CHAPTER 1
INTRODUCTION

1.1 The Evaluation Study of HMG's Response to the Montserrat Volcanic Emergency was commissioned by the Department for International Development (DFID), in response to a recommendation of the House of Commons Select Committee on International Development.[1] It was undertaken in accordance with the Terms of Reference (ToR) attached as Appendix A. Its purpose is to review HMG's response to the Montserrat crisis and identify findings and lessons learnt particularly with general application to aid responses to prolonged natural disasters.

1.2 An evaluation often involves assessing a moving target, and this has been an especially difficult problem in this case. First, the volcanic emergency on Montserrat has been exceptional in being so lengthy and in the uncertainty about how the eruption would progress. Most natural disasters involve a single, fairly discrete destructive event, with public action focused on preventative or preparatory actions to mitigate effects and, after disaster strikes, responses to provide relief or assist recovery. In contrast, the Montserrat eruption has not been a single crisis, but crisis points within an extended and continuing eruptive episode and emergency. Public action has been and still is organised on a special, exceptional basis. Actions on the part of both HMG and the GoM have been driven by volcanic events whilst also being influenced by changing perceptions of what further volcanic activity there will be. This is a model of physical 'shock' and social reaction, influenced by often divergent perceptions of what is expected. This is a first finding and the underlying assumption for the assessment that follows.

1.3 The scientific assessments of the volcanic situation, major aspects of HMG's response such as assistance for evacuees and returning residents, as well as institutional arrangements of HMG departments specifically for Montserrat, have changed in the course of the evaluation, as have institutional arrangements for the Overseas Territories more generally. This has made the task of assessment especially difficult. The focus of this evaluation is therefore on how HMG responded to the crisis and the emergency actions begun, if not completed, in the three and a half years from the start of the Soufrière Hills eruption in July 1995.

1.4 The evaluation focuses on 7 key criteria with regard to the response: appropriateness, cost-effectiveness, social and economic impacts, coverage and effectiveness of the interventions, coherence, involvement of the affected people in the process, and connectedness. The way in which these criteria have been applied requires a fuller explanation.

1.5 *Appropriateness:* The timeliness and overall suitability of the responses are highlighted because of the importance of timing in an emergency. A further issue is the balance between emergency aid, development (project) assistance and budgetary aid, all of which were provided by HMG.

[1] IDC. 1997, para 69 iv *Montserrat.* House of Commons, Session 1997-98, International Development Committee, First Report, together with the Proceedings of the Committee, Minutes of Evidence and Appendices. London: Stationery Office, 18 November. The IDC followed up with a second report: International Development Committee. 1998a. *Montserrat – Further Developments.* House of Commons, Session 1997-1998, International Development Committee, Sixth Report, together with the Proceedings of the Committee, Minutes of Evidence and Appendices.

1.6 *Cost-effectiveness.* Assessment of cost-effectiveness in an emergency is made difficult by the overriding humanitarian and political considerations involved. From HMG's point of view, a primary concern was saving human life and protecting the health of potentially vulnerable people. At the same time there was a commitment to support the community on-island, irrespective of whether this was economically viable in the short to medium term. In such circumstances a widely accepted criterion of cost-effectiveness is that of minimising the cost of agreed outcomes. Wherever feasible, tendering or market testing provide evidence of efficiency.

1.7 *Social and economic impacts:* Protecting lives and safeguarding the health and the general wellbeing of the affected people are the usual objectives of an emergency response to a natural disaster. Because of the catastrophic economic effects of the Montserrat eruption, the evaluation has paid special attention to how these effects have been addressed. Impact assessment also raises issues of coverage and connectedness.

1.8 *Coverage:* To what extent did effectiveness involve the targeting of interventions on the affected population?

1.9 *Connectedness:* Responses are considered in terms not only of the immediate emergency, but also of the longer-term developmental implications and the connections between the different forms of aid. Rehabilitation and reconstruction were affirmed as a joint commitment by HMG and the GoM in November 1997, with the Sustainable Development Plan as the basis for these activities.[2]

1.10 The *involvement of the affected people* in the process of planning and implementing emergency assistance is important both in ensuring sensitivity to their situation, and because participation in determining ones own fate has a value in a democratic society.

1.11 *Coherence* in terms of consistency and co-ordination between the key actors, particularly the GoM, DFID, FCO, and other UK Government departments, is a critical issue for the evaluation.

1.12 The Office of Science and Technology (OST) has issued Guidelines on the use of scientific advice in policy making, particularly on issues that are potentially sensitive. Three key principles are set out in the Guidelines: early identification of issues, building science into policy by a sufficiently wide range of best expert sources, and presentation of policy ensuring publication of the scientific evidence and analysis underlying decisions.[3] The evaluation has followed these principles in assessing HMG's use of scientific advice in disaster preparedness and in mitigating the effects of the eruption.

[2] Government of Montserrat. 1998. *Montserrat Social and Economic Recovery Programme – a Path to Sustainable Development* (Sustainable Development Plan). Plymouth, Montserrat: November.

[3] The three principles are most clearly set out in the first annual report on the use of the Guidelines - Office of Science and Technology. 1998. *'The Use of Scientific Advice in Policy Making: Implementation of the Guidelines'* London: Department of Trade and Industry, July: p7, 11, 16

1.13 The evaluation has had to be highly selective. It has focused on aspects of the emergency and components of HMG's response that appear to be critical to understanding both what happened and what has relevance for future practice. These aspects include:

- Scientific monitoring and risk assessment.
- Protecting lives and health from the direct effects of the eruption.
- Provision of social support and services to people affected – accommodation, food vouchers and education.
- Emergency investment and civil engineering to enable social life and administration to continue on-island.
- Economic and financial consequences of the eruption and how these are being addressed.

1.14 The report is based on a review of official and other relevant documentation in London and Montserrat, interviews with British officials in Montserrat and the UK, Government of Montserrat, some staff and representatives of civil institutions concerned with the island as well as other professional persons who have been involved with Montserrat. A selective list of those contacted for the study is attached as Appendix C (not everyone contacted by the team in group discussions was separately identified).

1.15 The scientific evidence is that the magmatic eruption ended in March 1998. The considerably reduced risk from residual volcanic activity and unstable deposits from the eruption to the populated areas of the island therefore allowed the Government of Montserrat and HMG to move, from mid 1998, from crisis management to concentration on rehabilitation and reconstruction. The appearance of a new lava dome in November 1999 also makes the prediction of the future course of the eruption more uncertain. These developments are too recent to allow a systematic evaluation.

1.16 The rest of the main report is as follows. Chapter 2 sets the context with a brief account of the eruption and its impacts. Chapter 3 provides an account of HMG's response. Chapters 4 to 7 assess the major aspects of HMG's response, focusing on those that have been subject to criticism, particularly by the International Development Committee. Chapter 8 considers HMG's management of the response. Chapter 9 presents the main conclusions of the study and draws lessons for emergency aid management and scientific monitoring.

1.17 Volume I, which is intended as a stand-alone document, includes in addition to the Main Report, three appendices: the ToR (Appendix A), Key events of the Montserrat volcanic emergency and a volcanological note on the eruption (Appendix B) and a List of persons contacted (Appendix C).

1.18 The eruption has affected every aspect of the life of the island and accordingly HMG's involvement has concerned most aspects of public action during the emergency. There are many stakeholders and many elements of HMG's response have received considerable attention in Parliament and the media both in the UK and the Caribbean. Consequently, the evaluation's findings and conclusions on some of

the aspects of HMG's response that have received attention, or that some stakeholders consider to be important, could only be summarised or mentioned in passing in the Main Report. Many of these are considered more fully in supporting studies included as technical annexes in Volume II. Annex 1 is a fuller account of the eruption, its environmental and demographic impacts. Annex 2 follows with a description of HMG's response. Organisational arrangements in the UK and regionally and the shifts in delegations and responsibilities between 1995 and 1998 are reviewed in Annex 3. A detailed account and assessment of the main components of HMG's response is included in Annexes 4 to 7. Scientific monitoring, advice and input into risk assessment and policy, emergency management and health are covered in Annex 4. Selected social sectors: accommodation, social assistance, and education are considered in Annex 5, and emergency investment and engineering programmes in Annex 6. The economic and financial consequences of the eruption and HMG's response are considered in Annex 7. HMG's assistance to evacuees in the Caribbean region and those relocating to the UK, which are strictly outside the scope of the evaluation, are briefly described in Annex 8. Annex 9 reports and analyses HMG's and other external assistance during the first three years of the emergency. The chronology of the emergency in Annex 10 covers volcanic events, relocations and the public actions of HMG and the GoM. Lastly, Annex 11 is a list of references.

CHAPTER 2
THE SOUFRIÈRE HILLS ERUPTION SINCE 1995 AND ITS IMPACT

2.1 Background

2.1 Montserrat is one of five Overseas Territories in the Caribbean.[4] Formerly a Crown Colony, it became effectively self-governing in 1961. During the 1970s and 1980s, the economy expanded steadily. In 1989, GDP per capita was US$ 4,000. British budgetary aid ended in 1981 and development aid focused on capital projects and technical assistance. Standards of health, housing and education were relatively high for the region, and this in turn contributed to the island's development. A banking scandal in 1989 hit the island's economy and the licences of over 90% of off-shore banks on the island were revoked. In the same year Hurricane Hugo caused very severe damage to the island, including over 90% of the buildings. Despite these major setbacks, by early 1995 Montserrat had largely recovered. An HMG-funded reconstruction programme was almost completed and the economy was in budgetary surplus. In 1994 GDP per capita had recovered to around US$ 5,000. The prospects for this relatively prosperous small island with a vibrant economy and society seemed favourable.

2.2 The eruption of the Soufrière Hills Volcano

2.2 The volcano is in the south, only 4km from the capital, Plymouth. The island's volcanic terrain and geography severely constrain on-island solutions to volcanic hazards: most infrastructure is in vulnerable locations and the small size of the island means there is no duplication of facilities. Five main phases were involved in the eruption and associated socio-economic emergency.

2.3 First, there was an extended pre-eruptive period from 1989 until July 1995, when precursors of the eruption began. The eruption which began on 18 July 1995 was not anticipated by any of the public bodies involved.

2.4 The second phase involved immediate crisis management extending through July/September 1995, when the major eruption began, ending with the return of the administration and population to Plymouth, including many who had temporarily left the island.

2.5 The third phase of the eruption, characterised as 'waiting on the volcano,' lasted from late September 1995 until June 1997. During this period, the full extent of the risk and likely impacts became only gradually apparent as the volcanic activity escalated.

2.6 The fourth phase began with the violent, destructive events from 25 June through August and September 1997. These events, involving fatalities and the partial destruction of Plymouth and associated

[4] The others are Anguilla, British Virgin Islands (BVI), Cayman Islands and Turks and Caicos Islands These five, with Bermuda (not strictly in the Caribbean), during the period under evaluation came under the West Indies and Atlantic Department (WIAD) of the Foreign and Commonwealth Office Since July 1998 the OTs come under a new FCO Overseas Territories Department (FCO. 1999. *Partnership for Progress and Prosperity. Britain and the Overseas Territories.* Cm 4264. London: Stationery Office).

economic facilities, resulted in a second major crisis of evacuation, resettlement and disruption of socio-economic activity. With half the island in an exclusion zone and activity effectively restricted to only 30%, the continuing viability of the island for human habitation was in doubt during this period, the only settlement possibilities being confined to the northern third of the island. There was also growing concern about the safety and health of people in the buffer Central Zone.

2.7 A fifth phase in the emergency, that of rehabilitation and reconstruction, began during the first half of 1998 and is still under way. The renewal of ascent of new magma (end October 1999) and growth of a new lava dome (early November 1999) with possibilities for further years of risk and disruption constitute a twist in the tale of the already protracted emergency. The chronology of events and responses of the various stakeholders are summarised in Appendix 2, supported by Figure 1, and described more fully in Volume II in Annexes 1 and 10.

2.3 Impacts of the volcano

a) Physical environmental

2.8 The volcanic crisis has dramatically affected the physical environment of the island. Over 60% of the land area is now in the Exclusion Zone, officially designated as unsafe for human habitation or activity. At least 25% of the Exclusion Zone of September 1998, more than 15% of the total island area, has been affected by pyroclastic flows and lahars (Figure 1). Massive ash and rock fall deposits cover most of the southern and western side of the island south of the Belham River. Formerly verdant hillsides now deeply covered in unstable ash deposits, have the aspect of dusty deserts. New fans of unstable volcanic material close to the volcano will continue to be eroded and to produce lahars that deposit material on previously affected areas. The currently abandoned Bramble Airport is on the north-eastern extremity of the area of recent flows and, unless protected by civil works, would be affected by future lahars. Effects of the eruption on the island's flora and fauna are still being assessed.

2.9 From a socio-economic perspective, the major losses have been the most suitable areas for settlement, including over 70% of the buildings. Most of the higher potential agricultural and pasture land has been lost or is cut off by pyroclastic flow deposits or lahars and made inaccessible. There has also been a loss of environmental features with amenity value. Human settlement is now spread through ribbon development around the north of the island with a few public housing estates, whereas previously it was concentrated in Plymouth and the southwest.

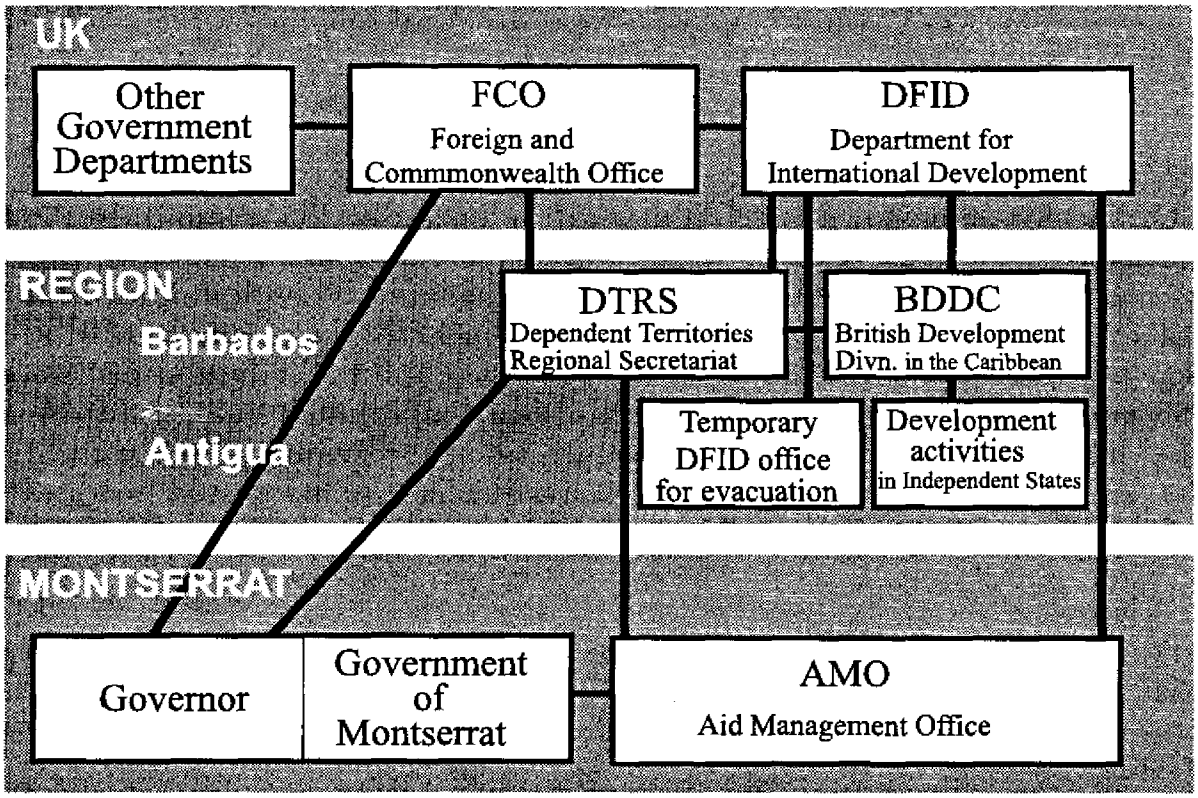
2.10 There is also continuing uncertainty, underlined by the appearance of the new lava dome in November 1999. Dangerous pyroclastic flows will continue to occur for several years, as well as groundwater steam and magmatic gas explosions. The period for vegetative regeneration is estimated to be 10–20 years, once ash deposition and lahars have ended. The time for safe access to the least affected areas in the current Exclusion Zone will also depend on the pattern of rapid post-eruptive erosion, including the high risks of relatively catastrophic lahars that will be associated with intense tropical rainstorms.

b) Demographic

2.11 The socio-demographic effects of the eruption have been massive. The country has been fragmented by migration and relocation, and community and household structures have broken down. Demographic information for the period of the crisis has been difficult to obtain: the available figures are incomplete and include some estimates. What they show is that by late 1997 to early 1998, two-thirds of the pre-eruption population of over 10,000 had left the island. Some 35% had migrated to the UK and about 25% were in the Caribbean region. Three quarters of those remaining on-island had also relocated at least once, 20% were sharing accommodation as hosts or guests, and 18% were in public shelters. This means that since July 1995 around 90% of the pre-crisis population have had to move from their original residence. Subsequently during 1998-99 returnees have increased the population to around 4,500.

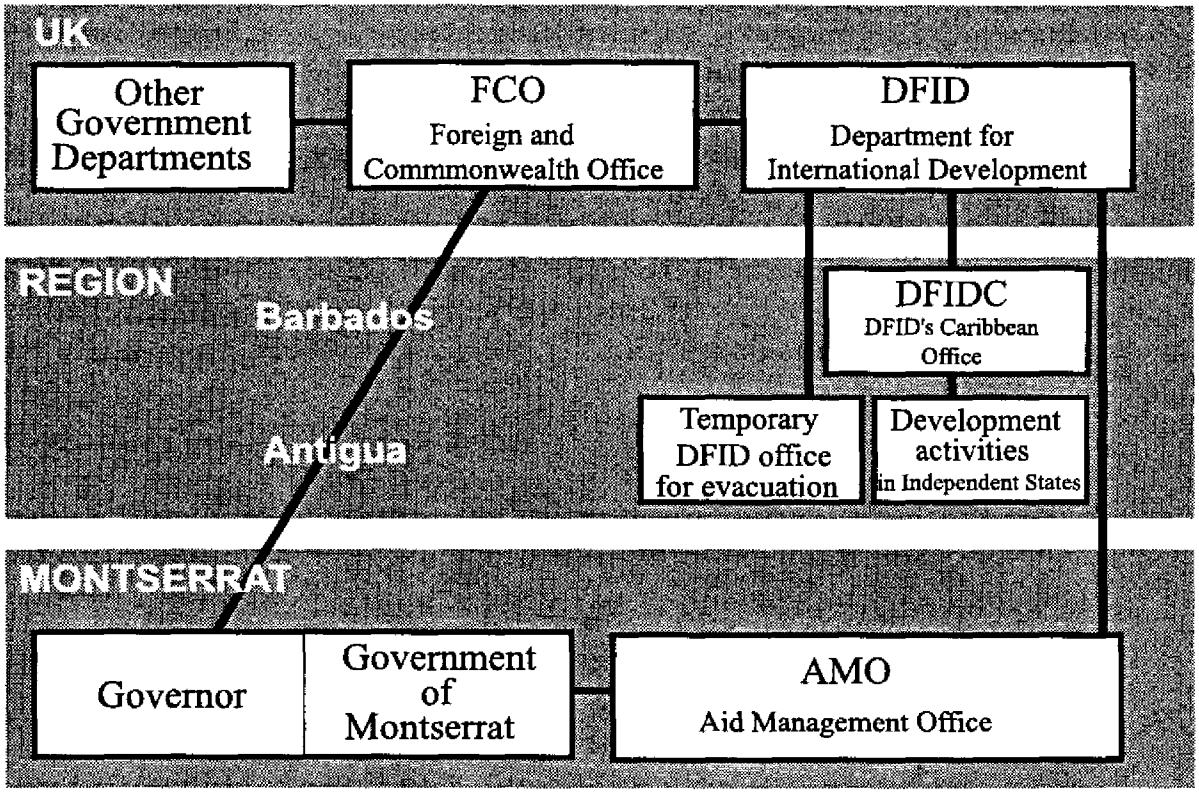
c) Economic

2.12 The volcanic crisis has had a devastating economic impact (considered in more detail in Annex 7). Most of the island's administrative, commercial and industrial facilities as well as much of its infrastructure (including tourism) and prime agricultural land have been destroyed or are inaccessible in the short to medium term. The Sustainable Development Plan (SDP) estimates total damage to buildings alone at around £40m. The GoM's work to determine the scale of total losses is incomplete: unofficial insurance industry sources put it as high as £1bn. Many firms have been forced to close and the real estate market has collapsed. Reflecting these impacts, real GDP fell by 44% between 1994 and 1997. Problems have been exacerbated by the impact of the crisis on the financial sector. Most of the insurance industry withdrew cover at the height of the crisis in August 1997, leaving homeowners and businesses to bear a considerable share of losses. There were major implications too for the availability of new lending and the viability of financial institutions themselves. The Montserrat Building Society (MBS), which had accounted for approximately 90% of mortgages on the island and a high proportion of savings, collapsed. This in turn undermined people's capacity to cope without public support – both housing and other needs - and has had multiplier impacts throughout the economy. There is a pervasive problem of negative equity. Losses at individual level have caused considerable psychological distress and related health problems. The distribution of impacts has been very unequal. No formal assessment has been made of relative impacts but, on balance, the poorer segments of society appear to have fared particularly badly. The economy will not be viable in either the short or medium term without large-scale subventions.



derived from IDC 1997, p.37

a. Management Structure, June/July 1997



b. Management Structure, October 1998