them, and are proud of the role they have and will play. As a result of their work, the understanding of human history in the Three Gorges area has increased dramatically in the past decade, and has shed valuable new light on such important issues as the origins of human beings, the transition to agriculture, the development of complex societies, ancient beliefs, writing systems, cultural interactions, and origins of state formation.

Furthermore, they have gone beyond the practice of salvage archaeology, and are realising the potential and significance CH in the Three Gorges area has for studying the past lifeways rather than simply recovering the cultural remains from the sites. The 10th national conference of Chinese Professional Archaeologist Association was held at the end of 1999, with a special theme of "Archaeology of the Three Gorges Area and Southwest China." This marked a new phase of Three Gorges archaeology, the transformation of salvage archaeology into research-oriented archaeological study.

Nevertheless, Chinese archaeologists worry about what has and will be lost, and are equally concerned with how CHM can be properly conducted within their capabilities. But they are doing the best they can under frustrating circumstances. They should be applauded for what they have achieved during the first half of the Dam construction period. However, if current situations are not improved, a difficult and challenging future lies ahead for Chinese archaeologists who continue working in the Three Gorges area.

Theme 8: CHM and Dams in Western, Southern and Southeast Asia

Mehmet Ozdogan (University of Istanbul): Cultural Heritage And Dam Projects In Turkey: An Overview.

Archaeology in Turkey has a longstanding tradition and the quality of research, in general, is moderately satisfactory. However, the bureaucratic mechanism that controls all archeological activity in the country is backward, conservative and not at all designed to fit present demands. The Turkish antiquity service as a system is neither equipped to cope with the pace that scientific archaeology has

attained in Turkey, nor does it have the drive to prevent destruction. In reality, the main objective of the Turkish antiquity service is the control of archaeological missions- a trait left over from the past.

Since 1965 Turkey has been running an extensive program to build dams of varying sizes to generate the electricity required by the country. During the last decades there has also been an ambiguous program for irrigating large areas. Geographically the topography of Turkey is extremely rugged, consisting of high mountain ranges that are separated from each other by intermountain plains of tectonic origin. Thus, like the present day population, most archaeological heritage is concentrated within these depressions. Yet these are the very areas that are going to be either flooded by the dam reservoirs or altered by irrigation systems.

At present there are 193 dams in Turkey that have already been completed. The total area inundated by these dams is well over 3,300 sq. km. There are 105 dams under construction which will flood another 667sq km. Forty seven dams covering roughly 750sq km. is awaiting final funding, and there are another 47 in preparation that will flood about 400sq km. When all the dams are finished, an area comparable to 1/6 of all Belgium will be inundated by reservoirs. Nevertheless, in spite of this extensive construction activity, **only about 25 out of the 298** dam projects have been surveyed at all for CH, and of these **only 5** have had organised, systematic rescue work conducted.

The reasons for the lack of CH investigations range from delayed action to insufficient financial resources, lack of field teams, lack of interest, and bureaucratic obstructions. However, even though CH work has been minimal, there has been a tremendous amount of new data recovered from these few projects on the culture history of the project regions. Thus, one cannot avoid wondering what has been lost.

There are many problems and issues that currently prevent more effective management of the CH in Turkey. These include:

- **Lack of Trained Personnel:** There is a severe lack of qualified, trained personnel to conduct CH projects, particularly on short notice.
- **The Absence of A Cultural Inventory-**Turkey has not been able to maintain an inventory of archaeological sites in the country, as it has concentrated its time, money and energy to the architectural remains of urban centers. Furthermore, the present system does not have enough trained personal in CHM, nor equipment to conduct a systematic inventory of archaeological sites at a dam project. At present, the number of registered sites and monuments, composed largely of historic architectural structures, is about 70,000, of which less than 3000 are archaeological sites such as mounds. There is yet no information anywhere in Turkey as to how many mounds and other sites are in the country. Therefore in a large reservoir area like the present Kargam Dam on the Euphrates, there are **no** officially registered sites, yet there are over 50 sites that were discovered during survey10 years ago, of which 9 are currently being excavated.
- **Bureaucracy** - the Turkish state policy on regulating archaeological explorations is a reactionary system oriented largely to the prevention of spying, smuggling and illicit export of antiquities. It effectively views archaeology and archaeologists as potential criminals. Accordingly, there is a thorough screening and control over scientific missions, regardless of whether they are local or foreign, which occasionally can be extremely time consuming and or discouraging. This inevitably has the impact of discouraging many teams and institutions to work in Turkey, even when invited to join salvage dam projects.
- **The Effects of Inundation on Archaeological Material** - There has been considerable debate as to whether submerged archaeological sites will be preserved for the future. This argument has actually been used to prevent any CHM activity from taking place at dam projects. While this could conceivably be true for stone structures (but see below), it is definitely not the case for mud-brick architecture, which forms the vast majority of ancient construction. Experience at Keban and Karakaya reservoir areas show that mud-brick architecture simply melts away as soon

as the reservoir water makes contact. At another reservoir, a large Late Hittite city with massive stone walls was submerged for one year. When exposed the next year, nothing of the city was preserved apart from the stones. The fact is that once submerged, the site is lost forever.

- **Construction and Irrigation Activities** - Even in cases where it was possible to organise a rescue project, the reservoir area was the main, and usually the only focus of research. This is in part due to the fact that Turkish antiquity permits are only for the reservoir area, not construction or post-construction zones. However, we have observed that construction activities outside the reservoir and dam site also lead to major destruction. For example, an archaeological mound and cemetery outside the reservoir were destroyed in order to obtain construction soil, while a construction company headquarters was built directly on top of a Paleolithic (Stone Age) site. The most destructive impact of dams is irrigation systems. As it is a relatively slow construction process, it is usually overlooked. However, the extensive removal, levelling, digging and filling in of irrigation canals and drainage systems cause a great deal of destruction of the CH.
- **Displaced People:** Dams can displace large numbers of people (e.g. the Keban reservoir displaced 52,000 people). This inevitably necessitates new areas for housing, business, industry etc., often impacting historic towns. For example, the historic Medieval town of Edessa had preserved its historic architecture and texture up to a few years ago, but is now being totally destroyed due to the displaced reservoir population that has now settled in the town.
- **Financial Problems and the Inability to Plan Ahead:** Although the Turkish State Hydraulic Department has helped to finance salvage projects when required, it can make financial contributions **only after the dam construction begins**. However, this is almost always too late. Also, in many instances dam construction is by a private or an international company, and in these cases the State Hydraulic Department has no budget. They must negotiate with the construction company, and the result in most cases is not very positive. Furthermore, government organisations can only give financial support to Turkish teams, even if foreign teams offer their assistance in CHM. These and other problems have made it difficult to plan ahead, particularly when dealing with sites with major structures. With the exception of the Keban Project, all major structures such as tombs, mosques and bridges were inundated, either with or without documentation. Our experience at Keban clearly shows that with good will and reasonable planning, even large structures can be removed prior to flooding.
- **Politics and CHM.** The Southeast Anatolian Project (GAP) is the largest dam project in Turkey, incorporating 22 dams, 19 hydroelectric plants and 1.7 million hectares of irrigation. The dams are planned mainly on the Euphrates and Tigris rivers and tributaries. One of the major cities to be impacted by GAP is the historically and culturally important city of Hasankeyf, where all of its monuments, unique vernacular architecture and other significant features will be lost within seven years. Although excavations are now taking place at Hasankeyf, nothing yet has been done to even plan for the saving/removal of the famous monuments. Recently, numerous private, NGO as well national and international organisations have been putting immense pressure upon the State Hydraulic System and other Turkish and international government agencies to protect or rescue Hasankeyf. While there is no doubt that Hasankeyf deserves immediate attention, there is fear that the Turkish government will over-react and provide the bulk of funds set aside for rescue work to this project only, thereby significantly reducing funding available for the many other dam projects in Turkey desperately in need of financial support.

To conclude, in spite of all the difficulties outlined above, the last three decades of dam-related salvage archaeological fieldwork has generated a tremendous amount of new data in areas that had previously been poorly known or even totally unexplored. Therefore, dam projects can also be looked upon as a significant stimulus to archaeological research in Turkey. We do not think it will be possible to avoid the construction of dams. Instead we need to learn from our past problems and mistakes so as to minimise future losses to the CH. This is not a dilemma restricted to Turkey, but is shared by virtually every developing country. Therefore the burden of developing more effective ways of managing the world's CH should be shared by all countries, and solutions sought by working together as a global team. There is an immediate need for an international watchdog organisation to

advise and assist in confronting CHM issues. Otherwise, soon, our common cultural heritage will be lost forever, without us even noticing what has been lost.

S. B. Ota (Archaeological Survey of India, Calcutta): Cultural Heritage Management Vis-A-Vis Dams: The Narmada Issue, India.

Presently, there are thousands of medium to large size dam projects underway in different parts of India, and all are on the main rivers and their major tributaries. These projects not only affect the landscape which will be inundated by the reservoir, but they also affect the surrounding regions through irrigation and canal networks, which in turn puts more and more land under intense cultivation and supports a growing human population. All of these dam projects are government funded and sometimes internationally funded.

Almost all the dams so far built in the country suffer from the lack of cultural heritage studies. Take the example of the largest dam complex in the world, the Narmada, where literally thousands of archaeological sites are threatened to be destroyed due to submergence and other related activities. In spite of knowing this fact, neither thoroughly planned investigation have been carried out, nor any substantial initiative is being taken to salvage the remains properly. Narmada is not the only example in India. In fact over the last fifty years the same situation is being repeated all over the country. Numerous dam projects have had no survey whatsoever and we have no idea of the number of archaeological sites which have been destroyed, but their numbers must certainly run into the thousands. Only in one case, Nagarjunasagar in Andhra Pradesh, was there salvage operations of archaeological sites in the impoundment zone, including the moving and re-creation of temples. However, this was due to the fact that then Prime Minister Nehru took a personal interest in the subject.

The Narmada Dam Project

Since 1946 the Indian government has wanted to dam the Narmada River Valley. Today the Narmada Valley Dam Project has been termed the largest river project in the world. Out of a total stretch of 1312 km, over 700 km, more than 53% of the river valley will be submerged. When completed it will encompass 30 major, 135 medium and 3000 minor dams. Of the thirty major dams, 5 are restricted to hydroelectricity, 6 to multi-purpose use and 19 to irrigation. Two of the 30 major dams can be considered mega projects: 1) the Sardar Sarovar Project, which will submerge almost 40,000 hectares and 245 villages, and create the largest canal network in the world; and 2) the Narmada Sagar Project, which is to submerge 91,000 hectares of land and affect 254 villages.

Although the Narmada valley has been studied by archaeologists for over 60 years, its vastness guarantees that very little is actually known about the archaeology of the Narmada. However, what is known suggests that the Narmada River is considered archaeologically unique in India for the following reasons:

- 1) It is considered to be the richest among all river valleys in terms of number of archaeological sites.
- 2) It has yielded a continuous archaeological succession from the Lower Paleolithic to the present.
- 3) There is a great variety of archaeological cultures represented, due perhaps to the Narmada being an important migration route from north to south
- 4) It has exposed a very long paleoenvironmental record, and
- 5) It is considered the second richest paleontological region in India. In fact the only hominid found in India comes from the Narmada Valley

The Narmada runs through steep foothill slopes and broad valley plains, but it is in the latter areas that most archaeological sites are to be found. But these are the very areas where the dams will be built.

Therefore, it is estimated that about 65% of the areas with the highest archaeological potential will be inundated by the dams.

Unfortunately no specific legislation exists in India, either at the national or state level, for CHM in development projects. Current antiquities legislation is almost forty years old and deals almost exclusively with monuments and archaeological sites of "national importance". Consequently, the Archaeological Survey of India, the government agency responsible for the protection of India's cultural heritage is almost powerless to stop the destruction at the hands of major development projects such as dams. Furthermore the public sector (e.g. museums, universities, societies) is indifferent towards rescue archaeology, probably so they can avoid controversies, since their funding also comes from the government. Nevertheless, it is the public sector that has the best opportunities to educate and influence public opinion, although this has yet to occur. As for the private sector, archaeology is only considered to be a hobby, and they are also very indifferent toward the loss of the archaeological heritage.

The only legislation that includes the protection of the archaeological heritage is a small clause in the "Environmental Clearance" legislation, probably because modification of the landscape has a direct bearing on both environmental and archaeological issues. In 1987-88 the Archaeological Survey of India conducted the first pilot surveys of the two planned mega projects, the Narmada Sagar and Sardar Sarovar projects. This was funded by the Narmada Valley Development Authority (NVDA), the government agency responsible for overseeing all development plans. However, in subsequent years the Archaeological Survey was neither funded nor even consulted, except where the monuments had to be moved. Instead, NVDA allocated funds to the State Departments of Archaeology and Museums, as it was easier for them to deal with only one agency. However, the State Department has neither the expertise or manpower to do a proper job, and in fact recent progress reports indicate they are not doing a satisfactory job. Although various NGO's have tried to put pressure upon NVDA to alter their funding procedures, the latter group has continued to fund only the State Department, probably because NVDA can obtain early clearance for construction.

With a view to ascertaining the archaeological potential of the Narmada Sagar Dam impoundment zone, the Archaeological Survey of India conducted a reconnaissance survey in 1988. Although only 93 out of the 254 villages to be submerged were surveyed, they still yielded hundreds of archaeological sites ranging from Lower Paleolithic to historical temples and iron smelting sites. This clearly shows the archaeological richness of this area, and the destruction that will place if further systematic studies are not undertaken. Based on the archaeological evidence from this area, the following recommendations may be made:

- 1) Every region has its own archaeological characteristics. Therefore it is not advisable to submerge so many sites in a particular region.
- 2) An intensive survey is necessary, given the results of the preliminary survey.
- 3) A long-term plan of investigations is needed, since very little is known of this area.
- 4) Early Historic and Medieval sites are in need of vertical and horizontal excavations, as are iron-smelting sites
- 5) The unprotected temples must be relocated, as should loose sculptures and memorial stones

Sawang Lertrit (Silpakorn University and Washington State University): *Cultural Heritage and Large Dams in Thailand*

A number of large dams have been built in Thailand over the past 40 years, and many have affected archaeological sites and other cultural resources. The first large dam in Thailand, the Chao Phraya Dam, was completed in 1957 with funding from the World Bank. Through the years, serious concerns have been voiced in Thailand over damage and destruction of cultural heritage (mainly archaeological) sites as a result of dam construction. Although Thai laws provide general protection

for cultural resources, there is no specific legal requirement that cultural resources be considered in planning and construction of dams.

When a dam construction project is approved, a committee consisting of several government organisations is formed. Responsibility for rescue excavation of archaeological sites in the affected areas is assigned to the Fine Arts Department (FAD), Ministry of Education. A team of archaeologists and related specialists is sent to the project area to survey and evaluate the significance of cultural heritage that will be affected by the construction of a given dam. Excavations of archaeological sites usually follow.

During the past decade, such surveys and excavations of archaeological sites have often been carried out by contract companies that in some cases do not have a full range of research staff. Archaeological rescue projects are usually funded through large block grants provided by the organisation responsible for the dams, such as the Department of Royal Irrigation and the Electricity Generating Authority of Thailand (EGAT). Nevertheless, if contract companies hire inexperienced archaeologists to fulfill the task, this leads to production of low quality reports that lack detailed information. Moreover, excavated materials are often housed in national museum storage facilities without further analysis or reporting. This is not because of the lack of funding, but the lack of professional archaeologists to do the work. As a result, it has been suggested by some Thai archaeologists and concerned citizens that the Fine Arts Department should issue regulations specifying that only professional archaeologists can be responsible for such rescue activities.

Reports resulting from the rescue of cultural resources must be submitted to the Fine Arts Department. The distribution of such reports is restricted, and they generally are not disseminated to interested scholars and to the general public. In some cases, however, museums have been built to disseminate knowledge about the archaeology of the area to the general public. In many cases, dam construction also has effects upon local people's cultural heritage. Relocation of indigenous people from their sacred landscape as part of the mitigation activities sometimes raises conflicts between the cultural heritage specialists and local inhabitants.

Mughal, Mohammad Rafique (Pakistan Heritage Society): Dams in the Indus Basin of Pakistan and Cultural Heritage Management.⁸

The Indus Waters Treaty signed between India and Pakistan over fifty years ago envisaged construction of major dams on the Indus and Jhelum Rivers and its tributaries to conserve water for irrigation. The Indus Basin water management also involved construction of a network of nine linked canals to divert water from the western rivers to the eastern rivers. Funded by The World Bank, other international organisations and several countries, three major dams were created: Warsak Dam on the Kabul River, Tarbela Dam on the Indus River and Mangla Dam on the Jhelum River. Several hundred miles of long link canals were also built to drain water from the three rivers. In spite of the massive scale of these dam and irrigation projects, CHM investigations were negligible, or were not undertaken at all. In fact, not a single CHM report for any of these major projects is currently available!

Presently, more than twenty dam sites on various rivers are targeted for development, and three more dams are now under construction. Yet only at one of these new sites was a CHM survey conducted. Therefore, the author recommends that:

- The donor agencies/countries must insist on undertaking comprehensive studies of the areas to be affected by the construction of dams, take appropriate and effective steps to preserve the surviving cultural heritage and publish all relevant data.
- Such studies/measures must be undertaken at a very early stage of preparation of project proposals to allow time for proper investigations and preservation of cultural heritage.

- Investigations should not be confined only to what is going to be inundated, but consequences of high water table and possible affects of salinity on the surviving ancient buildings in the surrounding areas should also be ascertained.
- It is necessary to carry out comprehensive studies of the effects of existing dams on cultural heritage and any threats to its survival or preservation. The donor agencies should be encouraged to support preservation, repairs and maintenance of heritage located near the dams if at risk.
- The governmental agencies responsible for the protection and management of cultural properties in each country should be associated with the dam projects. Archaeological investigations should be done either by the local official agencies, or allow NGO's to undertake the work without loss of time.
- At present, Environmental Impact Assessment studies also include cultural heritage aspects. Because of the very nature and importance of cultural heritage and its preservation, studies relating to archaeological sites and monuments should be done independently.

Theme 9: Privatisation and the Public

Thomas R. Wheaton and J. W. Joseph (New South and Associates, U.S.A.) Privatisation of Cultural Heritage Management of Dam and Reservoir Projects in Developing Countries

A perusal of the World Bank, ICOMOS, World Heritage Center, Inter-American Development Bank, ICAHM, and other international organizations' documents for cultural heritage protection assume that all of the work for cultural heritage is to be done by government entities, universities or NGOs. We would like to take this opportunity to introduce and promote an alternative model for conducting CHM: the recognition of the place of privatisation in the environmental assessment (EA) process, particularly with respect to cultural heritage. There will be times that privatization will not be the answer for a particular project, but there will be others when privatization of the cultural resources sector can offer definite advantages. We feel that project managers in the lending institutions, borrower country governments, and engineering and construction firms should consider the potential of private sector consulting companies to provide the information and guidance needed to protect those non-renewable cultural heritage resources.

Privatization of the environmental sector has been around since the 1960s, and there are a myriad of international consulting companies conducting social, economic, and environmental studies around the globe. In general, this has not been the case for cultural resources. While cultural resources have been recognised as important, and lip service has been paid to support their protection, there has not been the emphasis or insistence on the part of the lending institutions that these resources be properly taken into account by borrower nations. We feel, and hope, that this is now changing.

From the late 1960s, when cultural heritage management (emphasis on management) began with academic institutions providing most, if not all, of the cultural resources expertise, until today, there has been an increasing role for the private sector. These private sector companies have provided innovative techniques, developed management skills, developed a skilled cadre of researchers, learned the regulations, been forced to learn and work among the conflicting viewpoints of regulators, clients and the public, and have been able to handle the increasing CHM workload in an increasingly efficient and effective way. Without the private sector companies, it is no exaggeration to say that cultural heritage management as it is practised today in the United States would not be the same or as effective.

Dam and reservoir projects have a significant impact on cultural heritage resources. Because these projects are sited on major rivers with relatively larger expanses of level land, they will inundate and impact large numbers of archaeological sites as well as native and historic communities and

traditional cultural properties. Even the smallest of reservoirs will effect dozens of resources, while large reservoir projects are likely to impact resources in the hundreds and thousands. This impact is recognized by the World Bank, and the EA Sourcebook Update Cultural Heritage in Environmental Assessment (World Bank 1994) identifies reservoir projects as one of the class of World Bank projects most likely to effect cultural remains and hence likely to be categorized as a Class A project requiring a full Environmental Assessment (EA) (1994:4).

Why Privatise CHM Services?

The World Bank, the IDB and other institutions are promoting privatization in their projects as many of their publications indicate. Generally speaking, this is in the context of infrastructure planning, construction and management. The lending institutions are less clear about privatization of the background studies that go into the planning of these projects. However, privatization has proved helpful in other fields, such as environmental, economic and social studies that form parts of the EA. There are a number of international consulting companies that conduct such studies, most based in the industrialised countries of the world. However, when it comes to cultural resources, this has not been the case. We feel one of the main reasons for this has been that in-depth environmental studies have been better understood by the lenders and therefore more often required. Where there is a need, private companies can and will attempt to fill it, as they have in the environmental sector. The same would be true of CHM if it were consistently required by these lending institutions.

Why would a borrower nation or a lender wish to hire the private sector to conduct CHM projects, whether in-country or from the outside? Perhaps the best reason is that private companies can quickly direct their concentrated resources on a project. Private companies have no conflicting obligations to teach or run a museum or manage a governmental agency. The following series of reasons illustrate why a private company can successfully provide the information needed to fulfill World Bank EA responsibilities for cultural resources as discussed above.

Private companies are goal oriented. In a competitive climate they know that they must deliver what the client needs in a timely fashion. To do this they must set goals and clearly establish steps for achieving those goals. A key word here is what the client "needs". A good private consulting company must know what the client needs and how to meet those needs, for example, knowing the regulations under which the project is being conducted, dealing effectively with the public and government officials in the borrower country, hiring the in-country cultural resource experts necessary, managing the project in a cost effective and timely manner, etc.

A private company will hire experienced employees, unless the project is also intended to provide training. CHM projects are normally too complex, too time critical, and too budget-oriented to allow for much experimentation or on the job learning. Successful private companies also are forced by competition to keep up with the newest technology in communications; worker safety; regulatory concerns; management techniques; computer applications, such as geographic information systems (GIS); methods of in field mapping and recordation, such as geographical positioning systems (GPS); and the latest literature in their field(s) of speciality. If private companies do not keep up with the rapidly changing field of CHM they will either not get the project to begin with, or they will never get another project in the region, and ultimately go out of business all together. Private companies must be accountable to their client's best interests, which in this case is the protection of the borrower country's cultural resources. If they are not, they have no sinecure to fall back on. Private companies have to produce or they are history.

Dam and reservoir projects are not confined to one season of the year, or even to one year. CHM projects may start during the academic year or require continuous full time work over a number of years. In this situation, academic institutions have difficulty consistently devoting adequate time and resources to a CHM project and to the other duties of academia, teaching and research. Private

companies do nothing but CHM all year long. They are also used to hiring people on a project to project basis to be available for contracted projects.

Private companies are able to make decisions quickly to respond to new and changing situations. As a result, a company that has a bureaucratic, complex decision making process cannot compete. Successful private companies make decisions quickly, whether it is to develop a research design, buy new equipment for a project, hire a specialist, or remove an employee who is not working out. The company that does not quickly learn the in-country regulatory requirements, cultural patterns, archaeology and history, will not be successful. The successful company is also able to adapt to changing circumstances whether these involve dealing with new political situations, changes in the project, or unforeseen developments in the data. Private companies must be adaptable to succeed.

Private CHM companies are interdisciplinary. At a minimum, they usually employ archaeologists, historians and architectural historians, as well as skilled technicians in computer applications, GIS, GPS, graphics and report production, business management and accounting. Because of this, their archaeologists are more cognizant of history and architectural issues and their historians are more familiar with archaeological issues than one would normally find in a university setting. Thus, all the disciplines are more aware and experienced in working together to achieve a common goal. More and more, at least in the United States, CHM companies are becoming more familiar with teaming arrangements wherein two or more companies join forces to provide the expertise the other lacks to accomplish a project successfully.

Lenders need an objective point of view on the resources encountered by a project and their significance. However, this is not always possible when the in-country governmental situation tends toward development at all costs and the academic view is to protect every last artifact. This is further complicated by political divisions within the government and academic settings. Private companies that have no ties to either camp, and are often able to give a more objective third party view of the situation.

Successful private companies have developed the management skills to follow a project through from inception to conclusion in as efficient and cost-effective manner as possible. Companies, simply because they are companies, understand budgets, accounting, schedules and deadlines in a business setting. Skilled management in CHM knows not just the business needs of its clients and how to fulfill them, but is also familiar with government regulations and agencies. No matter how expert the staff may be in archaeology, history, architecture, anthropology, etc., they require coordination and guidance to work effectively together to meet the client's needs in a timely manner. Skilled management also gets the job done right the first time with concomitant time and cost savings. Private companies are more likely to have experience in running complex CHM projects and hence are more likely to be able to organize and manage the CHM needs of a dam and reservoir project than other entities which are not devoted solely to CHM.

Private companies are cost conscious, and are often less expensive than non-profit institutions such as universities and museums. This may seem counter-intuitive, but private companies are ready and able to invest in time saving technologies, to hire skilled and efficient workers who can do more and better work in a given length of time, to do the job right the first time, to estimate and budget more realistically so that the client is not hit as often by unforeseen costs and costly delays, and to explore innovative methods to gather more data more efficiently and more quickly. Skilled staff and innovative methods allow for cost efficiencies that can translate into major cost savings.

Promoting the use of private companies in the borrower nation not only has the project specific benefits noted above, but promotes the general climate of privatisation in the borrower nation. As CHM is privatized in these countries, not only will they become more self-sufficient, but they will

promote the diversity inherent in privatisation to the entire system, which is one of the stated goals of the lending institutions.

Certain tasks are, in our opinion, better left to governmental, academic institutions and NGOs. Private enterprise is by its very nature mercurial. A successful company in the present may not be around in 20 years. For this reason, we feel that long term synthetic and specialized research is often best left to academic institutions and museums. Governmental institutions in consultation with the public and NGOs, representing the interests of the public, are better at establishing thresholds of significance of the resources (although not necessarily in objectively applying those criteria to a particular resource) and at maintaining long term inventories of sites, as well as the long term operation of cultural parks and sites for the public benefit. It goes without saying that each government must be in charge of enforcement of its own cultural resource regulations.

Recommendations on How to Privatise CHM Services

Perhaps the most pressing question concerning the privatization of CHM services is how? Where there are clearly areas in which private businesses could facilitate the World Bank's and other lending institutions' treatment of cultural heritage issues within the EA process, there are not at present CHM companies structured to provide this service. What are the options, and what is needed to make privatisation work?

The first is clearer guidance and stricter requirements from the World Bank and other lending institutions on complying with CHM directives and requirements. From our admittedly limited grasp of the lenders EA and CHM experience, it appears that screening and identification studies and TORs are largely being performed by University and NGO specialists contracted by the government agency requesting the funds for a project. It should thus be anticipated that there would be pressure from the government agency on the University and NGO staff to keep their findings and recommendations to a minimum. The agency is also likely to have the power to affect political and economic support of the University and NGO staff, thereby enforcing the government's ability to influence findings and recommendations. As these initial studies are the critical studies in determining the treatment of cultural heritage, it is important that they be unbiased. However, these studies are also likely to be beyond the capacity of the lending institution's staff to perform, at least to the level outlined above. We recommend that the World Bank and other lending institutions consider incorporating a CHM inspection fee as one of the loan fees for EA Class A projects, and that the lenders themselves then subcontract directly for the CHM screening and inspection service, with borrower nation input and support, of course. Contracting could be accomplished through requests for proposals issued on a project to project basis, as a subcontract to other environmental studies which might be contracted, or through indefinite quantity contracts with CHM companies which allow for quick assignment of work orders to companies which have already been pre-qualified and who have already negotiated rate schedules for such work.

With a defined mechanism for contracting these CHM studies, privatisation will follow. It is likely that the companies initially offering CHM services will be the environmental consulting companies currently working in the international arena, CHM companies from the US with international experience or interests, and CHM companies in other locations (Great Britain, Australia, etc.) whose interests will most likely be focused on projects in their specific regions. There is also the potential for the creation of consortiums melding both private industry and governmental groups to offer CHM on a global basis. While all of these have the potential to provide the services needed, the best fit would be an international environmental company with an existing CHM staff, an international environmental company with a CHM sub-consultant, or a strictly CHM company with international experience.

Over time, such a mechanism should provide the impetus for the creation of the CHM private sector in other parts of the world. As such companies begin to form, their existence should be encouraged via the lending institutions' contracting procedures. Mechanisms to promote the privatization of CHM services on a global basis could include requiring established CHM providers to form joint venture relationships with in-country companies, as well contracting requirements that specify a percentage of the work to be completed by in-country companies. The banks could also provide support to ACRA to host sessions on the creation, administration, and operation of CHM companies at international conferences such as the World Archaeological Conference and the ICOMOS annual meeting.

The net result of privatisation should meet a number of objectives:

- by bringing private business into the identification and screening process, the lending institutions should receive more comprehensive assessments of the impacts of reservoir projects on cultural heritage resources and in so doing, lessen the impact of funded initiatives on world heritage.
- by privatising the initial elements of the CHM analysis within the EA the banks can support and encourage the development of private CHM organizations world wide, and these organizations can in turn encourage and support the further development of CHM regulations in their own regions and countries.
- World Bank projects offer an excellent environment for the formation of cooperative ventures melding the business experience of international CHM companies with regional knowledge and emergent businesses, which should in turn foster the development of successful international private CHM businesses.
- by delegating the screening, survey, and preparation of TORs to private entities, we believe the net result will be an increase in the mitigation effort applied to cultural heritage sites which would benefit local scholars who, we recommend, are the appropriate figures for overseeing mitigation phase efforts.
- privatisation also offers the potential to provide technical assistance to University and NGO specialists overseeing mitigation work, thus providing an opportunity for technology transfer and training.

Doris Chen (International Rivers Network, U.S.A): The Role of NGO's as "Watchdogs": The International Rivers Network as an Example.

The task at hand is to make recommendations for the consideration of CHM in the dam construction process. CHM includes a living cultural heritage as well as past remains. Noting that project affected people are not represented in the workshop, the following should be rights that project affected peoples (PAPs) have in determining the future of their livelihoods and living cultural heritage.

Regarding CHM, in the event that people and or the land they live depend on, face inundation and impacts by a dam or water project, if the project affected people (PAP) accept this project and if they accept cultural heritage management, it is up to the assessment team, a third party with no interest (be it monetary or professional), to work cooperatively with the PAP for the cultural assessment of project feasibility. If consent for the project by the PAP is not possible, then there should be no assessment, no international project financing, and no cultural mitigation plan. If consent to CHM and assessment is given, a basic and standardized assessment should be conducted by the third party consultant. This must be carried out with an obligatory relationship with the local counterparts that are diverse in race, religion, and gender- this requirement will be part of the Terms of Reference. After the third party

cultural heritage assessment is completed, PAP should have adequate time to review the assessment and decide whether or not project construction should take place. Cultural heritage surveys and cultural heritage management should be separate from and precede loan applications and loan provisions by any development bank.

In the recent past, dams have been viewed as symbols of national pride and control over nature. The dams have <made> a tremendous environmental and social costs. Dams provide services to only certain sectors of society, and what they provide can be generated in different ways. They stifle consideration of alternatives. Dam construction is a huge business worldwide, reinforcing the wealth and power of small segments of the population. The International Rivers Network (IRN) is about 13 years old, with one of its main objectives being that local communities should control watercourses and have a voice in decision-making.

IRN supports local communities working to protect their rivers and watershed, and advances alternatives to large dams through its network of scientists, hydrologists and engineers. IRN works to challenge top-down decision making, and petitioning organisations and agencies that finance such projects. IRN would be interested in apprising conference participants of upcoming dam projects where PAP were facing cultural heritage losses. Conference participants might be interested in helping these communities oppose the projects.

Conclusions: Lessons Learned and Recommendations

The Right to a Cultural Heritage

The loss of the cultural heritage of a people constitutes a destabilisation and demoralisation of members of living communities. It undermines their sense of security and integrity and engenders a sense of loss, bereavement, alienation, disorientation, bewilderment and perplexity that impairs their ability to function as fit, healthy, effective human beings and citizens. This damage extends to the attenuation of the ability of a community to provide proper care and socialisation of their children, with severe long-term consequences on future generations. This loss or irreparable damage of the cultural resources of a living community thus constitutes a violation of their human rights, as implied in Article 27 of the United Nations' Universal Declaration of Human Rights but still in need of more explicit legislation and codification.

The loss of cultural heritage as a result of the construction of large dams may also constitute a national loss if such properties were critical to the sustenance and nourishment of a sense of belonging and national cohesion, or elements of a national cultural memory that gives a sense of orientation to the nation. Such resources range from the footprints of our ancestors to the great monuments of early state civilisations, as well as the sites of world religions and world intellectual history. It should be emphasised that cultural resources are an integral element of humanity and that the diversity of such resources is essential for sustaining our ability to cope with the future. Today as we face an uncertain future we need more than ever to learn how did people respond to climatic change, what were the cultural mechanisms that enabled them to overcome food shortages, excessive population growth, diseases, and what cultural innovations were necessary to maintain political stability and peace. Our human cultural resources are finite and non-replenishable. Once destroyed they are gone forever. We cannot rehabilitate or restore what has gone, but we can prevent the loss that is now eroding our stock of experience and ability to respond to adverse conditions.

As is clearly reflected in the Workshop papers, the magnitude of loss from different parts of the world wherever large dams are constructed is staggering. The impact of large dams on cultural

heritage is both long-term and far-reaching. It is also irreversible. Long after dams are constructed they continue to impact cultural heritage resources in the dam area and beyond it. The impact of dams extends to the loss or damage of cultural heritage as a result of land reclamation and irrigation projects, the construction of power lines, roads, railways, and workers towns. Dams also dislocate huge numbers of people who either live in newly established communities or in the historical parts of nearby towns (e.g. the examples from Turkey), adding to the ongoing impact of urban expansion on cultural heritage. The construction of dams also leads to the erosion of nearby sediments along the shoreline of reservoirs, and in the upper floodplain and backshore zones, as well as downstream from the reservoir. The erosional processes expose subsurface archaeological remains which encourage looting and illicit digging for artifacts and valuable remains.

On a global scale the loss and damage of cultural heritage as a result of the construction of dams is a result of (1) lack of sufficient numbers of skilled and qualified cultural heritage personnel, (2) lack of appropriate cultural heritage management infrastructure, (3) lack of adequate facilities for curation, preservation, and display of cultural heritage resources retrieved from cultural heritage projects, (4) absence or inadequate cultural heritage legislation in some countries, (5) scarcity or unavailability of funding for capacity building, (6) no enforcement of international cultural heritage preservation agreements, and (7) lack of active civic pressure to mobilise actions to preserve and sustain cultural heritage resources.

Given: 1) the colossal magnitude of the loss and damage of cultural heritage in every case where large dams are constructed; 2) the ongoing impact of dams on cultural heritage resources well beyond the immediate area of the dam and reservoirs; and 3) the woefully inadequate means to cope with the ongoing and impending loss of cultural heritage in developing countries, the situation must be regarded as **a crisis of unprecedented dimensions**. Therefore, the Workshop participants offer the following conclusions and recommendations:

Legislation and Policy

Legislation for the protection and preservation of CH in many countries is far from satisfactory. While virtually all countries have some degree of CH legislation, in many cases such legislation is poorly defined and/or very difficult to enforce or implement. This appears to be particularly the case for dam projects, as governments may ignore or minimise regulatory requirements in order to speed up construction and/or avoid the considerable financial and logistical requirements of abiding by regulations. The other major problem in developing countries is the lack of skilled personnel to carry out legislated CHM duties in large projects such as dams.

Few countries have developed CHM legislation of the kind that were codified in the United States as a direct consequence of dam construction. As early as 1933, the Tennessee Valley Authority (TVA) developed protocols for conducting archaeological excavations, analysis, curation and reporting. This led to the Reservoir Salvage Act of 1960, which was intended to remedy the chronic underfunding of river basin salvage. Subsequently the passage of the National Preservation Act (1966), the National Environmental Policy Act (1969), and the Archaeological and Historic Preservation Act (1974), amongst other acts, entailed the development of rules and regulations that guaranteed accountability and quality control in dam and other projects.

There is also a considerable body of international "conventions" on cultural heritage matters (e.g. UNESCO) that theoretically bind governments once they formally become signatory to them. However, some countries do not abide by them even after signing, while other countries refuse to sign the conventions altogether. For example, the United Kingdom is not a party to the UNESCO 1970 "Convention on the Means of Prohibiting and Preventing the Illicit Import, Export, and Transfer of Ownership of Cultural Property", while such "recommendations" as UNESCO's 1962

"Recommendations Concerning the Safeguarding of the Beauty and Character of Landscapes and Sites", offer policy guidelines but are not binding.

There is thus an urgent need for governments to:

- Abide by and implement existing international conventions, charters, and recommendations;
- Develop internationally acceptable, feasible and practical CH legislation. In this regard, CHM legislation should be linked to Environmental Impact Assessment (EIA) regulations as these are already codified in most countries, and because people, past and present, act and interact with their local habitats. In the U.S., this concept has been imbedded in the National Environmental Policy Act (NEPA) which was created to maintain an environment that supports diversity and variety of individual choices and to save from destruction important historical and cultural resources. To ensure such goals the NEPA demands a systematic, interdisciplinary approach, which ensures the integrated use of the environmental and social sciences.
- Convince international and national funding and construction agencies to develop and enforce internationally accepted protocols for conducting CHM at dam projects; and
- Develop a mechanism for private corporations and government agencies to be certified as meeting appropriate standards. Such standards may be established in a manner analogous to that of the International Organization on Standards. ISO 14000 for example, advocates measures to attend to the environmental concerns of those around one's place of business, which can have useful implications for international CHM.
- Policy matters and legislation must ensure the human right of minorities, marginalized, tribal, indigenous and native groups to their own cultural tradition and their own visions of the past, present and future.
- Prospective international legislation must take into consideration the combination of archaeological, ethnographic, and environmental parameters of cultural heritage.

Capacity Building

Capacity Building is of the utmost priority in mitigating the damage now underway as a result of the large dams built in previous decades, and coping with the potential loss and damage of cultural heritage resources of dams that are now under construction, or those that will be constructed in the future. The demands of cultural heritage management as a consequence of dam construction is beyond the capacity of most developing countries. In some countries, experience has shown that dam construction can be used to stimulate archaeological research and the development of expertise in many areas that are important in safeguarding cultural heritage in general.

In this regard, capacity building in conjunction with dam building is cost effective both in the short term and in the long-term. Capacity building in host countries minimises the cost of cultural heritage management, and provides year round locally available experts who are skilful in project management and experienced in local affairs. Capacity building of private companies, governmental agencies, museums, universities, and national centers in host countries strengthens national infrastructure, provides jobs, and ensures the success of development projects.

Capacity building involves the training at all levels and in all domains of cultural heritage management, and the provision of facilities within a program that ensures the sustainability of cultural heritage programs. To date there is a glaring lack of sustainable capacity building in cultural heritage management programs resulting from the construction of dams. The training of local technicians and professionals, when present, has been ad hoc, unsystematic, intermittent, and insufficient. It is restricted in most cases to the utilisation of low-level technical skills. There is also a general lack of educating local communities in CHM beyond the immediate implementation of the construction project (e.g., site management strategies, follow-up monitoring and investigations).

The absence of sustained capacity building in host countries has led to the following consequences:

- Reliance on outside authorities and foreign institutions, companies, and organisations.
- Lack of awareness of local community needs.
- Unfamiliarity with local resources or social conditions that often lead to delays, obstructions, and in some cases the inability to carry out any mitigation measures to safeguard cultural heritage resources.
- Little concern for the dissemination of information or mobilisation of local communities to participate in the preservation and protection of cultural resources.
- Lack of understanding of the range and scope of cultural heritage resources in host countries.
- Absence of long-term monitoring of the impact of the construction of dams.
- An inadequate labour force to cope with the huge magnitude of work needed to safeguard impacted cultural resources.

Capacity building is the **most important priority** for long-term, cost-effective management of the cultural heritage. Therefore, recommendations to develop CHM capacity building in dam projects are as follows:

- There must be on the job training, internships, workshops and the provision of adequate facilities for the following activities:
- Writing proposals and development of cultural heritage management strategies,
- Archaeological and ethnographic surveys.
- Ecological surveys
- Recording oral history
- Archival research
- Recording architectural structures
- Archaeological excavations
- Curation and preservation of archaeological and bioarchaeological, as well as ethnographic collections.
- Mounting exhibits and museum displays.
- Public educational programs.

Capacity building must also include such educational programs as:

- -Seminars on the importance of CHM directed to high level managers and professional and government officials involved in decision-making for dam projects.
- -Workshops and short courses for technicians, researchers, managers, government employees, and academics designed for specific aspects of CHM activities. Certificates are to be issued for those who successfully complete the short courses.
- -Study abroad in institutions with CHM programs to acquire advanced skills in CHM via participation in courses, enrollment in programs for diplomas and MA degrees. In this regard there is a need to develop specific fast-track diplomas and innovative training and educational programs to take into account both the scope and range of CHM as well as the time constraints and the cost of international travel and education.

Capacity building must also take place within multilateral, bilateral and governmental lending agencies. There is a shocking absence of trained personnel in such organisations as the World Bank, Inter-American Bank, Asian Development Bank, African Development Bank, JBIC, and USAID, who are qualified to help develop, evaluate and monitor CHM in the EIA process. Comprehensive regulations and policies by these agencies are of little if any use if there are too few personnel to monitor and implement them.

Funding

The passage of conservation and preservation legislation in the United States led to a dramatic increase in the funds available for cultural heritage management of dam projects. Prior to 1974, Federal archaeological expenditures in general had averaged less than one million dollars a year. By the early 1980s estimates of cultural heritage expenditures reached two hundred million dollars a year. Other developed countries have also seen dramatic increases in funds available for CHM

Obviously developing countries are much more limited in the amount of funds they can allocate toward CHM. But funding at present is woefully inadequate even for stop-gap and partial measures to "rescue" endangered cultural heritage resulting from dam construction. Methods need to be devised which can guarantee a constant source of CHM funding. The most secure way is through legislation and/or policies that require a certain percentage of total dam construction costs be allocated exclusively for CHM. These funds can be incorporated into EIA budgets or as separate line items, as long as the percentage of funds is earmarked specifically for CHM. Other sources of funding could include: 1) the availability of CHM specific grants and soft loans from international organizations; 2) free use (or at minimal cost) of networking and distance learning facilities to local communities and governmental institutions; 3) money generated from tourism as a result of construction of the dam and reservoir (e.g. resorts, boating, cottage rentals, etc).

However funds are generated, they must be allocated toward the following:

1. Pre-project planning, identification, scoping

- Cultural and environmental impacts on displaced people and the existing population in the new settlement area
- Background studies involving local and other experts
- Capacity building within the local community as well as organisations and institutions such as departments of antiquities, universities, governmental agencies, NGOs, and private companies
- Networking, public relations and the dissemination of information to the public, private and governmental sectors

2. Project-specific

- Baseline studies
- mitigation of impacts
- monitoring during construction
- Capacity building within the local community as well as organisations and institutions such as departments of antiquities, universities, governmental agencies, NGOs, and private companies
- Networking, public relations and the dissemination of information to the public, private and governmental sectors

3. Post-project

- Monitoring and evaluation of cultural resources of displaced people, and archaeological resources resulting from erosion, renovations, repair work, etc.
- Curation, conservation and preservation of the cultural heritage

Best Practice

To ensure good CHM practice at dam and other projects, affordable editions of guidelines in UNESCO languages should be issued. Efforts must also be directed toward the dissemination of practical manuals for specific CHM operations. Specific recommendations on the practice of CHM at dam (and other) projects are as follows:

- All CHM activities must comply with the local, national and international laws, conventions, guidelines and recommendations, and with the current position of international organisations such as ICOM, ICCROM, and ICOMAS.
- CHM must be linked with EIA's before a license or funds are allocated for dam construction.
- CH has to be evaluated along with other environmental issues during **ALL** phases of the EIA process. This includes screening, scoping, baseline monitoring (i.e. identification and gathering of data), impact assessment and significance, mitigation, project implementation, **and** post-project monitoring. The EIA must follow a standardized format to include high level up-to-date information on the nature, distribution, extent, significance and conditions of cultural heritage that may be directly or indirectly impacted by the proposed dam. The assessment must also include the potential for mitigating the adverse effects of a dam within the constraints of the duration of the period of construction and available human resources.
- Recommendations for post-construction CHM assessment and monitoring should be in place. CHM needs to be integrated with post-construction management and environmental auditing, especially management of drawdown zones and landscape rehabilitation, as well as the sustainability of cultural traditions of local communities.
- CHM within the EIA process must incorporate a research design that integrates theory with cultural traditions of living populations, archaeological and historical resources, and cultural landscapes.
- There should be external evaluation and peer review of EIA's and CHM research designs prior to implementation, as well as at the recommendation and final report stages.
- Investigations must be conducted by an interdisciplinary team of researchers, including ethnographers, social scientists, archaeologists, historians, architects, ecologists, conservators, and museum specialists, within an integrated research design and with a clear definition of roles and phases of CHM operation.
- Individuals, institutions and companies conducting CHM activities must have the necessary skills, knowledge and abilities to carry out the work. In this light, national and/or international procedures for certification need to be established.
- Local communities and experts must be included as partners in all stages of EIA/CHM operations.
- Work must be scheduled to take into consideration the duration and requirements of each operation. Definable ranking criteria should be established to provide a basis for establishing priorities and significance. CHM operations must be monitored and evaluated by supervisory missions during the implementation of the project to ensure compliance with the research design, professional standards, and legislation.
- All CHM activities must be co-ordinated and integrated whenever possible with the most up-to-date concepts and practices of the various disciplines involved.
- Linkage of CHM with poverty reduction and development for the benefit of local communities, especially marginalised, native, tribal or indigenous groups must be attempted. This could include the development and/or further emphasis of eco-tourism, cultural tourism, and traditional cultural activities.
- Project design should include provision for local capacity building, analysis and curation of collections and records, as well as publication of professional reports and dissemination of information to the public.

Public Outreach and Education

The role of NGOs in CHM must be strengthened as a means of ensuring local capacity building, the enforcement of CHM legislation and public education. The private sector in collaboration with governmental agencies, museums, universities and national centers can also play a key role in local capacity building and in upholding professional standards. There is a need to co-ordinate the various efforts necessary to bring about a positive turn in the current loss and mismanagement of cultural

heritage resources as a result of the construction of dams. First, it would be useful to create a network of relevant groups and individuals, as well as a list of experts in dam CHM, and to establish a mechanism for task forces to design a curriculum for capacity building. An action plan should be formulated within a year to co-ordinate international efforts to secure funding, develop capacity building and to ensure compliance with international legislation and guidelines, as well as compliance with professional standards.

Endnotes

¹ The paper by Shally Gachuruzi on “Large Dams and the Destruction of Cultural Heritage in Africa” was presented in this theme at the workshop, but is summarized here in Theme 4 on African Dams and CHM.

² R. Inskeep’s paper is a submitted contribution as he did not attend the Workshop. His and I.I. Pikirayi’s paper are summarized jointly as they are similar to and complement one another.

³ M. Posnanksy’s did not attend the Workshop but submitted this paper.

⁴ M. R. Mughal’s paper was submitted and not presented.

⁵ Deadline for the WCD final report was mid-July 2000

⁶ R. Inskeep’s paper is a submitted contribution as he did not attend the Workshop. His and I.I. Pikirayi’s paper are summarised jointly as they are similar to and complement one another.

⁷ M. Posnanksy’s did not attend the Workshop but submitted this paper.

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