

CHAPTER 9

CONCLUSIONS AND LESSONS

A. AN ACHIEVEMENT FOR MONTSERRATIANS AND A QUALIFIED SUCCESS FOR HMG

9.1. The disaster response by HMG in supporting the Government of Montserrat and assisting the island's people since July 1995 has been a success in comparison with many other recent natural disasters elsewhere in the developing world. But that success is qualified by less satisfactory aspects of the response and its consequences. The considerable achievement of the people of Montserrat is to have coped with the continuing volcanic threat and then adapt to the devastating effects of the eruption.

Risk Management

9.2 Careful examination of the risk management strategy followed by HMG and the GoM and of how scientific information and contingency planning were taken into account in emergency policy, suggests that some successful outcomes were achieved more by luck than judgement. The long delayed construction of the emergency jetty left the island's population vulnerable. The airport itself was kept open in the face of mounting risks and only the fortuitous direction of pyroclastic flows prevented damage and possible fatalities.

9.3 The micro-zonation policy adopted in October 1996 was necessary because the facilities for the safer risk-averting strategy of restricting all activity to the north were not in place. This management strategy involved higher than necessary risks and reflected the adaptive response adopted by HMG and GoM. It meant that the progress of the eruption dictated what was done. It accorded with the GoM's desire to avoid anything that would reduce the chances of sustaining or quickly returning to something near the pre-eruption situation. However, it placed scientists in the challenging position of providing fine-tuned risk assessments that were at the limits of what is scientifically and practically possible. The micro-zonation policy was abandoned after the fatalities of 25 June 1997 and in response to increased volcanic activity.

9.4 The lower risk strategy of supporting occupation of the north or assisted settlement in the UK and limited assistance within the Caribbean region was unavoidable from July-August 1997. Even in this strategy some compromises were made on the uncertain health hazard from ash falls. In late 1997 official scientific advice from the CMO and CSA was that all, especially children, should leave the still occupied Central Zone. Public information on safety hazards and health risks was provided to all, targeting especially residents in the Central Zone. Whilst consistent with official scientific advice this response was insufficient to ensure compliance. Complementary action such as rapid provision of more acceptable emergency public shelter was set aside by DFID in favour of waiting for completion of direct-build housing and then giving priority to those in shelters in the Central Zone.

Governance

9.5 The strategies which HMG followed were broadly those preferred by the GoM at the time. Nevertheless, relationships between HMG and the GoM became increasingly discordant. Specific criticisms put by GoM representatives to the evaluation team related to housing provision that is 'socially, culturally and structurally unacceptable'; and of the failure to give sufficient weight to local knowledge or genuinely to consult or keep local counterparts properly informed. Attention was repeatedly drawn to the Secretary of State for International Development being reported in the press since August 1997 as negatively stereotyping Montserratians about their expectations.

9.6 The constitutional status of Montserrat would have permitted the Governor to take full responsibility by imposing direct rule under the State of Emergency. Instead HMG worked in partnership with the elected GoM and sought to respond to the emergency through normal channels, making ad hoc and temporary additional arrangements as dictated by events. Nevertheless the responsibility and authority shifted to HMG and, as the crisis developed, to London. Actual decision-making authority became increasingly unclear. The management of health and decisions on the specifics of emergency housing are important examples. There have been benefits in remaining within normal arrangements for a self-governing territory. Montserratians, through their elected representatives are engaged in the decision-making process and can influence, if not determine, outcomes. This was also felt by many to have contributed to exceptional social stability in a catastrophic situation.

9.7 There have been some problems in working within existing arrangements. Consultation and negotiation have led to delays, particularly in taking forward investment proposals.

9.8 The division of responsibilities implies that HMG, through the Governor and therefore the FCO, is ultimately responsible and accountable to Parliament for life and safety. The elected GoM is greatly concerned as well, but also has social welfare and developmental goals. During the earlier phases of the emergency up to June 1997 the GoM preferred 'wait and see' options that assumed less serious impacts: to defer UK-funded public housing construction in the north, to draw out the negotiations over site selection for the jetty and housing, and to oppose assisted relocation to the UK. This was a high-risk strategy from the viewpoint of preparedness for and handling of mass evacuation, which was inhibited by the reluctance of the GoM to engage in explicit planning. Many within HMG were equally prepared to accept a 'wait and see' approach, which limited resource commitments. MoD felt it necessary to undertake its own internal contingency planning assessment, should it be suddenly called upon to intervene in a mass evacuation.

9.9 Much attention has been accorded to HMG's contingent liability.^{*} A potential consequence of this responsibility is a possible problem of moral hazard. The GoM initially preferred more risky options that would, if successful, have done less damage to economic development, but if unsuccessful, as they were in 1997, would have their costs underwritten by HMG as the underlying guarantor.

^{*} National Audit Office. 1997. *Report by the Comptroller and Auditor General: Liabilities in the Dependent Territories*. House of Commons, Session 1997-98. London: Stationery Office, 30 May.

9.10 Since mid-1997 the GoM perspective on many issues has suggested a reversal in attitude from risk taking to a high level of risk aversion. For example, GoM argues that direct construction under the Immediate Housing Project or of GHQ should be to a level that would be resistant to the Hurricane Hugo and Hurricane Mitch so-called 'once in a 100 years' intensities (about 150 mph), instead of the Eastern Caribbean standard of 125 mph. Similarly, the preferability of the least risk, highest cost (up to £90m.), siting at Thatch Valley for a replacement airport was strongly argued, while the risks associated with the rehabilitation of Bramble airport - aeronautically the best location - were strongly emphasised.

9.11 Friction in relationships between key parties was partly a consequence of the uncertainties of the volcanic emergency which made budgeting of HMG's commitments difficult and renegotiable. The steps towards reconstruction involving the SDP and the CPP, setting a three-year provision of £75m. for DFID assistance in June 1998, are important in enabling a return to a more normal relationship in which the GoM will be able to play a fuller self-governing role in determining priorities within a known budgetary ceiling.

9.12 Unresolved issues include the fact that there are no agreed standards for infrastructure, social assistance or social service provision, or health and education in Overseas Territories. Clearly the relevant standards are not those for minimal basic needs in low-income countries. Are the relevant standards those for remote rural areas in the UK or other middle-income Caribbean countries? There is also the issue of establishing an effective, coherent consultative framework for redevelopment based on northern Montserrat or any other OT that might be massively affected by a natural disaster. This should include land development and private sector participation, as well as the elected government and HMG as the primary funder.

Resources: an adequate response?

9.13 The 1997 White Paper on International Development makes clear that meeting the reasonable assistance needs of the then Dependent Territories is a first call on DFID's development programme.⁹ From early 1996 onwards the absence of a clear budgetary ceiling or jointly accepted standards on what was appropriate resulted in negotiation and delay, and a growing perception on the Montserratian side that DFID, in particular, was acting ungenerously, preferring cost-minimising solutions to immediate needs – a policy which jeopardised longer-term development. Implementation of the £25m. programme agreed in August was hampered by lack of agreement on standards and siting.

9.14 There is the still unresolved issue of the population levels for which to make provision immediately and in the medium term. HMG's position has been to concentrate more on a rapid solution for current needs, e.g. housing for those in shelters even if this is not necessarily most cost-effective in the long-term. The GoM has been more concerned that emergency investments will provide facilities and accommodation that will meet expectations defined in terms of pre-crisis standards, will maximise the use of local businesses and labour, and will make possible an early return of those relocated. The

⁹ DFID. 1997. *Eliminating World Poverty. A Challenge for the 21st Century*. Cm 32. London: Stationery Office.

reoccupation of Salem since late 1998 allows over 300 houses and buildings, including the main police station, to come back into use, and Bramble airport's runway may be reusable again within 2-3 years, after the construction of protective barriers against lahars. DFID therefore faces complex and costly investment decisions in conditions of exceptional uncertainty. The GoM wants to proceed as quickly and as extensively as possible with reconstruction investments that will facilitate economic recovery. Also, the passage of time will reduce the number of those 'temporarily' resettled off-island who choose to return. DFID has the difficult role of setting assistance levels and, jointly with others, for example the EDF, of making investments in external transport and balancing uncertain needs and volcanic risks. Moreover, there is a difficulty in resolving the issue of the time period over which it is developmentally most beneficial to spread limited investment resources for reconstruction.

9.15 Up to March 1998, DFID had spent £59m. in emergency-related aid, of which around £53m. was additional expenditure, allowing for previous aid projections. DFID has committed an additional £75m. up to 2001. Therefore, projected HMG expenditure will be at least £160m. over six years, taking into account a conservative estimate of additional expenditure by the FCO and other government departments off-island and in the UK on relocating Montserratians. In per capita terms that is equivalent to £2,600 a year based on a pre-eruption population of 10,000. This amounts to over 80% of the 1994 GDP per capita, and considerably more for the much smaller population still resident. If these sums are considerable, it should also be remembered that the likely total capital loss, including real estate, has been up to £1 billion, and that most of that loss has been only partially recoverable or uninsured.

B. HMG'S PERFORMANCE: CRITERIA FOR EMERGENCY ASSESSMENT

9.16 The seven criteria put to the evaluation have provided a useful checklist for assessment of the specifics of HMG's response. These criteria have been used in reviewing sectoral activities in Chapters 4-7 and management of the response in Chapter 8. They were derived from previous evaluations of DFID responses to emergencies, in particular the major humanitarian crisis in Rwanda in 1994. These responses have usually involved funding and possibly technical co-operation for emergency activities, especially relief operations organised by the governments of affected countries, NGOs and international agencies. The Montserrat emergency is unusual as a natural disaster. It was protracted, and caused a near total collapse of the private sector economy. It is exceptional too because, as an OT, virtually its only source of assistance is HMG which has been directly involved in managing the emergency. Therefore in considering HMG's response, attention is drawn to ways in which the criteria may need further refinement – a lesson from the Montserrat experience.

Use of scientific information

9.17 Monitoring the course of the eruption and assessment of safety and health hazards has posed a considerable challenge both for scientists and the authorities. Special attention has been given therefore to considering the appropriateness of HMG's response in the use of scientific advice. The OST

Guidelines set out three key principles concerning the identification of issues, building science into policy and presenting policy which are to be applied 'to uses where there is significant scientific uncertainty, a range of scientific opinion and potentially significant implications for sensitive areas of public policy' (OST, 1998: p1 – see footnote 3).

9.18 For the identification of issues, the OST Guidelines state that 'Individual departments and agencies should ensure that their procedures can anticipate as early as possible those issues for which scientific advice or research will be needed, particularly those which are potentially sensitive' (ibid: p7). The procedures in place prior to the eruption were not adequate to ensure that the increasing volcanic risk would be anticipated or effectively monitored. However, possible risks to health were quickly identified in late 1995. By and large, appropriate steps were taken to monitor potential health hazards, but they were only properly formalised from September 1997.

9.19 Building science into policy involves accessing the best available scientific advice, ensuring that departments draw upon a sufficiently wide range of best expert sources both within and outside government (Ibid: p11). Prior to the eruption the Head of SRU advised only the Chief Minister with HMG indirectly involved. This was an inappropriate procedure. Once the potentially extreme risk was recognised, HMG progressively secured the best scientific advice from within and outside government, and supported development of the MVO to provide adequate monitoring and as a centre for complementary research. However, the Governor as responsible official did not initially receive adequate guidance on how best to achieve this. Furthermore, senior officials in FCO and ODA/DFID were not directly supported by relevant scientific advice but were largely reliant on information forwarded from Montserrat. Arrangements were ad hoc and short-term until the BGS(I) was given a 2-year contract only in September 1997. From about that time HMG has also brought together a sufficiently wide range of expert advice from within and outside government, including the CMO and CSA. FCO and DFID have also organised this process through the formal, six-monthly elicitation meetings to quantify the safety and health risks to the resident population and reconstruction activity. The procedures now provide a clearer and consistent basis for policy making.

9.20 Broadly, scientists have been permitted to publish and encouraged in their research and in making MVO information available on the internet. Public information on the eruption and its implications was limited and unsatisfactory at the outset. From October 1995 onwards there was a progressive improvement, with direct involvement by scientists in public information and they made great efforts to explain to an increasingly informed public what was happening and its implications.

9.21 The use of advice has had to take account of the strong preference of many to remain on the island, accepted by HMG, and the practicalities of making this possible. Following on the September 1997 visit of the CMO, the December 1997 formal risk assessment was critically important and a watershed in public information. HMG's response to official scientific recommendations was to make public the scientists' full findings, to make all residents aware of the volcanic hazard and health risks, and to provide

advice on minimising health risks, on a day-to-day basis. This has continued to be HMG's approach, although public information may not be sufficient to ensure full public compliance with official advice. In these circumstances, continued vigilance is required to ensure that all are fully aware of safety and health hazards and the ways in which risks can be minimised, and that financial decisions by, for example, the insurance industry are made on a properly informed basis. The wider issue of public information and consultation on other aspects of HMG's emergency response is discussed below.

Appropriateness of emergency actions

9.22 Throughout the evaluation the issue of timeliness and delays loomed large. Broadly, where something was done by EMAD (now CHAD), in an urgent mode, it was done quickly. The important exception was the emergency jetty which was the subject of extended informal pre-appraisal and negotiation as if it were a development project. However, it would appear that, wherever possible, early delegation of spending authority within a wider project to the contractor, as in this case, would have been preferable to micro-management by an on-island co-ordinator or in London. BGS(I) and Brown & Root were given their contracts only in August-September 1997. The lack of experience and loss of management capacity by GoM departments, and the absence of NGOs, apart from the Red Cross and Christian Aid to a limited degree, made it difficult to avoid so much direct involvement.

9.23 In contrast, where development aid was used, the process from identification to approval was in many cases (especially up to June 1997) long-drawn-out. This is reflected in the low level of expenditure on construction up to that time. These complex, multi-faceted procedures are required by DFID because aid intended to contribute to long-term development is usually managed by a recipient government or agency, and transparent, fully elaborated proposals are therefore required for accountability. Since the agreement of the September 1997 crisis programme, these procedures have contributed to further delay where they were required for a quite small supplementary investment. This is partly because of the withdrawal of delegated authority from the AMO in October 1997.

9.24 Budgetary aid was on the whole provided in a flexible way. The uncertain situation made it difficult to set limits and the quarterly reassessments were effective in ensuring additional funding, albeit sometimes with delays in disbursement that added interest charges to budgetary costs. However, the enhanced monitoring requirements in 1998/99 do impose a further burden on an already overstretched administrative capacity. Whilst each such requirement may be specifically justifiable, the aggregate consequences of a government expenditure programme which is far more complex than before the eruption, and with more external reporting requirements and contact time, make it difficult for the GoM to get beyond short-term routine tasks.

9.25 An overall assessment of the suitability of specific emergency actions, including equipment purchases, infrastructure investments, consultancies and so forth, is difficult because the emergency has obliged HMG, together with GoM, to intervene in almost every aspect of on-island socio-economic

activity. The comments of GoM are worth noting: some things went well and some difficulties were encountered – a curate's egg! Attention has focused not on aspects of re-equipping the north of the island that were successful – water, generator and roads – but on specific forms of assistance, equipment purchases and investments which became less appropriate because they were delayed; circumstances changed and more permanent solutions became appropriate. Important cases are prefabricated housing and the temporary GHQ. Some lessons can be drawn which are of wide relevance. Where civil engineering works are required, many of the disagreements concern appropriate standards for replacement facilities and buildings. The evaluation accepted that pre-eruption standards for housing, health status (but not necessarily health care), and education provision on-island give a reference point to be taken into account in reconstruction. The difficulty in an emergency is that there can sometimes be a sharp trade-off between urgency, specification and costs.

Cost-effectiveness

9.26 The evaluation adopted two related criteria in examining cost-effectiveness. First, was the chosen solution the least-cost consistent with the desired result? Secondly, was there evidence of market testing where this was practicable?

9.27 Throughout the emergency, it was clear that officials were concerned with escalating costs in both financial and human resource terms. However, cost-consciousness in an emergency is not necessarily cost-effective. A common criticism of HMG's response was that caution in avoiding expenditure that might, in retrospect, prove inappropriate, was a factor in the step-by-step reactive response between September 1995 and June 1997.

9.28 The review of DFID-funded activities in various sectors suggested that cost minimisation was a major consideration in the procurement of services and also supplies. Indeed, concern for cost-saving may in some instances have been over-zealous. The initial selection of the source for tents in 1995 is a case in point. Subsequently, procurement choices for materials for prefabricated construction in the first phase of the Immediate Housing Project at Davy Hill and for GHQ, may have involved some sacrifice in durability to save costs. There is also a linked issue of consultation, because GoM reluctantly accepted some cost-minimising choices and subsequently looked for opportunities to modify solutions, usually increasing costs.

9.29 The importance of adequate market testing seems to have been a factor in DFID's increasingly preferring to organise procurement. It also involved a UK-based main contractor. The GoM's experience in major contracting and its network of contacts are limited. There are also pressures to sustain the local economy by contracting non-competitively on-island.

9.30 In terms of major investments, the provision of infrastructure through roads, storage and the emergency jetty appears to have been regarded as a necessary and, in the circumstances, cost-effective investment. The construction of a temporary GHQ appears to be least cost-effective, taking into account

the delays and cost overruns. Overall, construction and adaptation using local materials, know-how and labour appear to have been more cost-effective than solutions based on the importation and assembly of prefabricated structures.

9.31 The use of military transport to bring in stores and equipment in August 1995, first as contingency planning for full-scale evacuation or on-island relocation, was probably a justified response.

9.32 The establishment of emergency sea and air links in June 1997 was cost-effective in an emergency situation. Recontracting of the MVO helicopter services to provide both a more powerful machine and a lower-cost contract is indicative of appropriate market testing.

9.33 The smallness of Montserrat raises a further special problem of diseconomies of scale, which would apply to other British Overseas Territories in considering disaster preparedness and in any future emergency. This problem arises sharply in relation to provision for the population current and projected. It is also a consideration in relation to the involvement of official advisers and technical consultants. In many instances, the costs for a very small activity may be not substantially less than for a review or project preparation on a much larger scale. The National Evacuation Plans, which have been a necessary part of contingency planning, are a case in point. DFID development project procedures were elaborated with much bigger projects in mind.

Consultation and public information

9.34 There are two partly distinct but overlapping issues of consultation. First, there is the question of the extent to which the affected people were consulted, kept informed or allowed to participate in the process of determining emergency activities and implementation. Secondly, there is the issue of co-operation between HMG and GoM and the publicly expressed views of the latter that it has not been 'genuinely' consulted and kept informed about HMG's activities. This is also part of the problem of coherence or co-ordination.

9.35 The evaluation found public information on the course of the eruption and its implications limited and unsatisfactory at the outset, because it increased uncertainty and made it more difficult for people to plan how to respond. However, from October 1995 onwards there was considerable improvement, with direct involvement by scientists. This helped to ensure that subsequent evacuations were orderly and restrictions on access largely accepted, where compulsion was difficult. Nevertheless, there were subsequent periods of uncertainty about what services would be available or about the health situation. For example, the failure to inform parents and teachers in August-September 1997 about what was planned for the school year 1997-98 may have increased the numbers migrating and the loss of staff. At a micro level there has been scope for more participation. Because shelters were 'temporary' not enough effort was made to help those accommodated to manage their activities and to be effectively represented in contacts with the Emergency Department. The evaluation noted the general view of Montserratians that, in particular, there has been little consultation on the question of health service provision.

9.36 Throughout the emergency, efforts were made to progressively strengthen public information. For example, both the Emergency Department and the Governor's Office appointed information officers; the latter was assigned after 25 June 1997 and publishes monthly newsletters.

9.37 DFID has a major separate public profile in Montserrat as the primary funder, with its own Aid Management Office. However, it has not given special attention to public information. There is a substantial flow of visiting advisers and consultants, and a general complaint was of lack of feedback on the outcome of their visits. The GoM also complained about the infrequency and ineffectiveness of the consultation process with DFID staff and experts on-island. The direct role of DFID in managing this long-drawn-out emergency with on-island advisers, the AMO and then largely from London, does not appear to have involved an explicit attempt to ensure adequate public information.

9.38 In 1995-96 too little use was made of social development advice which would have highlighted communication problems and ways of improving public consultation. Positively, DFID officials' participation in public consultations and radio discussions, for example on the airport in late 1998, and visits by the concerned Minister indicate recognition of the need to consult and inform.

9.39 Evaluation team members were frequently told that there had been poor provision of information to those Montserratians relocated to the UK, who were said to be largely reliant on informal contacts with friends and family still on-island. A belated but appropriate response to this problem was the appointment in October 1998 of a GoM Information Officer in London.

Social impact and coverage

9.40 The measures undertaken by the GoM, supported by HMG, were effective in minimising the impacts of the emergency on the lives and health of potentially vulnerable people.

9.41 Similarly, minimum shelter, food and public services have been assured through a combination of measures, including the provision of shelters and the Food Voucher Scheme. However, the severe social disruption and the economic effects were mitigated to only a limited extent and the impacts on the community, and within it on families and individuals, of relocation and massive emigration have been large and traumatic. The economic effects of the eruption have not been closely documented. The social survey investigations were delayed but were then thorough. These do not distinguish households and individuals in terms of source of income – public, own business and private sector employment. Both qualitative case studies and indirect evidence, however, suggest that the impact has been most severe on those working outside the public sector.

9.42 The social sectors are a GoM responsibility and most of the community was extremely adversely affected. There has been little attempt so far to target social assistance explicitly. The provision of shelter on the basis of need has resulted *de facto* in a high proportion of vulnerable groups, the elderly and those

without family support, being in public accommodation. The primary form of social assistance has been transferred from direct relief to those in shelters, to a more general food voucher and then cash benefit system, without any effective targeting. The need for a social welfare review to bring this about has been recognised by DFID since late 1996, but the process was still incomplete in late-1999. The direction of change, towards improved cost-effectiveness, has been appropriate, but very slow. An earlier move to income-tested benefits as cash payments would have been preferable.

Economic impact

9.43 The volcanic crisis has had a devastating economic impact, causing a 44% decline in real GDP between 1994 and 1997. It has also had serious implications for the island's medium- and long-term development and forced fundamental changes in its economic structure. The economy will not be viable in either the short or medium term without large-scale subventions and is unlikely to attract substantial private investment for a number of years. At an individual level, Montserratians have faced loss of livelihoods and other assets, including savings which had been deposited in apparently solid local financial institutions. These losses have caused considerable psychological distress and related health problems.

9.44 HMG and the GoM have been confronted with an extremely difficult task in dealing with the economic consequences of the emergency. Little was attempted to address these economic effects directly prior to August 1997, except through budgetary support to replace collapsing public revenues. From mid-August 1997 onwards, it became apparent that the future of the island was dependent on the development of economic and social structures in the north. Since then, DFID's accelerated programme of infrastructure investment has had obvious indirect benefits for the private sector. However, there have still been very few actions specifically intended to help support and sustain the economy, and those that have been undertaken have been very slow in delivery.

9.45 The response on financial regulation, addressing the effects of the loss of insurance cover, the knock-on insolvency of the Montserrat Building Society and the position of the Bank of Montserrat, has been characterised by extreme caution and procrastination because of contingent liability.

9.46 The absence of measures to address the economic effects of the eruption on the private sector has a number of causes. There was a partial separation of emergency and economic and developmental responsibilities, at least up to late 1997. Treasury policy for the UK is that HMG is unable to provide financial assistance to any private sector activity unless failure to do so imposes systematic risk. It is unusual for DFID to play a role in broader private sector economic and financial recovery in conjunction with the total physical development of a whole island. DFID's activities are normally confined to small enterprise development. Overall, there was a fundamental failure to appraise possible actions and decisions within a broader framework, assessing their aggregate consequences for economic performance and the pace of economic recovery. HMG should perhaps have considered special context-specific institutional solutions. Indeed, a lesson from the emergency is that the strenuous attempt by HMG departments to work within existing managerial arrangements has impeded an effective response.

Connectedness

9.47 Addressing urgent emergency requirements whilst taking into account longer-term needs is widely recognised as a difficult, often unsatisfactory aspect of emergency and humanitarian relief responses. The evaluation has examined these issues in terms of sectoral economic issues. The overall conclusion is that so far this has been a less satisfactory aspect of HMG's response. It also offers some possible lessons for future emergency actions.

9.48 The chief areas of disagreement between the GoM and DFID have concerned the longer-term needs of the island and whether these should be taken into account in specific emergency actions. Apart from the provision of immediate relief and contingency planning for emergency actions - and even the latter was initially seen by the GoM as prejudicial to development - there was no clear-cut division between emergency and development programmes. Most emergency investment activities have a potentially important development value. These include the jetty, the hospital and the Immediate Housing Project. Others, such as the provision of shelters and GHQ, have mainly emergency-related use but will have a residual intrinsic value.

9.49 The particular problem in Montserrat has been that neither the full extent of the damage, nor the length of time over which the emergency would continue was predictable. This has made it difficult to assess the potential development benefits of investments *ex ante* and thus to take decisions on their scale and nature. Instead, there has been a tendency, as already indicated, to meet the immediate needs of the island, thus reducing commitment of resources in the short-term. HMG's problem has been to determine the dividing line between following procedures for emergency aid and development aid.

9.50 An important lesson is that it is difficult, at the level of individual actions, to meet emergency needs in a developmental way. As soon as questions of durability and residual intrinsic values enter into consideration, there is potentially a sharp trade-off between making a timely response to emergency requirements and durability or reusability. Costs also escalate.

9.51 The response to the economic and private financial consequences of the volcanic emergency has been ineffective, apart from the planning-for-recovery aspects of the SDP and the CPP, which were only agreed between October 1998 and January 1999. This failure, combined with the lack of success in making emergency actions more developmental, suggests that separate interventions to address different objectives. In addition to actions and preparations to prevent loss of life, complementary measures are needed in an economy-wide disaster to limit damage to the private sector, assist its recovery, and protect financial institutions. These requirements were not anticipated, with serious costly consequences.

Coherence (co-ordination)

9.52 Many of the delays, omissions and shortcomings in HMG's response are linked to the complexity of HMG management and the administrative system in Montserrat. This complexity, particularly in the early period of the crisis before DFID was represented on Montserrat, led to poor internal communications, which separated information from points of decision, and to a lack of clarity about where the final responsibility for action lay.

9.53 The system in Montserrat, which gives responsibility to the elected GoM, the Governor/FCO and DFID, often left none of them with clear authority for many of the decisions which had to be taken. The changes made since September 1997 have considerably simplified management arrangements within the FCO and DFID. However, there is still a triangular relationship, in which the Governor/FCO, DFID and the GoM have distinct responsibilities and differing priorities. These need to be reconciled if genuine policy coherence is to be achieved. The three-year funding commitment and the CPP process provide the opportunity to undertake this, if there is a restoration of delegated authority.

9.54 The overall co-ordination of HMG's response has involved a progressively wider and higher level of consultation and actual co-ordination as the emergency continued and intensified. However, only after the establishment of the MAG, ultimately chaired at Ministerial level and with Cabinet Office monitoring, did a crisis programme rapidly take shape, with regular performance monitoring.

9.55 The UK aspect is outside the scope of this evaluation, but two issues were drawn to the Team's attention that may be considered in a separate review. First, the reception and assistance provided to those on assisted passage had to be 'fine-tuned' reactively as problems were encountered. There are possible lessons to be learnt in any future limited programme for displaced people, many with special needs. Secondly, where several departments are involved, the determination of financial responsibilities and the implementation of investigations, such as in health, may require 'directed' co-ordination which is most effective at a higher, even ministerial level.

9.56 There is also the question of HMG's co-ordination with other governments and organisations that were actually or potentially concerned with, and contributing to, the emergency response. Initially, the Eastern Caribbean states demonstrated considerable willingness to assist, for example by accepting evacuees. They were subsequently, as the International Development Committee report finds, little involved and not kept up-to-date on developments. The CARICOM housing initiative has failed to make a timely contribution to solving the immediate housing problem.

9.57 Early in the emergency DFID sought to obtain an EU/ECHO contribution to the temporary hospital which after some delay was refused, apparently because the situation in 1996 did not then constitute an emergency. Later ECHO offered official assistance to emergency housing after the fatalities of 25 June 1997. In 1996 the Chief Minister had sought, but been unable to obtain, non-British funding

sufficient to finance an emergency housing programme. The US Office of Foreign Disaster Assistance offered technical assistance from the US Geological Survey in July 1995, if this was funded by HMG. These cases illustrate the extent to which the emergency came to be widely viewed at a financial level as a British colonial responsibility.

9.58 Positively, the evaluation found that there had been consultation and co-operation with neighbouring Antigua over off-island evacuation planning and the temporary reception of relocated people, especially those en route to the UK in 1997. EU partners, France and the Netherlands, assisted with emergency search and rescue and evacuation of the injured in June 1997. There has been close consultation with the authorities in the French Overseas Department of Guadeloupe on possible mass evacuation and scientific monitoring. More widely, public scientific institutions such as the USGS and individual scientists have taken a professional interest, providing advice in what, from modest beginnings, became one of the most closely monitored volcanic eruptions.

9.59 The seven evaluation criteria make a useful checklist of issues for assessment, provided the list is treated with flexibility in a specific context. It focuses attention particularly on the humanitarian lifesaving, protective functions of an emergency response, which was also HMG's priority up to August-September 1997. The wider economic and financial effects of the catastrophe which then impinged sharply on individuals are given too little attention. Urgency is what distinguishes emergency actions and provides their rationale, and so timeliness should be clearly distinguished from other issues of appropriateness or suitability, i.e. the specifics of a response. In exploring the involvement of affected people, particular attention should be given to public information about the course and consequences of a natural disaster as well as public responses. Where a natural hazard has caused or precipitated the emergency, separate attention ought to be given to the role of scientific advice in preparedness and mitigation of disaster impacts. Institutional arrangements for managing an emergency should also be considered, as in Chapter 8.

C. NATURAL DISASTER EMERGENCY MANAGEMENT: SOME LESSONS FROM HMG'S RESPONSE

9.60 The evaluation has examined in some detail the specifics of HMG's response, finding both successes and failures. Scientific opinion and disaster management experience indicate that the Montserrat volcanic emergency has been exceptional in being both so long-drawn-out and so full of uncertainty about how the eruption would progress. This uncertainty allowed different strategies to be promoted by key stakeholders. These reflected a different balance of immediate and longer-term responsibilities and interests. The response for which HMG and the GoM were responsible is widely accepted as having been unsatisfactory in many aspects up to mid-1997. Since then, although there was agreement in September 1997 on a crisis programme and planning for reconstruction, substantial problems have been encountered in implementation, with a considerable slippage from the initial

timetable for completion in building construction and support for private sector housing, whilst important policy initiatives including more targeted social assistance and financial sector strengthening were not achieved. A cost-effective solution, involving an acceptable level of risk for a fixed-wing airlink, is waiting on the volcano. The aggregate impact of HMG's response since September 1997 is unimpressive in relation to the specific tasks set and the scale of response being provided.

9.61 It was not, however, the purpose of the evaluation to make detailed recommendations on future policy and implementation in Montserrat. Rather, its objective, in the spirit of the International Development Committee's original recommendation, was to draw out lessons on scientific monitoring and natural disaster response for the OTs and more generally. The recommendations of the evaluation therefore concentrate on institutional and management arrangements that could contribute to more effective responses to major natural disasters by HMG in two situations: the first where HMG has constitutional responsibilities in an OT; the second in a country or region where HMG considers the specific circumstances require it to take a major or lead role in managing an emergency response.

A team or task force approach to crisis management

9.62 HMG departments attempted to manage the Montserrat emergency within normal institutional arrangements both in London and the Caribbean. This was associated with a reactive, catching-up strategy and ad-hoc adjustments to management, as these became unavoidable. The alternative is to attempt from the outset a more ambitious strategy of 'capping' the problem. This may require a task force approach, involving a temporary crisis management team.

9.63 The DFID model of emergency response implies assessment, commitment of resources to actions by others, directly or indirectly, and monitoring and reassessment or bringing the activity to an end. This approach requires limited managerial involvement. The Montserrat emergency was different in that HMG was itself directly involved in the management of the emergency from the beginning and on an indefinite basis. Eventually, two parallel enhanced FCO and DFID management teams were built up on-island. But, where the UK is likely to have a direct involvement or take a lead role, and also where more than one department is involved, then bringing together in a specific task force a sufficient capacity to oversee all aspects of the response is managerially cost-effective and can provide coherence. This might be achieved by drawing together capacity from within different government departments or by directly recruiting a temporary capacity from outside government. The task force would have a leader of sufficient seniority and relevant experience to initiate action and with considerable delegation of authority, including financial authority, reporting to the highest level. The option of an inter-departmental task force should be considered from the onset of a crisis where DFID, FCO and MOD are likely to be involved, and personnel and material are required as well as financial resources.

9.64 An Emergency Room is sometimes set up within departments with crisis management responsibility, for example, the MoD or the Home Office, as well as the FCO. Its small secretariat provides a focal point for information exchange, consultation and documentation in a rapidly evolving crisis. There were at least two crisis points during the Montserrat emergency, when this might have been useful - in July–September 1995- drawing in the FCO, ODA and the MoD, and in mid-1997, also involving a number of other Whitehall departments and agencies with financial regulatory responsibility. The temporary establishment of an emergency room or centre and crisis secretariat should be explicitly considered in procedures for disaster management in the OTs by FCO or by DFID.

9.65 DFID is understood to be strengthening its humanitarian assistance capacity in contracting an agency to supply a range of management, logistical, social, and institutional skills. Such an agency could have provided valuable services from the outset of the Montserrat emergency in contingency planning, procurement and co-ordination.

9.66 The high degree of specificity in each natural disaster makes it desirable to ensure that senior decision makers are supported by high quality scientific advice in London and in situ.

9.67 Both the FCO and DFID experienced difficulties in staff placement for urgent assignments in Montserrat through normal procedures. It may be appropriate to review procedures for more effective, timely internal placements of staff in an emergency, and to consider whether adequate incentives are in place to attract and retain appropriate personnel.

Fast-tracking emergency involvements

9.68 The evaluation supports the near-unanimous view of Montserratians and most of those involved from the UK that there is a need for fast-tracking emergency infrastructure and accommodation, addressing immediate and short-term (up to 3-4 years) requirements. These should be considered separately from longer-term development needs and, temporarily, given priority.

9.69 There are different ways in which this might be accomplished. A multi-disciplinary team, or task force in-country, could quickly navigate standard procedures if given sufficient delegated authority. More generally, development project guidelines could be reviewed to establish a fast-track sub-set of procedures for a limited range of exceptional circumstances. But the institutional culture and relationship with partners must also support, rather than deter, urgent more risky actions.

9.70 Disaster preparedness, including contingency plans that identify what may be required, will also facilitate fast-tracking in an emergency. This is a priority for the more disaster-prone OTs, including Montserrat.

Promoting partnerships in the Overseas Territories

9.71 The elected members of the LegCo and senior GoM officials would have benefited from familiarisation with HMG practice and procedures. The partnership relationship envisaged between the FCO, DFID and the OTs would be facilitated by such training and, in particular, co-operation in emergency management could be made more effective in this way.

9.72 There is an urgent need to clarify appropriate standards to which the 'reasonable claims' of the OTs on British aid are to relate, especially in an emergency. Otherwise there is an unavoidable bargaining situation that can become adversarial. The on-island or within-territory level of provision for health care and education, involving relatively large capital and recurrent costs, are obvious areas for clarification. The proposed restoration to OT British subjects of full rights of residence in the UK (FCO, 1999) will in future remove one source of problems like those encountered during the Montserrat emergency.

Institutional arrangements for post-disaster reconstruction

9.73 Reconstruction is especially challenging when, as in Montserrat, it is largely based on the physical development of a previously underdeveloped area. Development of the north of the island is currently the responsibility of GoM ministers and officials as well as DFID. The former have limited and already overstretched capacity. The latter would not normally be involved in managing the task. There have also been disagreements on priorities and approaches. The task of reconstruction is considerable and will require, as the SDP indicates, private sector capital and entrepreneurial expertise if it is to succeed.

9.74 A major aspect of the reconstruction is physical planning and its implementation, including land acquisition and use. These tasks are akin to those which in post-war Britain were entrusted to the New Town Development Corporations. Such a corporation might provide a relevant model for the development of northern Montserrat. It would have a board on which all key stakeholders were represented and would provide a way of drawing in some with large-scale business and financial experience from the UK and the international business community. It would require a chief executive. The corporation would be able to draw on planning expertise and those with knowledge of business possibilities. It would enable the GoM to concentrate on the normal responsibilities of government and DFID to withdraw to its usual aid management role.

9.75 An alternative, more easily implementable institutional arrangement for the physical development of the north of the island and reconstruction would be to contract a consortium of architects and consulting firms to cover all requirements. But this would require surplus monitoring.

D. MONITORING THE VOLCANO: RISK ASSESSMENT AND VOLCANO-SEISMIC CRISIS MANAGEMENT

9.76 The evaluation would be incomplete without reflecting on what the lessons are for the scientific aspect of hazard monitoring and crisis management.

The future of Soufrière Hills Volcano

9.77 The resurgence of magma and growth of a new lava dome (end October - early November 1999) underscore the urgent need for a line-of-sight observatory with a wide range of functions. Even when new magma is no longer emplaced in or outside the volcano, close monitoring will be needed for at least a further ten years, after which monitoring will need to be continued for the foreseeable future. The dome will remain dangerously hot for decades, and even when collapses during cooling have reduced the threats of pyroclastic flows, steam (phreatic) explosions of groundwater will remain a significant risk. Before vegetation stabilises most slopes, there will be considerable erosion by rainfall, with significant hazards from lahars. As the pace of erosion diminishes, engineered conduits and barriers will need to be built before regular domestic and recreational access can be fully restored and selected areas rehabilitated. The pattern of volcano-seismic crises in the past, with a 'failed eruption' every 30 years (approximately) on three occasions before this actual eruption, suggests elevated risks of another eruption around the year 2025.

The future of the Montserrat Volcano Observatory

9.78 The future MVO will need a proper observation facility, monitoring equipment, scientists and technicians to fulfil its functions. Essential on-going research will need co-ordination at the Observatory as well as scientific personnel to engage in research activities, conceivably alongside monitoring duties. In addition, the Observatory will have a key role as an information centre, from which a campaign of volcanic hazard awareness can be undertaken. Furthermore, it will have to take its place in the regional network of observatories and in any future projects concerned with hazard preparedness and mitigation.

9.79 The MVO is to be put on a statutory, permanent basis. In practice, this will require the assurance of sufficient full-time staff, funded through the GoM with UK budgetary resources administered by DFID and the MVO Management Board. The Board's role will also be to ensure professional integration into a network for the Caribbean, as well as for the UK and the wider international community of volcanologists and seismologists.

Volcano-seismic monitoring and research and the Caribbean region

9.80 The Montserrat experience has relevance for risk assessment and volcano-seismic crisis management elsewhere. The lessons of Montserrat are profound for the rest of the Caribbean region. Eleven of the Caribbean islands are active volcanoes and sooner or later all will face problems similar to those of Montserrat. At least two eruptions in the next century are likely to involve volcanoes that have not erupted in this century. The Caribbean region will therefore need a strong regional scientific seismicity and volcanic activity surveillance organisation. The Seismic Research Unit of the University of the West Indies in Trinidad is the obvious location and it will need to be strengthened as part of a wider global network for volcanological and seismic research and monitoring.

9.81 Visual observation from helicopters is unreliable. There was a hazardous two-month gap in observations from late September 1995 and shorter gaps in June 1997. It is also relatively risky. In future it would be appropriate to evolve state-of-the-art high-resolution satellite imagery to monitor an erupting volcano on a daily basis. The practicality and costs of this addition to monitoring need to be considered by remote-sensing specialists and volcanologists in consultation. The potential importance of such developments underlines the need to ensure that the regional network will involve the expertise and financial support of all the countries with interests in the region including the UK, its EU partners France and the Netherlands, and the United States.

Disaster preparedness in the Overseas Territories

9.82 All the volcanic islands in the Caribbean region and several British OTs elsewhere require periodic up-to-date hazards assessment with associated scientific study. The aftermath of the Montserrat crisis seems an ideal time to raise levels of awareness and preparedness at these sites. The study of disaster preparedness in the Caribbean OTs, recommended by the International Development Committee and being undertaken by ELMT, offers an opportunity to do this.

9.83 Our narrative began with the failure to take account of recent scientific research on volcanic risks in Montserrat that was published in a major scientific journal and even presented in a widely available school textbook. Commissioned under the umbrella of a regional programme, the Pan-Caribbean Disaster Prevention and Preparedness Project and with the impetus coming from the GoM which wanted an assessment, the Wadge and Isaacs report of 1987 and its subsequent publication seems to have somehow escaped the attention of all those most closely involved. Such a serious omission must clearly not be allowed to occur again. A mechanism such as an advisory panel and a point of responsibility are required for ensuring that concerned officials in the FCO and DFID are kept informed of directly relevant scientific developments regarding natural hazards.