The UCIL Bhopal case
– pluralised pasts, contemporary conflicts and future possibilities

Purpose and aims
During the night between 2 and 3 December 1984 a cloud of lethal gas escaped from the Union Carbide pesticide plant in the Indian city of Bhopal, resulting in thousands of deaths and injuries. More than twenty-five years later litigation on the Bhopal gas tragedy has still not reached conclusion. The site itself remains contaminated, causing damage to the environment and inhabitants. As a generation-spawning disaster it is a contested, living memory, evoking a range of historical narratives. It is heritage of pain with global relevance, addressing not only the plight of the survivors, questions of power and accountability, but also far-reaching issues of environment and technology. The legacy of Bhopal elucidates the questions contemporary heritage practice faces in developing a coherent strategy for managing cases of painful and contested historical remains.

The aim of this project is to investigate the prerequisites for inclusive management of contested heritage sites. The proposal constitutes a two year pilot-study in an interdisciplinary and international research setting, defining parameters for a larger, long-term research. It will focus remains and memories of industrialised society. The general aim is to investigate problems and possibilities of heritage processes to over-bridge conflicts, by giving heritage meaning and value in inclusive, participatory societal development. The application is based on thorough pre-studies.

Survey of the field
Since the 1980s there has been a growing inter-disciplinary interest in the study of social remembering (1). Within the field of heritage studies the scope has been widened from looking at isolated monuments to cultural environment. The concept cultural landscape attracted a growing interest, and an important extension has been the increasing significance of intangible heritage.

Industrial heritage developed as a research interest over the past 25 years, especially in early industrialised countries. In the wake of extensive re-structuring of industry on a global scale, abandoned industrial premises are put to new uses, often to support regeneration of communities and regions after close-downs (2). Increasingly industrial heritage sites are included in the UNESCO World Heritage list and Ticcih (The International Committee for the Conservation of the Industrial Heritage), reports increasing activity across the world – although still with a dominant emphasis on Europe. Industrial heritage is at the same time frequently contested, considered to be ugly, polluted and costly to maintain (3). Scholarly inquiry into the re-interpretive processes of making industry into heritage is an expanding field represented within a number of disciplines (4, 5, 6, 7, 8, 9). Toxic sites and the need for low-cost efficient decontamination methods is an an increasingly common concern.

Pluralised pasts and contested interpretation. Heritage making encompasses choices of social and political importance. As Ashworth (10) emphasized, heritage is a political issue, used to shape the ways people represent themselves and thus “conflicts of interest are an inseparable accompaniment to heritage as practice and process”. Conflicts of interpretation become unavoidably evident at sites that not only carry legacies of pain, agony and conflict, but also belong to the recent past. Such sites expose various ways of coping with this legacy (11). Foote (12) categorized public responses to violence and tragedy in the United States as sanctification, designation, rectification, and obliteration and Lowenthal (13) in a similar way:
to ignore, to erase, to celebrate, to transmute or to commemorate. Misztal also claims that “memories of past injustices are a critical source of empowerment.” (1: 18)

**Local and Global.** Technology has been a measure of modernity and a tool of dominion (14, 15). One of the grand narratives of Bhopal is a vision of modernity, where modern “western” technology is seen as the relief from poverty. The UCIL Plant in Bhopal was once a symbol of the ‘Green Revolution’ (16, 17). Many industrial heritage sites have strong connections between local and global, although these are seldom explicitly addressed. The interconnections are especially evident while studying the vestiges of industry in the developing world. Milieus becoming heritage are often visible evidence of colonialism or other types of foreign dominion (18).

**The case of Bhopal.** Writings on the Bhopal tragedy are extensive, with a strong focus on the accident and its causes and effects (19, 20, 21, 22, 23). Broader scientific studies of the socio-political context and/or formation of memory are few. Fortun (24) is an important exception. Besides the immediate and long-term effects of the gas leak, Bhopal is an ongoing environmental disaster. The 77 acres of the factory complex lie abandoned, insufficiently protected and in parts heavily contaminated, a part of the legacy and affecting peoples’ health. Just outside the factory site are three untreated solar evaporation ponds (SEPs) adding to the ongoing contamination (25, 26, 27, 28).

A multitude of narratives could be told through the site, with highly contested versions and conflict over what history ought to be told (1). In 2005 Space Matters, an architectural design studio based in New Delhi won the national competition for “designing a memorial for the victims of the Bhopal Gas Tragedy” at the UCIL plant in Bhopal (29). Somewhat inconsistently, Indian authorities later considered demolishing the legacy of the industrial plant, thereby threatening to obliterate the physical remains of the tragedy (30). The question remains as to whether this can be seen as an attempt at ‘organised and strategic’ forgetting, or if it is part of the balancing between the ‘duty to remember’ and the ‘duty to forget’ in the face of past national traumas (1). The Bhopal memorial project is embroiled in politics, litigations and international campaigns for justice for the victims (31, 32). It fundamentally questions what Smith (33) has called the Authorized Heritage Discourse.

**Project description**

The proposal covers a two year self-contained research project. This is also a pilot study, to provide the frame and basis for a broader international research project on remains and memories of industrialised society. Four distinct but interlinked areas of research are outlined: A) the process of memorialisation; B) The site – authenticity, interpretation, preservation; C) Alternative methods for remediation; D) Complementary case studies.

The specifics of the Bhopal situation mean that any intervention is exposed and highly charged. One of the key objectives is to investigate the processes involved in memory making from a participatory and inclusive standpoint. This represents a fusion between peace and reconciliation approaches, most often applied to post conflict situations, and a commitment to new museological tenets of widening ownership and sharing authority. This echoes approaches such as those by Sandell (34) where museums and heritage are explored as agents of change in the reframing of difference. Also of interest is the analysis of intervention from external agents seeking to support reconciliation. Bhopal was described by Sri S. R. Mohanty, current Secretary at the Department of Bhopal Gas Tragedy Relief and Rehabilitation, as a ‘war zone’ between the different interest groups, and therefore this approach is highly relevant. Organisations with experience in this area, such as Cultural Heritage without Borders (Kulturarv utan gränser) provide valuable testimony and documentation which can be
extrapolated to the Bhopal context. In this way, museums and heritage become ‘agents of change’ through social cohesion and transparent practice.

A common denominator of the four themes of this project will be identification and analysis of participatory based approaches to memorials and memory making. This will form an important methodological base related to the social, cultural and political setting of Bhopal.

The researchers will work as a coherent unit, reflecting the strong core of interdisciplinarity, and each them will have to coordinators.

A. The process of memorialisation

Objective: To investigate, describe and analyse the process of memorialisation of the 1984 gas tragedy in Bhopal.

In order to research the process of memorialisation in relation Bhopal, it is crucial to map out what Radstone and Hodgkin have termed the “regimes of memory” (35). This will contribute to a better understanding of how conflicting narratives frame shared perceptions of the past and visions of the future at unwanted, contested and problematic heritage sites (24, 36, 37, 38, 39). The aim is to explore the relations between different historical narratives of the Bhopal tragedy. This will clarify some of the consequences of choosing stories to be told at a Bhopal memorial site.

Interviews with stakeholders, such as victims, survivors, spokespersons, politicians, industrialists, scientists and activists will provide the most important source material. The methodology will be that of oral history (40). Fortun’s (24) fieldwork, focused on advocacy, also provides a relevant framework, exploring the complex and sometimes contradictory ways in which the Bhopal tragedy is being remembered. Generational perspectives, embodied memories and gender perspectives are some of the important local dimensions that will be pursued. Relevant global issues are environmentalism, public health and industrial risk management (24, 32, 37, 41).

In addition, analysis of how Bhopal is remembered in various written discourses (scientific, industrial, public health, environmental studies discourses are especially relevant) will be essential. Finally, the process of turning the site into a physical memorial will be critically analysed. The transformation into a memorial requires that the complexities of urban regeneration of the surrounding precincts which have borne the brunt of the tragedy and its aftermath will be addressed. Archives, interviews, field observations and other relevant material will provide a basis for an analysis informed by the theoretical perspectives raised by heritage studies (35, 37, 38, 42).

Coordinators of theme A will be Thomas Brandt and Bosse Lagerqvist.

Central activities: Literature surveys (2 months); fieldwork in Bhopal (2 months); interviews with relevant informants outside Bhopal (1 month); workshop participation Bhopal (2 weeks); workshop participation outside Bhopal (1 + 1 week); analysis and writing preparations for publication (6 months).

B. The site – authenticity, interpretation, preservation

Objective: To critically assess the tangible and intangible heritage of the Union Carbide site and environs, and relate this to actual and potential museum and heritage practice.

The Bhopal tragedy and its legacy are highly contested. Moving from the contaminated site to a public memorial/museum, based on the needs of the local people, requires an investigative process from which a management plan could evolve. Inclusive museological practices based
on social cohesion, participation and inclusion are essential if the resulting memorial is to belong to the people of Bhopal.

A mapping of actors, their interests and power relations is an integral part of understanding the site and its meanings. Interests and interpretations may be linked to the material properties of the site and could form important perspectives on how to understand its intangible qualities. It is highly problematic to use authenticity as a base for decisions on preservation, restoration, reconstruction, demolition, construction, etc.

Existing museological practice in Bhopal will be analysed, at all levels, underpinned by extensive mapping of archives and collections, and the potential for future approaches will be explored. This process is in line with recent museological practice where material culture has been reappraised as containers of hidden memory and narrative. Archives and collections are powerful and histories are hidden for a variety of reasons; power, neglect, prejudice and absence of records, being the main ones (43, 44).

The methodology adopted will be inclusive and will draw on the researcher’s experience of heritage as a tool for peace and reconciliation. The process of creating forums for dialogue and debate fall within the broader tenets of, for example, the International Coalition of Sites of Conscience and the work of Cultural Heritage without Borders (45).


t Coordinators of theme B will be Amritha Ballal and Diana Walters.

Central activities: Fieldwork in Bhopal mapping actors and archival resources, and for making site documentation (4 visits of 2-3 weeks each); Workshop participation Bhopal (2 weeks); Workshop participation outside Bhopal (1 + 1 week); Analysis and writing preparations for publication (6 months).

C. Alternative methods for remediation

Objective: To initiate and start a study of the potential of phytoremediation as an alternative or complementary method to clean the Union Carbide site and surroundings, and explore potential participatory reuse options.

Phytoremediation is a recently developed and cheap method using plants to remediate, contain or render environmental contaminants harmless (46, 47). It minimizes physical infringements at the sites, which is an advantage both for remediation as such but also decreases costs and makes the method well suited to combine with measures of landscape architecture, which can be participatory and involve local communities. Plants either stabilize the pollutants in the soil preventing leakage to the ground water; take up pollutants like heavy metals into plant parts that can be removed by harvest, or degrade organic pollutants by plant enzymes. Successful plant degradation of the main pollutants at the Bhopal site, lindane and carbaryl, has been shown by Hussain et al. (48), Karthikeyan et al. (49), Abhilash & Singh (50) and Garcinuno et al. (51). Only a few specific plant species have phytoremediation capability and for each site specific plants have to be chosen. Plants must be native and suitable for different biotopes present, such as grassland, forests, wetlands, lakes etc. Successful phytoremediation has been shown by Greger and Landberg (52), Vangronsveld et al. (53) and Mench et al. (54).

Coordinator: Maria Greger in collaboration with Dr. Nandita Singh, National Botanical Research Institute, Lucknow.

Central activities: Fieldwork, interviews and archival/library studies in Bhopal in order to map chemical compounds at the site (preparing pollution maps, soil sampling for chemical analyses and analyses of edible berries from the site) and inventories of flora at the site and surroundings in order to find plant species suitable for remediating the Bhopal pollutants.
Laboratory tests in Stockholm of the remediation capacity of abundant grown native species on collected soils from the site. Analysis and writing preparation for publication.

D. Complementary case studies

Objective: To place Bhopal within a broader context of sites of industrial heritage and/or heritage of pain and shame, with special reference to developing countries and to establish a network of researchers and practitioners in future long term research.

Constricting a study to one country and one city, to the ‘perpetrators’, ‘victims’ and ‘survivors’ of the Bhopal tragedy would be a “myopic view [which] pushes the Bhopal narrative to the fringes of popular consciousness as an endless saga of the quixotic struggle of an unfortunate few victims” (55). An integral part of this pilot study is to analyse how the specifics of the Bhopal context find resonance with other cases where local communities grapple with the contested heritage of previous industrial activities and/or pasts of trauma. In doing so this research aims to contribute to a greater understanding of the overarching themes of Bhopal regarding the socio-economic and environmental legacy of industrialisation, problems and possibilities of regeneration, inclusive processes of memory making and management of painful heritage.

The pilot study will confirm case studies and establish a network of researchers and practitioners in order to develop a comprehensive plan and theoretical frame for the long-term research project, to which this study is a pilot.

Coordinators of theme D will be Moulshri Joshi and Jan af Geijerstam.

Central activities: Co-ordinating with findings of other thematic groups. Sharing findings with collaborating networks of TICCIH, mAAN and Sites of Conscience, Establishing guidelines for identifying and confirming case studies based on findings on Bhopal, establish a network of researchers and practitioners, investigate different means of funding (different resources within concerned nations as well as international potentials)

Participants and institutional settings

The institutional partners for the pilot study reflect the inter-disciplinary and global-local approach of the research initiative. Each institutional partner and participants are linked to broader research networks.

University of Gothenburg, Department of Conservation: will host the project leadership. Research and education are based on a critical understanding of the heritage concept and aims at studying and improving the societal practices within the heritage area. Researchers:

**Bosse Lagerqvist**, PhD, senior lecturer, coordinator of the cross-departmental university initiative on heritage research. Acting as project leader. 50 %, fully financed by the project.

**Jan af Geijerstam**, PhD, guest researcher. Acting as co-project leader. 80 %, fully financed.

**Susanne Karlsson**, PhD-student financed by the University of Gothenburg. Case studies in Bhopal for her dissertation work to be financed by the project.

Stockholm University, Department of Botany, The Plant Metal Group: leading research group in Sweden on phytoremediation and active in European phytoremediation networks (COST 837 and 859). Researcher:

**Maria Greger**, Associate Professor, Research officer. 50 %, fully financed.

Cultural Heritage without Borders, Stockholm. Internationally recognized NGO with broad experience of heritage as a tool for peace and reconciliation in post conflict situations. Researcher:
Diana Walters, PhD, international museum and heritage expert. 60 %, fully financed by the project

Norwegian University of Science and Technology (NTNU), Trondheim: Participation by the Department of Urban Design and Planning which hosts the Urban Ecological Planning (UEP) Program and the Department of History and Classical Studies, host of the Cultural Heritage management study program. The UEP programme has recently initiated a course of planning for disaster recovery for which Bhopal will serve as an important case study. Researchers: Thomas Brandt, PhD, associate professor. Full time, 45 % financed by the project, 55 % by NTNU. Amritha Ballal, architect (also Space Matters in New Delhi). 50 %, fully financed.

School of Planning and Architecture (SPA) New Delhi: Leading institution in India on issues of habitat and built environment, recognized by the Government of India. Department of architecture and in the Department of Conservation. Researcher: Moulshri Joshi, architect and lecturer. 50%, fully financed.


Space Matters New Delhi: Architecture firm entrusted with the project for proposed Bhopal Memorial complex with excellent contacts with key stakeholders. Aforementioned researchers Amritha Ballal and Moulshri Joshi are based there.

Other researchers:
- UNESCO Chair Professor Rohit Jigyasu, Global Center of Excellence for Disaster Mitigation of Cultural Heritage, Ritsumekian University, Kyoto, Japan. Fieldwork costs to be covered.
- PhD-student Pawas Bisht, Culture and Media Analysis Research Group, Department of Social Sciences, Loughborough University, UK. Forthcoming PhD: ‘Remembering Bhopal’: Disaster and the Dynamics of Memory, contains extensive interviews with concerned inhabitants of Bhopal. Fieldwork costs to be covered.
- Dr. Nandita Singh, National Botanical Research Institute, Lucknow. Fieldwork costs to be covered.

Timetable and strategy for dissemination

January-March 2012: Start-up phase, organisational issues, literature reviews.

April-June 2012: Literature reviews. Workshop in Gothenburg (April). Field work in Bhopal (May; mapping actors, interest groups and resources, and collection of soil and plant samples at the site). Analysis of soil samples. Presentation of project at inaugural conference for the Association of Critical Heritage Studies, Gothenburg (June).


January-June 2013: Field work in Bhopal (Jan-Feb; interviews, mappings, workshops with actors and interest groups on suggestions on operational heritage outcomes and principles for a governance structure). Testing plants on phytoremediation. Field trips to complementary
sites (Feb to June). Workshop in Stockholm (June): formulation of joint articles and preparing project anthology.

**July-December 2013:** Workshop (Aug): preparation of joint articles and preparing project anthology. Presentation of articles at international conferences (Sep-Nov). Field work in Bhopal (Oct; workshops with actors and interest groups on operational heritage outcomes and principles for a governance structure. Building exhibition in cooperation with local museum actors). Interviewing and report preparation on phytoremediation. Submission of articles to project anthology.

**January-March 2014:** Formulation of joint articles, production of project anthology.

**Significance**

The interdisciplinary character of the project will provide new theoretical, methodological and practical approaches to dealing with large-scale, painful and heavily contaminated industrial heritage sites in late-industrialised parts of the world.

Academic disciplines like history, heritage studies and museology will benefit from the insights gained through involvement in practical site making. Methods concerning oral history, field observation and archival studies will have to be rethought with regards to the Bhopal situation. For architecture, planning and the environmental sciences, theoretical insights into the social consequences of memory will provide a road-map for feasible strategies of site making, urban and environmental regeneration. New methods will be further developed and improved. Phytoremediation is especially a promising method for heavily contaminated sites.

**Preliminary results**

The proposal builds on a number of previous activities:


- Proposal for a memorial at the former UCIL plant in Bhopal, by Space Matters, New Delhi. The proposal is based on a broad socio-cultural understanding of the difficulties at hand when turning a site such as the UCIL-plant into a memorial. The proposal focuses on three main perspectives, or threads of thoughts, for the memorial function: Memory as focusing the Past; Healing as an objective for the Present; and Deterrence as an option for the Future and was based on broad socio-cultural consideration of the contested nature of issues involved in such a process.

- *Bhopal2011 – Requiem and Revitalisation, Students Workshop and Symposium*, Bhopal 23 Jan – 4 Feb 2011. Results indicate that there exists severe problems to be solved, but also a growing willingness to take part of processes leading to their solution. It focused on the factory site as a place of remembrance and a resource for the local community. Pilot survey and analysis of flora for phytoremediation and of toxic hotspots. Six of the applicants in this proposal were actively involved in its planning and implementation.

Part of project cost

This application concerns 100% coverage of research costs for 2012, 2013 and 2014 from the Swedish Research Council.

Budget

Salaries are based on present salary levels and the costs are calculated using standard model from University of Gothenburg, University of Stockholm and NTNU.

Travel costs concerns 4 visits on c. 3 weeks each for field studies to Bhopal for the total group; 3-4 visits to complementary sites for 2-3 persons; 4 visits on 2 weeks each to Gothenburg/Trondheim/Stockholm for Indian scholars (3 persons), 6 visits on 1 week each to Gothenburg, Stockholm and Trondheim for Nordic researchers (5 persons).

Costs for organising workshops: one each in Gothenburg, Trondheim, Stockholm, and two in Bhopal.

Costs for material are planned for experiments with phytoremediation and resources for analysis of substances; a video-camera with good microphone; and for exhibition production. Additional costs are anticipated for interpreters and transcription of interviews, and for organising participatory activities.

International and national collaboration

Besides the mentioned, the following should be noted, in which the participants of the project are or will be actively engaged, as co-planners (except Taipei 2012) and/or participants:

• The 2011 mAAN conference, Seoul, Korea, Aug 2011.
• The inaugural conference of the Association of Critical Heritage Studies will be held at the University of Gothenburg, Sweden, June 2012.
• The 2012 mAAN conference, Bhopal, India, Aug 2012.
• The fifteenth international Congress of TICCIH, Taipei, Taiwan, Nov 2012.

Ethical considerations

Oral history will in this project function as an empowering act by the historian, allowing for a broader polyphony of voices speaking about a difficult past. Semi-structured interviews with representatives from various stakeholder groups will in other words provide an important source material for this project. The interviews and the recordings will be conducted in compliance with the recommendations of The National (Norwegian) Committee for Research Ethics in the Social Sciences and the Humanities (NESH), and the research work in general are highly inspired by the book “Good Research Practice” (Vetenskapsrådet).

Other grants

The project proposal presented here is planed to be submitted with slight revisions to SIDA, Formas, the European Research Council, and FRIPRO (Norwegian Research Council).

The project leader will submit a further application to The Swedish Research Council on the theme “Maritime heritage studies and heritage practices – Critical research and knowledge development for practice improvement” which addresses the memorialisation processes and
heritage practices within coastal environments. The project will provide valuable reference for a broadened understanding of the interrelationship between heritage and society.

References

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