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The International Advisory Group
for a
Development Agenda

PREVENTIVE DEVELOPMENT

VULNERABILITY REDUCTION IN DEVELOPMENT PLANNING

PROJECT IDENTIFICATION AND EQUITABLE DEVELOPMENT PLANNING for VULNERABILITY REDUCTION in AREAS AFFECTED BY NATURAL DISASTERS and/or CIVIL STRIFE

JAMAICA

Hurricane / Flooding / Earthquake

ENVIRONMENT AND COMMUNITY DEVELOPMENT

PROPOSAL
March 1995

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In collaboration with the Disaster & Emergency Reference Center

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INTRODUCTION

Vulnerability is a pervasive socioeconomic condition; it is the reason why the poor and disadvantaged are the predominant victims of both natural and man-made disasters. The day-to-day vulnerable condition comprising marginalisation, poverty, disease and illiteracy is the context and the cause of vulnerability to rarer and more extreme hazards - which themselves exacerbate vulnerability to the day-to-day condition and recurrent extreme hazards.

Actions of man are recognized to contribute to or to exacerbate vulnerability, so that natural disasters are in part man made. It follow therefore, that actions of man, in appropriate development planning and its implementation, can intervene in this cycle and conversely contribute to vulnerability reduction - and reduce the socioeconomic impact of natural and man-made disasters.

Deprivation, homelessness, hunger and disease, the socioeconomic effects of natural disasters and civil strife, impinge upon those with least options and least resources - the most vulnerable, and at the same time create wider and more pervasive vulnerability to continued conflict and/or to the effects of natural hazards which previously may have been withstood. Vulnerability to one thing is vulnerability to another.

The crucial development issue of survival has, in the past, been left to emergency assistance after the event; whereas appropriate development can make more assured socioeconomic survival by the accommodation and supply of basic resources for life support. Survival in the first instance could be more certain, and there could be less demand for costly emergency assistance.

The environmental impact of migration and of resettlement, may become a cause of additional hazards of air and water pollution, deforestation and land exhaustion, which combine to make survival more hazardous.

The linkage between natural and man-made disasters, between natural hazards and civil strife, is as close as between hurricanes, earthquakes and floods. The agent and physical effects may be different, but the socioeconomic effects are similar - homelessness, hunger and disease and increased vulnerability to subsequent hazards and dangers. It is not surprising that civil strife in varying degrees has been a product of the aftermath of some natural disasters.

Commonality and linkage increase as the level of impact reduces. Terrorism, riot and civil disturbance are more common in situations of deprivation, poverty and disadvantage. Vulnerability, in its short-term symptoms, is expressed by the day to day incidence of its long-term causes.

Official development assistance is recognizing that there is a need to widen the framework of aid provision. Development assistance can be deployed to assist in conflict resolution, human rights, environment and demographic issues, as well as poverty and vulnerability reduction - reflecting needs and aspirations in many developing countries as well as the global perspectives and concerns of donors.

By amelioration of some of the perceived causes and reasons of vulnerability, preventive development has the potential for reducing the socioeconomic effects of natural disasters and of some conflicts and for diminishing the likelihood of their recurrence or continuation. Accrued conditions of invidious deprivation and perceived disadvantage may lead to animosity and conflict, often under cover of more obvious ethnic differences. Where equitable development can be deployed to assist the establishment and growth of pervasive and comparative well-being, there is more likelihood of ethnic differences being absorbed into an overall cohesive and gregarious social network.

Complex emergencies in many countries have created contexts in which conventional interpretations of natural disaster relief and of peacetime development are inappropriate and unworkable. Desperate crisis-driven decision making, often in competition rather than coordination, needs to be replaced by systems for inter-relationship, integration and cooperation with a view to the medium and long term as well as to immediate actions.

Distinctions between relief and development are best avoided, in the practical relationship of each modified in a linkage expressing circumstances, needs and capabilities, time and change. "Continuum" suggests an over simplified progressive linearity not compatible with the disruptions of complex and continuing emergencies; it also suggests that the onus for change is on relief, whereas both conventional relief and development may have to modify in unconventional circumstances and the over-riding objective of vulnerability reduction.

With the greatest respect to efforts now to curtail civil strife and to provide emergency assistance for its victims, and for those of natural disasters in numerous countries, equitable measures are also required to assist the achievement of vulnerability reduction, and social and political stability in the longer term. This proposal is respectfully submitted towards those objectives.

This Proposal links field experience of projects for strategic development planning for vulnerability reduction on account of recurrent natural disasters (see **ANNEX SIX:** *Proposer's curriculum vitae*) with the current objective of **project identification and equitable development planning for vulnerability reduction in areas affected by natural disasters and/or civil strife.**

The proposer has wide and varied experience from more than twenty years work on the development of theory and in field applications of policy and planning strategies for the reduction of vulnerability to natural disasters in numerous less developed countries - in **Jamaica** and other island states of the Caribbean and South Pacific, and and in Algeria and Bangladesh.

OBJECTIVE

The objective of this proposal is the reduction of vulnerability to the socioeconomic and physical effects of natural disasters by equitable and appropriate sustainable development planning.

Vulnerability comprises economic, social, cultural, health, physical and institutional conditions in domestic, community, regional and national contexts. Implementation of this proposal will identify causes of vulnerability, identify strategy and recommend objectives for development planning for vulnerability reduction in the medium and long term.

Community expectations, needs and capacities, identified by field and institutional inquiry, will be sources of project identification for inter-related and sustainable development programmes in collaboration with community representatives, local and national government officers and representatives of non-government organisations.

Vulnerability assessment in the field will be pre- and post-disaster. Pre-disaster assessment will:

- Identify and evaluate past, current, and planned alteration in natural and socio-economic environment which may have contributed, and which may contribute in the future, and to an increase or to a reduction in vulnerability to natural disasters.
- Identify development projects and programmes for vulnerability reduction.
- Prepare guidelines for vulnerability reduction in development planning.

Post-disaster assessment will:

- Identify exposed weaknesses, shortcomings, and certain strengths of prevailing conditions, systems and practices. - Identify necessary improvements, adjustments, and modifications in development for vulnerability reduction.
- Prepare guidelines for post-disaster assessment techniques.

Implementation of the proposal, as the precursor of the development programmes it will identify, will be a demonstrable commencement of equitable development as a local expression of national democratic intent, as well as a medium for strategic planning. Projects will be subsequently mobilised and managed by agencies to guidelines identified in the planning process.

OUTLINE

The proposed location for implementation of this proposal, **Jamaica**, is adopted from a suggestion by UNDHA (letter/Dusan Zupka: 16 January 1995) as being prone to a variety of hazards, with emphasis on hurricanes (see **ANNEX ONE:** *Incidence of natural disasters: **Jamaica***).

It is the intention to split execution of the proposal around the occurrence of a natural disaster - hurricane, flood or earthquake (see **ANNEX THREE:** *Timechart*). Implementation will require a context of achieved political and social stability and national, regional and local frameworks for democratic government committed to disaster reduction.

Both pre- and post-disaster situations are envisaged as contexts for proposal implementation in a three-part strategy for disaster reduction in development:

1. **Pre-disaster conditions**
   Considerations for the incorporation of vulnerability reduction in development planning: Field observation, and analyses at national, provincial, and local levels.

   - Identification and evaluation of past, current, and planned alteration in natural and socio-economic environment which may have contributed, and which may contribute in the future, to an increase or to reduction in the incidence or severity of natural disasters.

   - Identification of modifications to current, and of new development projects and programmes for vulnerability reduction.

   - Preparation of guidelines for development planning.

2. **Post-disaster conditions**
The post-disaster identification of development input for vulnerability and disaster reduction: Field analyses for the elaboration of development strategy.

- Identification of exposed weaknesses, shortcomings, and of strengths of prevailing conditions, systems and practices.

- Identification of necessary improvements, adjustments, and modifications in development for the reduction of vulnerability in recurrent disasters.

3. **Integration of emergency assistance with development for vulnerability reduction**

- Identification of short-term (emergency) inputs for rehabilitation.

- Identification of longer-term (development) needs for rehabilitation.

- Recommendations for the integration of identified short-term and longer term needs with development for disaster mitigation (2 above).

- Guidelines for the identification of short-term inputs and for their integration with development objectives and development planning for vulnerability reduction.

This work programme will be applied nationally, achieved incrementally at **Jamaica** parish/county levels (*see maps with* **ANNEX ONE**). This Proposal envisages a first stage project (STAGE ONE) at parish/county level (taking account of central government responsibilities) in the first instance (*see* **ANNEX THREE:** *Timecahart*). A dialogue of participatory evaluation will be commenced in discussions of interim recommendations with development planners and potential implementors.

Proposal implementation will be with and on behalf of various and/or mixed social contingents; established communities; remnants of established communities; internally displaced people; returnees, and/or refugees. There may be the perceived need to move, or to move again. Many activities and undertakings necessary for sustained life support may have been destroyed, abandoned or severely neglected. There may be hazards other than that of recent occurrence (drought, landslide; etc) which proposal implementation and development planning should accommodate.

Field assessment techniques, in collaboration with local communities, will identify existing/remaining resources, skills and infrastructure; identify ongoing rehabilitation and development projects; define integrated development programmes (with alternatives) recognizing local needs, aspirations and capabilities and taking account of conditions and programmes in target and adjacent areas. **The outcome will be overall, inter-related, integrated, equitable and sustainable programmes recognizing social, political, economic and environmental constraints and requirements.**

ACTIVITIES

Preventive development planning for vulnerability reduction must simultaneously address a wide range of sectors and activities for the achievement of perceived equitability, stability and sustainability. These will include:

- a literature review (see **ANNEX SEVEN:** *Bibliography*)
- resettlement
- psycho-social needs (post traumatic stress disorder)
- basic needs provision: food, water, shelter, health - \care, transportation
- resource accessibility
- economic regeneration
- vulnerability assessment and reduction: physical and material; social and organisational; and motivational & attitudinal
- community capacities and capabilities
- environmental and social sustainability.
- equitability
- ethnic and cultural integration
- gender issues & womens' needs
- education & childrens' needs
- training:

within a working framework of assisting the formulation of survival, recovery and development and the achievement of policies and objectives established by incumbent democratic government.

Project identification will take account of:

- community collaboration
- crisis continuation
- regeneration of social and political structures
- disaggregated vulnerability assessments and its reduction
- refugees, returnees and internal displacement
- causes as well as symptoms of vulnerability reduction and of conflict.

Field activities will be to:

- Assess field situations: numbers of people current and expected, origins, resources, perceived needs, expectations, environmental impact, reconstruction and repair requirements, materials availability; etc.

- Examine existing policies: national government; multilateral; bilateral; and ngos

- Examine existing programmes: national government; multilateral; bilateral; and ngos

- Search and assimilate information: commence GIS/ViSP (below)

- Identify community leaders; local government officers; ngo and multilateral agencies; etc

- Assist an articulation of expectations and needs: transport, food, water, seeds, animals, tools, building materials, access and land, health services, education services, physical infrastructure, market access, credit availability.

- Assess existing resources

- Assess local capacities and capabilities

- Assess existing/accessible skills

- Assess compatibility between needs and resources

- Recommend strategic programmes

on account of the following

Resettlement:
Displaced people & refugees;
- siting
- transport/communications
- development integration
- social integration (internal/external)

Basic needs provision:
- psycho-social
- food
- water
- shelter
- health care
- transportation

Resource accessibility:
- existing settlement
- existing infrastructure

Environmental impacts:
- homeless/refugee settlement planning
- deforestation and woodfuel
- water sources
- pollution

Vulnerability assessment and reduction:
(according to location)
- floods
- windstorm
- earthquake

taking account of the overall requirements of
- Survival, saving of life and curtailment of suffering;
- Environmental and social sustainability;
- Social and cultural integration and maintenance of cultural diversity;
- Equability between social groups and geographic areas;
- Gender issues & womens' needs;
- Education & childrens' needs
- Training.

TECHNIQUES

A geographic information system (GIS) or Visual Settlement Planning will be used for the processing of information and implementation of development planning. Information on population, settlement, resources, infrastructure, local capacity etc, will be obtained by participatory field methods; results and decisions made will be fed into the GIS planning system. Use of such a system will facilitate information management and processing, monitoring of change, project identification, location and prioritisation, and report preparation.

ViSP uses off the shelf hardware and software, and inputs from satellite images, aerial photographs, and normal transparencies, photographs and video images. Contours and/or explanatory text can be superimposed. Material generated can be viewed on the computer screen, through a video projector, or normal-system television set - or printed out (see **ANNEX TWO:** *Hardware for Visual Settlement Planning*).

ViSp maps can be made from aerial video images or entered into database files and linked to a GIS map base.

The sequence of ViSP operations is:

- collection of existing map material of the area
- preparation for the taking of aerial photos/videos
- aerial photographic flights
- processing of material acquired from flights
- capture of video images into the computer
- capture of slides and aerial photos into the computer
- geo-referencing of captured material (with use of GPS if available)
- geometric correction of images
- building of photo mosaics
- printouts and maps for survey teams
- preparation of GIS map base from picture/image material
- linking collected data to GIS map base
- analysis and preparation of thematic maps
- visualisation of picture material
- preparation of plans and options etc
- updating.

PERSONNEL

A total of forty-three professional person-months plus thirty-five local person-months has been calculated (see **ANNEX THREE**: *Timechart* and **ANNEX FOUR**: *Personnel Profiles*).

All professional personnel will be field experienced in the application of their various disciplines. Curicula vitae will be submitted at a later stage. Selected personnel will be multi-disciplinary by primary and subsidiary qualifications, experience and aptitude, so as to form a minimal field team of maximum application and flexibility in a widely multisectoral task.

Project Director
Architect/Planner (Team Leader)
Planner (GIS)
Ecologist
Sociologist
Educationist
Health planner: physical & mental
Rural economist/economic planner
GIS plotter skills and secretarial: local
Office and field assistants : local
Drivers : local

PROGRAMME & TIMING
A programme of six and a half months inclusive of stage one, interim and final report preparation is envisaged, arranged as "pre- disaster" and "post-disaster" phases. Occurrence of hurricane, flooding and/or earthquake has to be awaited before the second phase can be implemented.

Proposal implementation should commence to coincide with the Caribbean hurricane season ie: April.

(see **ANNEX THREE:** *Timechart*)

PROPOSED COSTS & PAYMENTS
The total proposed cost based on a preliminary cost breakdown is **US$ 1,750,000.**

Payments would be appreciated after completion and submission of Stage One, Interim and Final Reports.

(see **ANNEX FIVE:** *Preliminary cost breakdown*).

ANNEX ONE

JAMAICA:
INCIDENCE OF NATURAL DISASTERS
Sources: Munich Re 1988; Tomblin 1979; Lewis 1990; Lewis 1991a; USAID 1993.

Hurricane	Earthquake	Flood
	1692 *(Port Royal)*	
1722		
1780		
1786		
1880		
1901		
1903 *65 deaths*		
	1907 *(Kingston)* *1200 deaths* *90,000 h'less*	
		1909 *53 deaths*
1912 *142 deaths*		
1917 *57 deaths*		
		1933 *53 deaths*
1933 *10 deaths*		
1935		
		1937 *111 deaths*
		1940 *125 deaths* *200 h'less*
1944 *32 deaths*		
1951 *154 deaths*		
1963 *11 deaths*		
1973 (TS Gilda) *6 deaths/2500 h'less*		
		1979 *44 deaths*
1980 (Allen) *6 deaths*		
1985 (Kate) *7 deaths*		
		1986 *54 deaths*
1988 (Gilbert) *49 deaths/810,000 h'less*		
1988 (Joan)		
		1991

FLOODING: 1979
Above-normal rainfall occurred in western Jamaica during the first five months of 1979; on 25 April, 25 cm rainfall was recorded. Heavy thunderstorms in early June saturated soils, causing rapid run-off of subsequent rains. Further extremely heavy thunder- storms occurred in western parts of the country associated with a tropical depression; recorded rainfall for twenty-four hours were 20 to over 75 cm, with 80 cm being recorded at Friendship, in Westmoreland Parish. The parishes of Westmoreland, Hanover and St James were the most affected; the parish of St Andrews was also affected as was Kingston and most area of the island state *(see maps on following pages)*. Forty people were killed in an overall affected area of 975 square miles. 160,000 persons were affected and almost 40,000 were made homeless. Significant and long-lasting flooding persisted in Hanover and Westmoreland parishes.

Houses, public buildings, roads, bridges and rail tracks were swept away. Power lines, water pumping stations, sewage plants and industrial buildings were damaged or destroyed. Preliminary estimates of damage were US$ 82 million. 40,000 tons of sugar (an export crop) had been lost by the end of June *(UNDRO Newsletter No 10; September 1979* and *UNDRO Case Report May 1980)*.

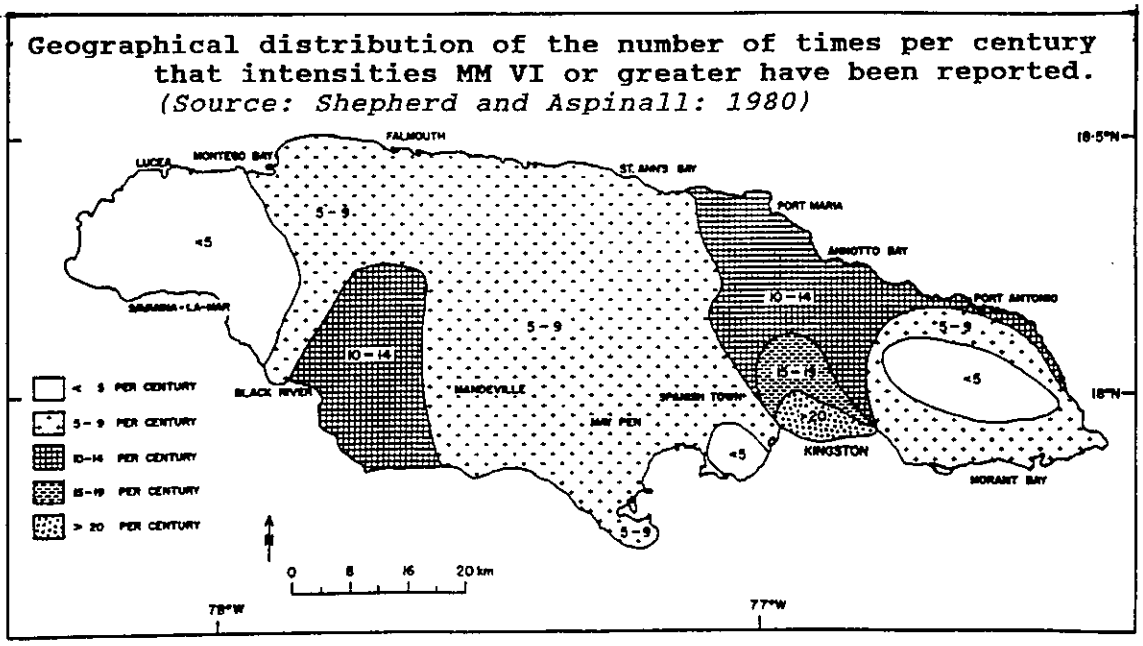
HURRICANE ALLEN: 1980
Hurricane Allen, 4-8 August 1980, was one of the largest then on record in the Caribbean. Serious damage was caused to Jamaica's north coast fishing and poultry industries, and to banana crops throughout the island. Nine people were killed and 2,500 made homeless *(UNDRO News November 1980)*.

HURRICANE GILBERT: 1988
Hurricane Gilbert, 12 September 1988, was one of the most powerful and devastating hurricanes ever in the Caribbean; it brought the worst natural disaster in Jamaica's history. The eye of Gilbert moved across the length of Jamaica from east to west *(see maps on following pages)* with windspeeds of 125 mph for a period of 10-12 hours. Forty- three people died and damage was estimated at US$ 800 million. One fifth of housing stock was destroyed or severely damaged; at least 500,000 people were made homeless *(UNDRO News September/October 1988)*.

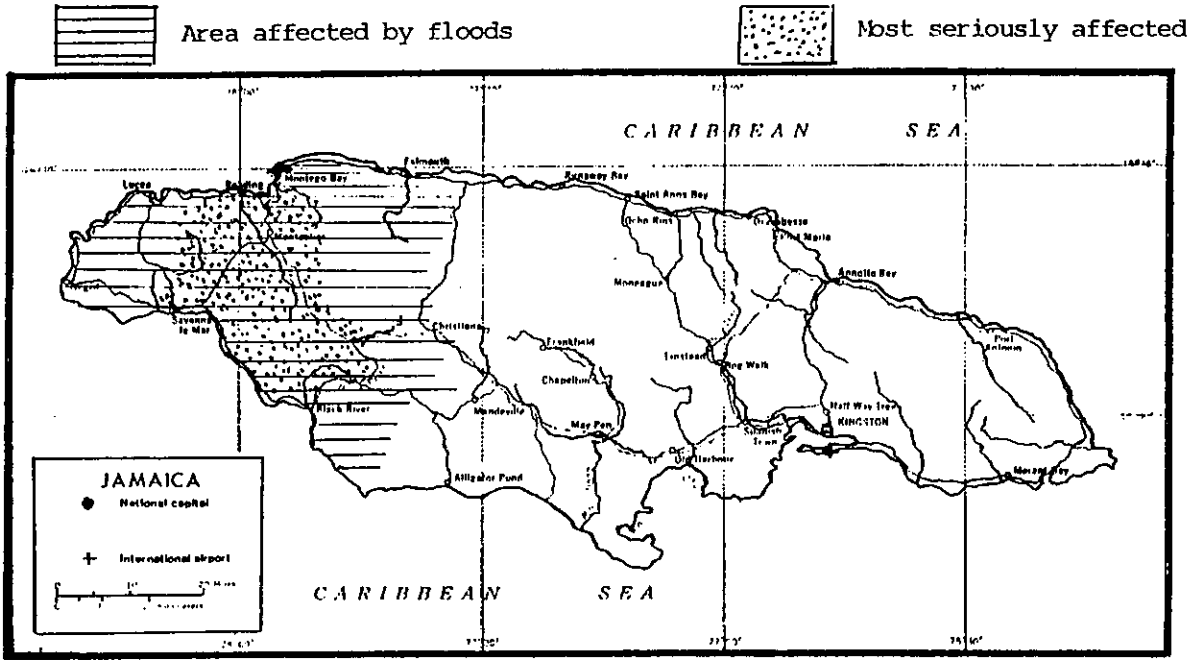
MAPS: *(see following pages)*

2. Geographical distribution of the number of times per century for reports of intensities MM VI or greater
3. Areas affected by floods: June 1979
4. Track of Hurricane Gilbert: September 1988
5. Counties and Parishes

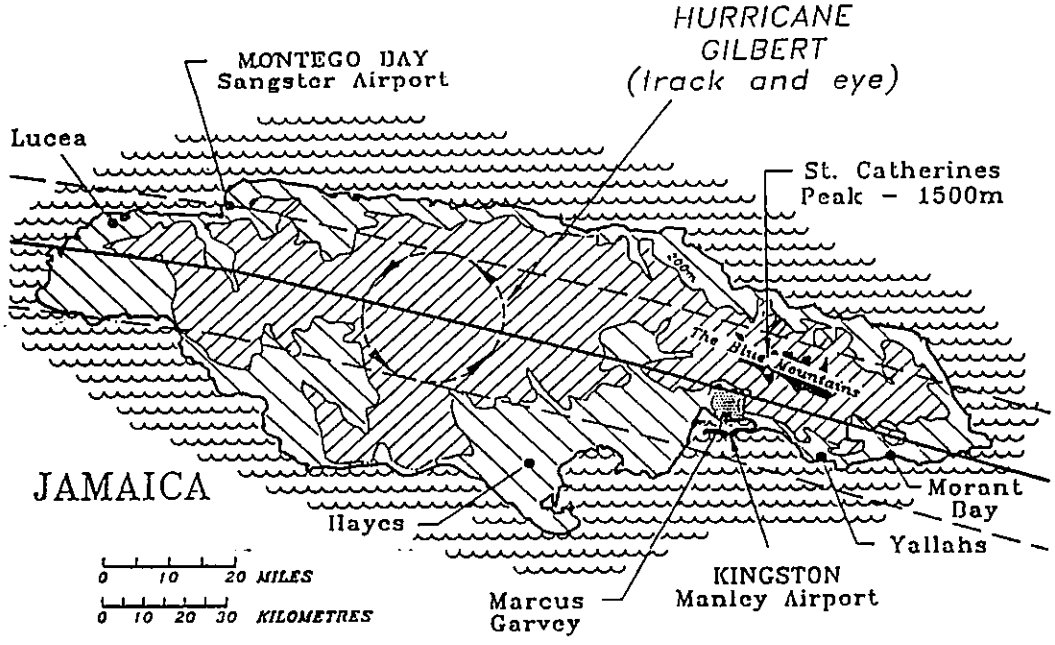
Geographical distribution of the number of times per century that intensities MM VI or greater have been reported.
(Source: Shepherd and Aspinall: 1980)



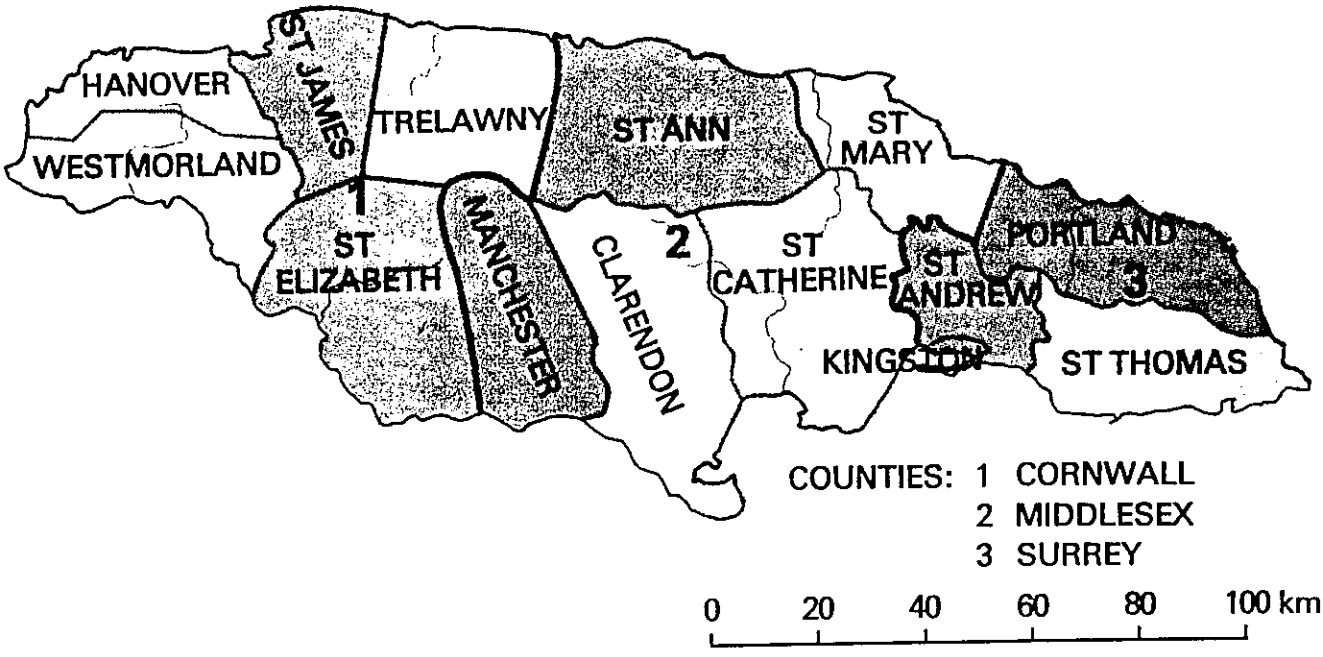
Areas affected by floods: June 1979



Track of Hurricane Gilbert: September 1988
(Source: Davenport: 1989)



Counties/Parishes



ANNEX TWO

HARDWARE FOR VISUAL SETTLEMENT PLANNING

- IBM compatible microcomputer:
  (486/33 CPU; 300 MB HDD (min); 4MB RAM; 1.44 MB floppy drive; DOS 5.0; mouse).
  - Optical disk drive (if small hard disc capacity)
  - Videographics Board (eg: ATVISTA 4M/60 (Pal or NTC)
  - NEC Multisync Monitor 4d (eg) with analog RGB connector
  - Video encoder/decoder (Pal or NTSC, VHS,S-VHS, RGB)
  - Still video camera (VHS or Super VHS) eg: Canon iON 260 with film adaptor and lens set OR Hi8 OR Betacam video camera.
  - Colour thermal transfer printer or HP Paint Jet (A3 size; 300 dpi).
  - Colour scanner (A3 size; 300 dpi).
  - Slide scanner (2600 dpi).
  - A1 or A0 size digitizing table.
  - A1 or A0 size pen plotter (8 pens).

ANNEX THREE

TIMECHART — PREDISASTER PHASE o POSTDISASTER PHASE

		Month 1 STAGE ONE REPORT	Month 2	Month 3	Month 4 INTERIM REPORT	DISASTER Earthquake hurricane or flood	Month 5	Month 6	Month 7 FINAL REPORT	Person/months expat	local
Project Director		XXXXXXXX		XXXXXXXX	XXXXXXXX		XXXXXXXX	XXXX	XXXXXXXX	5.0	
Architect/Planner (T/L)		XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX		XXXXXXXX	XXXX	XXXXXXXX	6.5	
Planner (GIS)		XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX		XXXXXXXX	XXXX	XXXXXXXX	6.5	
Ecologist		XXXX	XXXXXXXX	XXXXXXXX	XXXX		XXXXXXXX			4.0	
Sociologist		XXXX	XXXXXXXX	XXXXXXXX	XXXX		XXXXXXXX			4.0	
Educationist		XXXX	XXXXXXXX	XXXXXXXX	XXXX		XXXXXXXX			4.0	
Health planner (physical & mental)		XXXX	XXXXXXXX	XXXXXXXX	XXXX		XXXXXXXX			4.0	
Rural economist			XXXX	XXXXXXXX	XXXX		XXXXXXXX			3.0	
GIS plotter		XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX		XXXXXXXX	XXXXXXXX		6.0	
GIS plotter	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
GIS secretarial	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
Office assistant	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
Field assistant	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
Field assistant	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
Driver	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
Driver	Local	XXXXXXXX	XXXXXXXX	XXXXXXXX			XXXXXXXX	XXXXXXXX			5.0
										43.0	35.0

DISASTER
Earthquake
hurricane
or flood

ANNEX FOUR

PERSONNEL PROFILES
(See **ANNEX THREE:** *Timechart)*

All professional personnel will be field experienced in the application of their various disciplines. Curicula vitae will be submitted at a later stage. Selected personnel will be multi-disciplinary by primary and subsidiary qualifications, experience and aptitude, so as to form a minimal field team of maximum application and flexibility in a widely multisectoral task.

All personnel will be fluent in spoken and written English.

Project Director
More than fifteen years research, project and field experience, preferably inclusive of Jamaica and/or other Caribbean island states. Primary discipline as at least one of the team components together with a thorough understanding of natural hazards and their relationship with development. Previous appointments as Team Leader are essential.

Architect/Planner (Team Leader)
Ten to fifteen years experience since qualification, inclusive of work experience in a less developed country, preferably in the Caribbean. Knowledge of earthquake and wind resistant construction in small buildings will be essential; previous experience of displacement, temporary settlement and of resettlement is desirable.

Planner (GIS)
Thorough practical experience of geographical information systems and/or visual settlement planning; and in its setting up, management, data collection in the field and its assimilation and application.

Ecologist
Ten to fifteen years experience of environmental implications of development; inclusive of experience of island ecology, preferably in the Caribbean. Experience and knowledge of environmental hazards (hurricanes; flooding; and earthquakes) will be essential. The work will involve assessments of environmental impact of development in the past, to construct guidelines for environmental management of current and future community development, inclusive of new housing, working in close association with the sociologist and economist.

Sociologist
Ten to fifteen years experience as a sociologist in island states of the Caribbean, preferably in Jamaica. Able to identify and distinguish new and established communities and social groups, and to carry out rapid field assessments of social needs and expectations, inclusive of those of ethnic groups, women, and children, working in close association with established ngos and the team ecologist and economist.

Educationist
Ten to fifteen years experience of education systems in the Caribbean, preferably in Jamaica. Able to advise on education requirements for all age, gender and ethnic groups in relation to current provision. Experience in the design and management of training programmes will be required.

Health planner: physical & mental
Ten to fifteen years experience of health systems in the Caribbean, preferably in Jamaica. Able to advise on community requirements for all age, gender and ethnic groups in relation to current provision.

Rural economist/economic planner
Ten to fifteen years experience in economic development planning and project identification in the Caribbean, preferably in Jamaica. Able to identify in the field, and to assess and compare requirements for income generation, inclusive of small industries and manufacture, market access and the provision of small credit. Will work closely with team sociologist and ecologist.

ANNEX FIVE

PRELIMINARY COST BREAKDOWN
(see **ANNEX THREE:** *Timechart*

Subject to United Nations standard rates:

			US$	US$
Nine professionals	: 43.0 person/months	@	9000:	81,000
Seven local plotting assistants, secretarial, office and field assistants,	: 35.0 person/months	@	1500:	52,500
Hardware and software: A 486 notebook computer per professional:	9	@	3500:	31,500
ViSP hard/software			:	75,000
Airfares: 9 professionals x 17 return trips		@	1500	25,500
Subsistence @ UN rates :263 days x 9		@	200	473,400
263 days x 7		@	200	368,200
Local transport :263 days x 9		@	100	236,700
			US$	1,343,800
Administration (inclusive of communications, miscellaneous equipment, report production, etc)		@	25%	335,950
			US$	1,679,750
Contingency items @ 4 percent approximately			:	70,250
Total outline estimated cost.....			**US$**	**1,750,000**

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ANNEX SIX

CURRICULUM VITAE
James Lewis: Initiator, Proposer and Project Director

RESUME

Member: Royal Institute of British Architects (RIBA);Chartered and practising Architect; Registered Architect; Architect's Registration Council of the United Kingdom (ARCUK: Registration No: 00027821A).

Fellow in Development Studies, School of Social Sciences, University of Bath.

1990-1994:
Member: **Development Studies Association** (DSA)
Initiator & Convener, DSA International Hazards Study Group.

1994-current:
Member: European Network of Bangladesh Studies, University of Bath.

1988-1991:
Chairman: **International Hazards Panel** (Intermediate Technology Development Group: ITDG).

1974-current:
Consultant to the: Commission of the European Communities (**EC**), Brussels; Commonwealth Secretariat, Commonwealth Science Council and Commonwealth Fund for Technical Co-operation (**CFTC**), London; League of Red Cross Societies (**LRCS**), Geneva; United Nations Centre for Human Settlements (**UNCHS Habitat**), Nairobi; United Nations Conference on Trade and Development (**UNCTAD**), Geneva; United Nations Office of the Disaster Relief Co-ordinator (**UNDRO**), Geneva; United Nations Environment Programme (**UNEP**), Nairobi; United Nations Educational, Scientific and Cultural Organisation (**UNESCO**), Paris; and the World Health Organisation (**WHO**), Geneva.

In the sectors of:
Building design and construction; construction management:
Hazard resistant construction:
Cyclone shelter design, construction and community participation:

Development planning: risk assessment: vulnerability analysis and reduction; reconstruction; survival potential; environmental health; preventive development

Post-disaster field assessment:
Socio-economic analysis:
Fund management & insurance:
Human ecology, environment, climate change & sea level rise:
Programme and project evaluation:
Teaching and training.

In the countries of (inclusive of all working purposes):
Algeria; Antigua; Bahamas; Bangladesh; Barbados; Brazil; Cook Is; Dominica; Dominican Republic; Egypt; Fiji; Hong Kong; Jamaica; Kenya; Kiribati; Maldives; Mexico; Nauru; Niue; Papua New Guinea; Philippines; Solomon Is; Sri Lanka; St Kitts/Nevis; St Lucia; St Vincent; Thailand; Tonga; Tuvalu; Western Samoa; and Australia; Canada; Europe, Scandinavia and the USA.

(continued)

1977-1980:
Leverhulme Senior Research Fellow: Social and Economic Aspects of Vulnerability to Natural Disasters; School of Social Science, University of Bath.

1973-77:
Leverhulme Senior Research Fellow: Co-founder and Director of the Disaster Research Unit, University of Bradford.

1959-1971:
Architect in London, New York, Bath, and Hong Kong.

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Visiting Lecturer: Bath University, Centre for Development Studies; University of Central England (Birmingham Polytechnic), School of Architecture; University of Bristol, School of Architecture; Cooper Union School of Architecture, New York; Manchester Metropolitan University (Manchester Polytechnic), Department of Architecture and Landscape; and University of Newcastle, Centre for Architectural Research and Development Overseas; Oxford Brookes University (Oxford Polytechnic), School of Architecture; University of York, Institute of Advanced Architectural Studies.

Teaching and Training modules for:
- vulnerability management
- disaster mitigation in development
- low-cost construction site management
- post-war settlement reconstruction
- settlement and resource management
- climate change and sea level rise
- natural hazards and island states.

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Chartered, Registered and practising Architect:
Sole practicioner practice embracing: feasibility studies; building design, construction and reconstruction; materials specification; construction economics; conservation; energy & emissions awareness; health & safety; construction & environmental legislation; construction inspection; contract & cost management; expert witness; accidents and rights of way disputes.

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More than 100 international publications on environmental hazards, human settlements, vulnerability and risk *(see: Publications & Reports; below)*.

Library of more than 5500 volumes, extracts, documents and reprints on database.

Photo library of more than 5000 transparencies from 40 countries in 30 subjects.

PRACTISE AND CONSULTANCY
"datum" - the basis upon which to proceed

BUILDING DESIGN & CONSTRUCTION;
CONSTRUCTION MANAGEMENT

1983-current:
Datum International: own sole-practicioner small-works architectural practice specialising in Listed Buildings and alterations, additions and new works in Conservation Areas (in parallel with environment and human settlements consultancy).

1989-current:
Member: Conservation Area Advisory Committee, Northavon District Council.

1960-63 & 1971-73:
Architectural practice: London: domestic and commercial conversions and extensions: Bath and environs: Listed Building research, conversion and extensions; Devon: farm development; Gloucestershire: regeneration strategy for Listed early industrial buildings and their environments; expert witness, accidents and rights of way disputes, Listed Building and Conservation Area improvements and additions.

1971-1973:
Resident Architect: Phoenix Assurance Company, Bristol.
Whicheloe Macfarlane Partnership.

1970-1971:
Resident Architect for the construction of the **Hong Kong Cross Harbour Tunnel (Robert Matthew, Johnson-Marshall/Scott Wilson Kirkpatrick/Freeman Fox and Partners).**

1966-1969:
Senior Resident Architect for the construction of the **University of Bath (Robert Matthew, Johnson-Marshall and Partners).** Senior member of site supervision team of twelve (architects, engineers, and clerks of works) on an overlapping series of construction contracts.

1963-66:
Architect with New York practice of **Richard G Stein** FAIA: Project Representative (Site Architect) for a residential school for delinquents (The Wiltwyck School for Boys) **Yorktown, New York.** Three adjacent and concurrent construction contracts .

1963:
Study tour of residential buildings for universities: **France, West and East Germany, Sweden, Denmark** and **Finland.** (Building Design Partnership).

1959- 1963:
Architect with three London practices: engaged on the design, construction and in-contract site inspection of industrial and commercial premises, housing, and educational buildings in England and overseas: .

- **John Beardshaw**, Manchester and London.
- **James Cubitt and Partners**, London.
- **Building Design Partnership** (BDP), London.

HAZARD RESISTANT CONSTRUCTION;
CYCLONE SHELTER DESIGN, CONSTRUCTION AND COMMUNITY MANAGEMENT

1993:
Proposed Cyclone Shelter Project, Bangladesh: Preparation of Terms of Reference. Dhaka and Field Visits to Kutubdia, Chokeria, Patuakhali (Kalapari) ***EC Team Leader*** **European Community/World Bank IDA.**

1992:
Primary Schools cum Cyclone Shelters; Bangladesh: Preliminary Study with field visits to Moheshkhali and Kutubdia. Site assessments, design and construction criteria, design proposals. **European Community**/SETA, Brussels.

1991:
The development of school design and hazard resistance, construction training and curriculum infusion Field Mission for a Caribbean Sub-regional Project Framework (**Antigua & Barbuda; Barbados; Jamaica; St Christopher & Nevis; St Vincent & The Grenadines**). United Nations Educational, Scientific & Cultural Organisation (**UNESCO**) Paris.

DEVELOPMENT PLANNING
Risk assessment
1975:
Mexico. Resource co-ordination for disaster mitigation: **Disaster Research Unit, University of Bradford.**

1974:
The Bahamas. A Study in Pre-disaster Planning: A country field study at national, community and sectoral levels to assess risk of hurricane, industrial and aviation accident, and epidemic throughout the island group: and to assess the need and capacity for recommended preparedness measures. **League of Red Cross Societies.**

Vulnerability analysis and reduction
1982:
"Planning for Human Settlements in Disaster-prone Areas". Report to the Fifth Commission on Human Settlements/**United Nations Centre for Human Settlements (Habitat).**

1979:
Chiswell, Dorset: Analysis of vulnerability of population and settlement to the effects of storm and sea-flooding, accrued through geomorphic, technological, political and social change. (Centre for Development Studies, **University of Bath**).

1978:
Kingdom of Tonga: Technical Assistance Assignment to advise on preventative, preparedness, relief and institutional measures for natural disaster mitigation; analysis of vulnerability to earthquake, tsunami, hurricane, drought and volcanic eruption; the role of development planning for disaster mitigation and preparedness infrastructure, and assessment of the impact of disaster relief on local capacity for structural adjustment to reduce vulnerability. **Overseas Development Administration** and **the Government of the Kingdom of Tonga.**

Reconstruction
1980-1981: December-April.
Algeria: "Assistance Preparatoire pour la Reconstruction des Etablissements Humains dans la Region d'El Asnam".
Reconstruction planning: Integration of socio-economic vulnerability analysis and development planning for earthquake mitigation. Information searches and structuring; relationship of damaged areas and local government system; spatial planning options and development modelling. Project No ALG/80/FO2/A: ***Team Leader*** with Polish architect-planner and French Algerian socio-economist, integrated with Algerian team of engineer, architect and geographer. Working Language: French. **United Nations Centre for Human Settlements (Habitat)/Interministerial Commission for the Reconstruction of the El Asnam Region (Chleff).**

Survival potential
1985:
The Greater London Area War Risk Study (GLAWARS): Consultant and ***Research Co-ordinator*** to the GLAWARS Commissioners; analysis of survival and recovery potential, of destroyed cities and of London after various nuclear attack scenarios; assessments of needs for survival and availability of energy, water, food, shelter; analysis of current and alternative civil defence planning. **Greater London Council and Polytechnic of the South Bank.**

Environmental health
1987:
"Access to life saving services in urban areas" World Health Organisation (WHO)**/United Nations Environment Programme** (UNEP) Editor.

1987:
Rio de Janeiro: "Access to life saving services in urban areas" (the *favelas*). **WHO/UNEP** Group meeting.

Preventive development
1994:
Civil Strife and relief Seminar Institute of Social Studies/Royal Tropical Institute/Disasters and Emergencies Reference Centre, University of Delft, The Hague.

1994:
The Continuum from Relief to Development: International Workshop United Nations Environment Programme (**UNEP**)/United Nations Centre for Human Settlements (**UNCHS Habitat**). Facilitator. Nairobi.

1991:
Economic Development Planning for Recurrent Natural Disasters: Floods and Cyclones in Bangladesh Report of a preliminary fact finding mission; with recommendations. **United Nations Conference on Trade and Development (UNCTAD)**, Geneva.

1988:
Proposer, convener, participant and report editor; Two-day Workshop Settlement Reconstruction Post-War, University of York.

1985:
Consultant and Research Co-ordinator to the Commissioners, The Greater London Area War Risk Study (GLAWARS).

POST-DISASTER FIELD ASSESSMENT

1983:
Australia (Victoria): Inspection of residential areas destroyed by the "Ash Wednesday" bush fire.

1983:
Kingdom of Tonga: Post-Hurricane "Isaac" long-term project identification and planning strategy for natural disaster mitigation; comprising housing construction upgrading; community development in flood-prone areas; environmental health and water supply; institution building and planning strategy; education, training and teaching materials for schools. **United Nations Centre for Human Settlements** (UNCHS) Project No TON/82 /FO1.

SOCIO-ECONOMIC ANALYSIS

1990:
The Economic Impact of Natural Disasters on Small Island States. **Commonwealth Secretariat.** London.

1982:
The socio-economic effects of natural disasters on island developing countries: With special reference to **Antigua: Cape Verde;Comoros; Maldives; Western Samoa**. Report for UNCTAD VI 1983. **United Nations Office of the Disaster Relief Co-odrdinator** (UNDRO).
United Nations Conference on Trade and Development (UNCTAD) Geneva, Lisbon, London, Paris.

FUND MANAGEMENT & INSURANCE

1976:
South Pacific: The Cook Islands, Fiji, Kiribati, Nauru, Niue. Papua New Guinea, The Solomon Islands, Tonga, Tuvalu and **Western Samoa** A project to establish guidelines for management of the Regional Disaster Fund and to assess the feasibility of insurance against the effects of hurricane, earthquake, volcanic eruption, tsunami, flood and drought. **Commonwealth Secretariat (Commonwealth Fund for Technical Co-operation) and the South Pacific Bureau for Economic Co-operation (SPEC:Forum Secretariat), Suva, Fiji.**

HUMAN ECOLOGY, ENVIRONMENT, CLIMATE CHANGE & SEA LEVEL RISE

1988:
Commonwealth Expert Group on Climate Change and Sea Level Rise: Consultant for field mission to **Tonga** and **Tuvalu. Commonwealth Secretariat.** London.

1988:
Commonwealth Expert Group on Climate Change and Sea Level Rise: Consultant; "The implications of Sea Level Rise for Island and Low-lying Countries". **Commonwealth Secretariat.** London.

1980:
"The Ecology of Natural Disaster: The relationship between the activities of man and consequent alteration in the environment which may increase or decrease the incidence and severity of natural disasters". Report to **United Nations Environment Programme** (UNEP): UNEP/WG.33/3.

EVALUATION

1983:
Evaluation: In-depth evaluation of the UNEP Natural Disasters Programme 1973-1983; and of the 16 international projects comprised; discussions with UNEP, UNCHS, UNDRO, WMO and UNESCO; with recommendations for continuation. **United Nations Environment Programme** (UNEP).

RESEARCH

1980-current:
Visiting Fellow in Development Studies (Humanities and Social Science) **University of Bath**; Development planning and vulnerability reduction.

1994-current:
Member: European Network of Bangladesh Studies.

1980:
Field study: Sri Lanka; comparative **analysis of urban and rural housing destruction** caused by cyclone.

1977-1980:
Leverhulme Senior Research Fellow, Centre for Development Studies, University of Bath: **Vulnerability to natural disaster.** Analyses of social and economic vulnerability to natural disaster, and strategies in development for vulnerability reduction.

1974:
Commissioned field-study: The Bahama Islands; **analysis of risk from hurricane and industrial/aviation/shipping disaster** and pre-disaster planning strategies for national, community and sectoral mitigation (League of Red Cross Societies, Geneva).

1973-1977:
Co-founder and Director: The Disaster Research Unit, University of Bradford (Project Planning Centre); Leverhulme Senior Research Fellow. With sociologist, economist and geographer in **socio-economic impact analysis of natural and technological disasters and identification of strategies for mitigation.**

1971:
Co-ordination of relief for natural disasters: New York and Geneva.

TEACHING & TRAINING

1993-current (annual):
Climate Change & Sea Level Rise MSc in Environmental Science, Policy and Planning University of Bath.

1992:
Climate Change & Sea Level Rise Course module for small states; Foreign and Commonwealth Office/ DMC, Oxford Polytechnic.

1992:
Training material for disaster reduction Vulnerability Reduction in Development for Human Settlements. **DERC** (Disaster and Emergency Reference Center, Technical University of Delft)/**UNESCO.**

1985-1992:
Annual Training Module "Construction Management and Site Organisation": Post-graduate Diploma Course: **"Low Cost Construction; housing, building and planning"** Centre for Intermediate Technology and Development Studies, Birmingham Polytechnic.

1991:
Training material for disaster reduction UNESCO/DERC (Disaster and Emergency Reference Center, Technical University of Delft). Seminar; **Cairo.**

1991:
Development and Environment Social Science Issues in Development Practice Centre for Development Studies, University of Bath.

1986-1991:
Annual Visiting Tutor; **Vulnerability Management** Centre for Architectural Research and Development Overseas (CARDO), University of Newcastle.

1985-1990:
Visiting Teacher. The Birmingham School of Architecture: "Culture and Context" Design Studio.

1988-1989:
Visiting Tutor and Workshop Convener **"Post-war settlement reconstruction"** Institute for Advanced Architectural Studies (IAAS), University of York.

1988:
"Health Curricula Materials for the training of Architects and Urban Planners" and "Environmental Health Aspects of Planning Urban Areas". Expert Group. **World Health Organisation/United Nations Environment Programme** WHO/UNEP.

1987:
Initiator, adviser and tutor for inter-disciplinary post-graduate diploma course: **"Disaster Mitigation in Development".** The Birmingham School of Architecture, Birmingham Polytechnic.

1987:
"Settlement and Resource Management". Elective Convener, Department of Architecture and Landscape, Manchester Polytechnic.

1986-1987:
Training module **"Vulnerability Management"**: Third World Studies, Institute of Advanced Architectural Studies (IASS), University of York. (M Phil Mentor: **Reconstruction of War Damaged Areas of Iran**).

1986:
Training module **"Vulnerability Management"**: Overseas and Indian Urban Administrators Courses, Development Administration Group, Institute of Local Government Studies (INLOGOV), University of Birmingham

1970-71:
Board of Architectural Education (and Council Member); Hong Kong Society of Architects.

1970-1971:
RIBA Visiting Board: School of Architecture, University of Hong Kong.

PUBLICATIONS
(Selected)

o **Architecture and Construction:**

Building for global warming: design for climate change Technical The Architects' Journal Vol 197 No 24 16 June Emap Publications 1993

Accident or Design Review of RIBA Report *Nuclear Disasters and the Built Environment* RIBA Journal July 1990.
Reprinted Medicine & War Vol 7 No 1 January-March 1991.

What has it got to do with architecture? Interconnections with students of architecture and landscape at Manchester Polytechnic Private view Architects' Journal 20 April 1988.

Architecture for the Third World The Architect Royal Institute of British Architects February 1987.

Natural Disaster: Responsibilities of architects and planners Built Environment Quarterly December 1977.

The Wiltwyck School for Boys, Yorktown, New York Architectural Record May 1971 (Richard G Stein).

The Hong Kong Cross Harbour Tunnel Far East Builder, June 1970 (Scott Wilson Kirkpatrick/Freeman Fox/ Robert Matthew, Johnson-Marshall & Partners).

The University of Bath (Robert Matthew, Johnson-Marshall & Partners) The Architects' Journal 17 & 24 December 1969.

o **Research:**

Datum International issues its own publications listing of more than one hundred internationally published papers and articles on hazards, environment and human settlements

Earthquakes and war in Algeria Stop Disasters No 21 September/October IDNDR Secretariat, Geneva. 1994: and The Environmentalist 14/3. 1994.

Volcanoes and war in Papua New Guinea Stop Disasters No 21 September/October IDNDR Secretariat, Geneva. 1994.

Disasters, Conflict and Recovery: What kind of development for sustainability and vulnerability reduction ? in Reconstruction After Disaster: The State of the Art (forthcoming) and the International Symposium People, Place and Development Centre for Architectural Research Overseas (CARDO), University of Newcastle.

Reconstruction, Development and Disaster Reduction: Cyclone shelters in coastal Bangladesh in Reconstruction After Disaster: The State of the Art (forthcoming) and the International Symposium People, Place and Development Centre for Architectural Research Overseas (CARDO), University of Newcastle.

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PUBLICATIONS
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'Them and Us': emergency planning and response in a social perspective Chapter 13 in Hazard Management and Emergency Planning: Perspectives in Britain (Parker, Dennis; Handmer, John; Eds) James & James. 1992.

Vulnerability reduction in development for human settlements in Proceedings of the Seminar *Training for Disaster Reduction II* Cairo 2-5 September 1991; Disaster and Emergency Reference Center (DERC) and the United Nations Educational Scientific and Cultural Organisation (UNESCO). DERC Delft 1992.

Tropical Cyclones and Island States in Shelter, Settlements, Policy and the Poor ITDG. 1991.

Small States Conference on Sea Level Rise Report Disasters 14:1 1990.

The Vulnerability of Small Island States to Sea Level Rise: The Need for Holistic Strategies Based upon paper presented at the Small States Conference on Sea Level Rise, Male, November 1989. Disasters 14:3 1990.

Sea Level Rise - some implications for Tuvalu Appropriate Technology 16:2 September 1989: The Environmentalist 9:4 1989: Ambio 18:8 1989.

Open Letter in response to "Confronting Natural Disasters: An International Decade for Natural Hazard Reduction" Natural Hazards Observer XII:4 March 1988 and *Commentary: Report on Reports* Environment (White, Gilbert F Ed) Washington DC July/August 1988.

Something rotten in the state of England? The Storm of 16 October 1987 Newsletter of the International Hazards Panel (A Panel of the Intermediate Technology Group) No 2 March 1988.

Risk, vulnerability and survival: Some post-Chernobyl implications for people, planning and civil defence Local Government Studies July/August 1987.

Vulnerability to a Natural Hazard: Geomorphic, Technological and Social Change at Chiswell, Dorset - some implications for policy formulation Ekistics: the problems and science of human settlements Special issue on Natural Hazards and Human Settlements Disasters 2 51:309 Athens January 1985.

Book Review: "Tropical Cyclone 'Isaac'": Disaster Investigation Report No 5 and Technical Report No 3. James Cook University of North Queensland Mass Emergencies and Disasters University of Delaware 1985.

The Environmental Inter-relationships of Vulnerability Natural Hazards Observer IX:4 University of Colorado March 1985.

Working out the degree of risk Building Design Morgan Grampian London 739 17 May 1985.

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PUBLICATIONS
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Book Review "The Economics of Bushfires: The South Australian Experience" The Economic Journal The Royal Economic Society, December 1985.

Recovery after nuclear attack? Projections from natural and other disasters GLAWARS Working Paper Polytechnic of the South Bank 1985.

Alternative approaches to civil defence planning; a civil survival strategy GLAWARS Working Paper Polytechnic of the South Bank 1985.

Book review: "Interpretations of Calamity from the Viewpoint of Human Ecology" Hewitt K (Ed) Boston Allen and Unwin 1983 Journal of Development Studies 21:2 January 1985.

Environmental Interpretation of Natural Disaster Vulnerability: The crucial need Guest Editorial The Environmentalist 1984.

Disaster Mitigation Planning: Some lessons from Island Countries Centre for Development Studies University of Bath Occasional Paper 1984.

Multi-hazard history in Antigua Disasters 8:3 1984.

Vulnerability to a cyclone: Damage distribution in Sri Lanka Ekistics: the problems and science of human settlements Special issue on Natural Hazards and Human Settlements Disasters 1 51:308 Athens September/October 1984.

Change, and Vulnerability to natural hazard: Chiswell, Dorset The Environmentalist 3:4 1983.

Natural disaster mitigation: Environmental approaches in Tonga and Algeria The Environmentalist 2:3 Elsevier Sequoia 1982.

Cyclone destruction in Sri Lanka; Some socio-economic analysis Disaster Management 2:3 July-September New Delhi 1982.

Some perspectives on natural disaster vulnerability in Tonga Pacific Viewpoint 22:2 Victoria University of Wellington September 1981.

The Sri Lanka Cyclone 1978: Socio-Economic Analysis of Housing Destruction Marga 6:2 Marga Institute Colombo 1981.

De integratie van een beleid voor rampenbestrijding in de ecologische problematiek (The Ecological Integration of Disaster Relief) ASPECTEN van internationale samenwerking 6 Ministry of Foreign Affairs The Hague 1980.

Hurricane Damage (correspondence) Nature 287 October 1980 Macmillan Journals London.

Volcano in Tonga Journal of Administration Overseas XVIII:2 ODA/HMSO April 1979.

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PUBLICATIONS
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The Vulnerable State: An Alternative View Chapter 5 Disaster Assistance: Appraisal, Reform and New Approaches (Eds: Lyn Stevens and Stephen Green) NYU Press/Macmillan London 1979.

Vulnerability to a natural hazard: geomorphic, technological and social change at Chiswell, Dorset Natural Hazards Research Working Papers 37 University of Colorado 1979.

Disasters and the Small Dwelling: Mitigation and preparedness measures Disasters 3:3 1979.

Towards Self-reliance in Disaster Development Directions Canadian International Development Agency June-July 1978. (Also as *Quand la Catastrophe s'Abat ... Pouvoir compter sur les propres moyens*).

A Primer in Precautionary Planning for Natural Disaster Occasional Paper 13 Disaster Research Unit 1977.

Disaster Preparedness in the South Pacific South Pacific Bulletin South Pacific Commission 1st Quarter 1977.

Proposals for a Working Method of Indigenous Resource Co-ordination as Part of Predisaster Plan Occasional Paper 3 Disaster Research Unit January 1975.

A Study in Predisaster Planning Occasional Paper 10 Disaster Research Unit/League of Red Cross Societies June 1975.

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Cyclone Shelter Project, Bangladesh: Preparatory Study: Preparation of Terms of Reference. **European Commission/World Bank IDA.** 1993.

Primary Schools cum Cyclone Shelters; Bangladesh Preliminary Study (Field visits to Moheshkhali and Kutubdia) Site assessments, design and construction criteria, design proposals **European Commission** Brussels 1992.

School design and hazard resistance, construction training and curriculum infusion Field Mission for a Caribbean Subregional Project Framework (**Antigua & Barbuda; Barbados; Jamaica; St Christopher & Nevis; St Vincent & The Grenadines**). United Nations Educational, Scientific & Cultural Organisation (**UNESCO**) Paris 1991.

Vulnerability reduction in development for human settlements Teaching materials for disaster reduction Disaster and Emergency Reference Centre, Technical University of Delft/United Nations Educational Scientific and Cultural Organisation (**UNESCO**) 1992.

Economic Development Planning for Recurrent Natural Disasters: Floods and Cyclones in Bangladesh Report of a preliminary fact-finding mission: with recommendations Draft United Nations Conference on Trade and Development (**UNCTAD**) October 1991.

The Economic Consequences of Natural Disasters: with special reference to small island states Commonwealth Secretariat 1990.

Sea-level Rise: Tonga, Tuvalu (Kiribati) Commonwealth Expert Group on Climate Change and Sea-level Rise (1988) for Climate Change: Meeting the Challenge **Commonwealth Secretariat** 1989.

Settlement Reconstruction Post-War Report of a two-day Workshop: Institute of Advanced Architectural Studies **University of York** 1988.

The Implications of Sea Level Rise for Island and Low-lying Countries Commonwealth Expert Group on Climate Change and Sea Level Rise **Commonwealth Secretariat** 1988.

Access to Life-Saving Services in Urban Areas WHO/UNEP (Ed) 1987.

Gloucestershire Industrial Heritage: Regeneration Strategy-The Stroud Valleys Urban and Economic Development Ltd (**URBED**) March 1986.

Recovery after Nuclear Attack ? Report of Task 9: The Greater London Area War Risk Study GLC/Polytechnic of the South Bank 1985.

The UNEP Natural Disasters Programme; An Evaluation: UNEP's Crucial Role for Natural Disaster Mitigation United Nations Environment Programme (**UNEP**) Nairobi 1983.

The Kingdom of Tonga: Project Identification and Human Settlement Planning Strategy for Natural Disaster Mitigation: The Long-term Implications of Hurricane 'Isaac' (March 1982) United Nations Centre for Human Settlements (**UNCHS**) Mission Report TON/82/FO1 1983.

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The Disaster Preparedness Strategies Seminar Pacific Islands Development Program (East-West Center Hawaii): South Pacific Bureau for Economic Co-operation (SPEC) Suva Fiji Report to the Commonwealth Foundation 1983.

The Social and Economic Effects of Natural Disasters on Least-developed Island Countries: with special reference to Cape Verde Islands; Comoro Islands; Maldive Islands; Western Samoa; and Antigua Report to UNCTAD VI 1983 **UNDRO/UNCTAD** Geneva 1982.

Planning for Human Settlements in Disaster Prone Areas (*with Alcira Kreimer*) Fifth Commission on Human Settlements 1982 United Nations Centre for Human Settlements (**UNCHS/Habitat**) Nairobi 1982.

Proposals for the Development of Mitigation Services The Crown Agents for Oversea Governments and Administrations London 1981.

Assistance preparatoire pour la reconstruction des etablissements humains dans la region d'El Asnam Rapport de mission ALG/80/FO2/A (*Avec F D Mokrane*) Republique Algerienne Democratique et Populaire: Commission Interministerielle pour l'Etude de la Reconstruction d'El Asnam/Centre des Nations Unies pour les Etablissements Humains (**CNUEH/Habitat**) 1981.

Storm and Flood at Chiswell Dorset An Independent Report of Analysis and Policy Recommendations 1979.

The Ecology of Natural Disaster United Nations Environment Programme Environmental Assessment Service (**UNEP** WG.33/3) 1979.

Mitigation and Preparedness for Natural Disaster in the Kingdom of Tonga The Government of Tonga/Overseas Development Administration (**ODA**) Nuku'alofa 1978.

Water Supply and Sanitation in Disasters for Disaster Prevention and Mitigation; a Compendium of Current Knowledge 8 "Sanitation Aspects" UNDRO 1982 **London School of Hygiene and Tropical Medicine** 1977.

A Report to establish guidelines for the management of a fund to provide insurance for natural disaster South Pacific Bureau for Economic Co-operation/Commonwealth Fund for Technical Co-operation (**SPEC/Commonwealth Secretariat**) Suva Fiji 1976.

A Study in Predisaster Planning League of Red Cross Societies Geneva/ Disaster Research Unit 1975.

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ANNEX SEVEN

BIBLIOGRAPHY
With Bibliography: Jamaica

Anderson, Mary; **Woodrow**, Peter J: *Rising from the Ashes: Development strategies in times of disaster* Westview/UNESCO. 1989.

Armillas, I; Gavidia, J; Kull, H; Lacroux, S; Nordberg, R: *Human settlements and post-dissaster recovery strategies* International Workshop: Human Settlements and Environmental Strategies for Action in the Continuum from Relief to Development Habitat/UNEP Nairobi. 1994.

Askwith, Michael: The roles of DHA and UNDP in linking relief and development IDS bulletin 25/4 Institute of Development Studies. 1994.

Berhe, Aregawi; **Nimpuno**, Krisno: *Civil strife* Seminar on Civil Strife and Relief Institute of Social Studies, The Hague. 1994.

Blaikie, Piers et al: *At Risk: Natural hazards, people's vulnerability, and disasters* Routledge. 1994.

Buckle, Philip: *Geographic information systems and hazard management* The Macedon Digest 8/3 Spring 1993.

Buchanan-Smith, Margaret; **Maxwell**, Simon: *Linking relief and development: An introduction and overview* IDS bulletin 25/4 Institute of Development Studies. 1994.

Burton, Ian; **Kates**, Robert W; **White**, Gilbert F: *The Environment as Hazard* OUP. 1978

Chamberlain, Peter: *The dynamics of the relationship between relief and development in an NGO context* Dissertation for a Masters Degree in the Economics and Management of Rural Development, Faculty of Economic and Social Studies, University of Manchester. 1994.

Clarsen, Harry: *Mapping and GIS technology for emergency services* The Macedon Digest 9/3. 1994.

Commonwealth Secretariat: *Sustainable Development: An Imperative for Environmental Protection* London. 1991.

Corsellis, Tom: *The Sahrawi refugee camps in Western Algeria* Seminar on Civil Strife and Relief Institute of Social Studies, The Hague. 1994.

Cuny, Frederick C: *Disasters and Development* OUP. 1983.

Davis, I R; **Bickmore**, D: *Data management for disaster planning* Natural Disasters. 1993.

Dudley, Eric; **Haaland**, Anne: *Communicating Building for Safety* Cambridge Architectural Research Ltd/Intermediate Technology Publications. 1993.

Duffield, Mark: *Complex emergencies and the crisis of developmentalism* IDS bulletin 25/4 Institute of Development Studies. 1994.

Galtung, Johan: *On the causes of terrorism and their removal* IFDA Dossier No 66 July/August. 1988.

Garrison, Lloyd: *Behind the lines in Afghanistan* World Development March. 1989.

Green, Reginald Herbold; **Mavie**, Maria: *From survival to livelihood in Mozambique* IDS bulletin 25/4 Institute of Development Studies. 1994.

Hewitt, Kenneth: *The idea of calamity in a technocratic age* in Interpretations of Calamity; from the viewpoint of human ecology (K Hewitt: Ed) Allen and Unwin. 1983.

Holden, Pat: *ODA's approach to linking relief and development* IDS bulletin 25/4 Institute of Development Studies. 1994.

ICRC: *International Humanitarian Law; Human rights and the ICRC* International Committee of the Red Cross. Geneva. 1993.

Jean, Francois (Ed): *Life, Death and Aid; The Medcins sans Frontieres Report on world crisis intervention.* 1993.

Jeffery, Susan E: *The creation of vulnerability to natural disaster: Case studies from the Dominican Republic* Disasters 6:1 pp38-43. 1980.

Lewis, James: *The Vulnerable State; An alternative view* Chapter Five: Disaster Assistance, Appraisal, Reform and New Approaches Stephens, Lynn H; Green, Stephen J (Eds) NYU. 1979.

Lewis, James: *De integratie van een beleid voor rampenbestrijding in de ecologische problematiek* [The ecological integration of disaster relief] ASPECTEN van internationale samenwerking-6 Ministry of Foreign Affairs, The Hague. 1980.

Lewis, James: *The Social and Economic Effects of Natural Disasters on Least-developed Island Countries: with special reference to Cape Verde Islands; Maldive Islands; Western Samoa; and Antigua* Report to UNCTAD VI 1983. UNDRO/UNCTAD 1982.

Lewis, James: *Vulnerability and development - and the development of vulnerability; a case for management* Development Studies Association Conference, University of Manchester. Datum International. 1987a.

Lewis, James: *Risk, vulnerability and survival: Some post-Chernobyl implications for people, planning and civil defence* Local Government Studies Vol 13, No 4, July/August. Institute of Local Government, University of Birmingham. 1987b.

Lewis, James: *Economic consequences of natural disasters: with special reference to small island states* Commonwealth Secretariat 1990.

Lewis, James: *The relief syndrome: post World War II and sequentialism* Mimeo. Datum International. 1991.

Lewis, James: *Vulnerability Reduction in Development for Human Settlements* Training Materials for Disaster Reduction United Nations Educational, Scientific and Cultural Organisation (UNESCO) Disasters and Emergencies Reference Centre, Technical University of Delft. 1993.

Lewis, James: *Development and vulnerability reduction* International Workshop: Human Settlements and Environmental Strategies for Action in the Continuum from Relief to Development Habitat/UNEP Nairobi. 1994.

Lewis, James: *Vulnerability reduction, survival and sustainability: What kind of development ?* Seminar on Civil Strife and Relief Institute of Social Studies The Hague. 1994.

Longhurst, Richard: *Conceptual frameworks for linking relief and development* IDS bulletin 25/4 Institute of Development Studies. 1994.

Macrae, Joanna; **Zwi**, Anthony B: *Food as an Instrument of War in Contemporary African Famines: A Review of the Evidence* **Disasters** 14/4 1992.

Muller, Maria; **Idema**, Marlies: *Community and planning aspects in resettlement* Seminar on Civil Strife and Relief Institute of Social Studies The Hague. 1994.

Nieminen, J: *Visual settlement planning (ViSP); a new methodology in urban planning and disaster management* International Workshop: Human Settlements and Environmental Strategies for Action in the Continuum from Relief to Development Habitat/UNEP Nairobi. 1994.

Nimpuno, Krisno; **Sogge**, David: Post-disaster recovery strategies Seminar on Civil Strife and Relief Institute of Social Studies The Hague. 1994.

ODI: *Aid in Transition* Briefing Paper (4) Overseas Development Institute. 1994.

Osman, Jalloh: *Rwanda; a country in disaster* Seminar on Civil Strife and Relief Institute of Social Studies The Hague. 1994.

Pan American Health Organisation: *Emergency Health Management after Natural Disaster.*1981.

Richman, Naomi; **Pereira**, Diana: *Helping children in difficult circumstances: A teacher's manual.* Development Manual 1 Save the Children Fund. 1991.

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