A reconsideration of the nature and role of resettlement housing and housing materials in natural disaster recovery in indigenous communities

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Introduction

Shelter, as an integral part of the built environment, impacts dramatically on disaster recovery and adjustment. There are multiple studies documenting how built environments affect behaviour and recovery processes that support this argument. (Ittelson et al 1974, 1976, Bell et al 1996, Taylor 1984; Raphael 1986, Oliver-Smith 1986, 1992; Brown & Perkins, 1992). There is a complex and consequential mutual interaction between people and their built environment (Rapoport 1969, 1977; Tuan 1974). Built environments have the potential of being stress-inducing or stress-reducing (Saegart 1976); they can both facilitate and inhibit human activities (Rapoport 1977). The built environment can play a very supportive role and therapeutic role in helping people adjust to dramatic change, catastrophe, and personal and family loss. This depends in part on the familiarity, meaningfulness, and responsiveness of the setting itself to individual, community and cultural need (Reser 1979, Sommer 1974). The extent to which the built environment can be determining with respect to behaviour and psychological well-being depends on the experiential state of occupants; the more stressed individuals are, the more determining and consequential the impact of the physical setting (Reser 1989).

The real human tragedy that occurs when one loses a home due to a natural disaster is arguably not so much the loss of physical property and one's residence per se, but the loss of that place from which one derives self-identity and meaning (Read 1996, Bunbury 1994). It is through place attachment, identification and meaning that we anchor, situate and locate who we are. In the aftermath of a natural disaster and resettlement, the need for orientation, anchorage and meaning is paramount. Shelters provided in post-disaster relocation and re-housing situations cannot adequately provide for long-term recovery until a victim is able as well to re-establish a 'sense of place' and achieve some sense of equilibrium.

Recovery, adjustment and the sustainability of communities after natural disasters are all founded on a very deep sense of place attachment and meaning (Altman & Low 1990, Altman & Warner 1985, Marcus 1997). How the physical environment of resettlement settings relates to, reflects, and validates these meanings are crucial to the recovery of disaster victims. Construction materials for disaster relief housing, as well as the nature, design and siting of such housing, can play an important role in creating this supportive environment. The nature and character of differing building materials can reflect and embody different symbolic meanings relating to security, stability, values, and identity, all of which contribute to one's sense of well-being and connectedness to place (Rapoport 1991, Ackerman 1990, Rodaway 1994).

This paper explores the Aetas' perception of their current rehousing and resettlement setting and the role these settings play in facilitating and frustrating recovery, and with respect to on-going individual and family adjustment and social and cultural change. Particular consideration is given to the type of grass huts built for Aetas as 'permanent' resettlement shelters. Though this type of structure has been traditionally used by Aetas for shelters before the eruption, Aetas believe they are no longer appropriate in their current situation. This somewhat surprising situation highlights a more general misunderstanding of the role which shelter can play in the recovery process. The aim of this paper is to canvas a number of important cultural and psychological issues that resettlement agencies need to consider in designing post-disaster resettlement accommodation for indigenous communities.

The context: Mount Pinatubo, mitigation, and resettlement

Extensive relocation of more than 5,400 indigenous families, known as Aetas, was undertaken by the Philippine government after Mount Pinatubo erupted in 1991. Mount Pinatubo is one of the highest peaks in the west-central region of the island of Luzon and stood at 1,745 metres above sea level before the eruption. This area is adjacent to two United States military bases; Clark Air Base which lies within 25 kilometres east from the volcano's summit, and Subic Naval Station which is 40 kilometres south-west (Wolfe & Hoblitt 1996). As indigenous dwellers of the region surrounding the volcano for more than 600 years, the Aetas were considered the hardest hit by the eruption and 7,800 families or 35,000 persons lost and were forced to flee their homes (Bautista 1996).

Evacuation and relocation preventive measures were undertaken to protect upland and lowland communities from being buried under tons of volcanic ash. The volcano, which was dormant for about 600 years, released more than seven cubic kilometres of pyroclastic materials (Fernandez & Gordon 1993) affecting an area 850km by 400km and a population of more than a million. The Philippine Atmospheric and Volcanology Department (PhilVocs) estimates that 40-60% of these materials are erodible, and only 50% of these erodible materials have been washed down from the volcano's slopes as of 1992. About 29 'barangays' (settlements) became uninhabitable in 1992 and about 9,829 families (53,435 people) became homeless (Bautista 1996), see *Figure 1*. Several river channels were clogged and hectares of agricultural lands

were damaged (Solidum 1993, Fernandez & Gordon 1993). The remaining deposits, which are estimated to move down for eight to ten years, render the remaining unaffected lowland communities vulnerable, with a very real possibility of further evacuation and relocation. Though megadikes have been built to protect communities, commercial and industrial districts, secondary explosions have blocked natural channels and diverted lahar flows to unprotected zones. Even if these flows cease, the loss of natural drainage paths still leaves communities vulnerable to seasonal floods (Solidum 1993).

The relocation and resettlement experiences of Aeta communities have not been uniformly positive. Many found their resettlement setting incongruent with their traditional lifestyle leaving them feeling inadequately sheltered and protected. Many abandoned their new homes to return to their old hazardous homesites, to seek employment opportunities in the cities, or to beg. As traditional mountain dwellers, isolated from the lowland population for several centuries, and having their own cultural beliefs and lifestyle, the new lifestyle in the resettlement areas, patterned after lowland settlement policy, has imposed its own difficult and often insuperable adjustment and adaptation demands.

While relocation and resettlement programs generally were able to address and reduce the vulnerabilities of communities against volcanic and lahar[1] threats, they have at the same time increased other psychosocial costs and risk factors for the Aetas. The current resettlement settings may have succeeded as 'emergency shelter' in the short term, but have failed to address the long-term adjustment and accommodation needs of Aeta communities.

Resettlement communities and consequences

The lifestyle Aetas[2] enjoyed in their traditional homes in Mount Pinatubo[3] before the 1991 eruption was characterised by self-sufficiency and independence from the outside world, despite years of colonisation by Spain, Japan and the Americans. Aetas were able to maintain and enjoy their subsistence-based communities and culture. They enjoyed a healthy and satisfying lifestyle based on hunting, gathering and shifting cultivation, and, while they were fully dependent on the forest environment for food, water, medicine and shelter, they were also independent and autonomous with respect to the larger Philippine society (Shimizu 1989).

In resettlement sites, however, an almost total dependence on outside help and government support now characterises the Aetas' lifestyle. Adjacent lands provided for farming were found to be mostly unsuitable for planting, did not have access to water, and were barren and badly degraded. The lack of food, cash income and forest resources have made the Aetas dependent on relief goods provided by agencies in the initial years of their resettlement. In significant ways, the relief efforts reinforced their feeling of helplessness, loss and degradation. Emergency and relief support had little effect in alleviating poverty and poor living conditions. Six years after their relocation over 60-70% are still earning less than P3,000 (Aus$150.00) (MPC,1996) a month, are unemployed, eat only twice a day or less and suffer diseases related to nutrition, sanitation and hygiene. At this point of almost complete loss of self-respect and self-determination, the Aetas' culture of self-sufficiency and independence is on the brink of extinction (Shimizu 1992).

The Aetas' self-sufficiency and independence is linked to their strong spiritual bond with Mount Pinatubo. Their relationship and bond with the mountain has been likened to that of an umbilical chord in a mother's womb connecting the mother and the child (Shimizu, 1992). They believe it is the home of their ancestors and 'the dwelling place of their God - Apo Namalyari, the One who creates, the One who makes the whole of creation grow and live' (Lakas 1991). They believe He gave them this land and to this land, they belong. They call themselves 'katutubo', meaning, 'the one who comes from this land' or 'the one who comes from this country'—as opposed to the 'dayuhan', meaning, the 'stranger or outsider', or 'one who does not come from here', a name they use to refer to people from the lowlands.

The status of the Aetas' ancestral lands at present has left Aetas with little or no options for relocation. Most of their traditional homelands have been buried in volcanic ash—some that may have been only partially covered are still unsafe for habitation. Other lands that have recovered have either been claimed by rich landowners or mining companies, or were developed by government corporations as resorts or new economic zones (such as the former Clark Airbase in Pampanga and Subic Airbase in Zambales). The 'ambiguousness' of the Philippine government's law on ancestral domains has made the Aetas' battle against mining, developers and logging companies very difficult. Even the newly passed October 1997 Indigenous People's Rights Acts does not fully recognise Aeta rights to their ancestral land[4]. Land policy before the passing of the 1997 IPRA had considered all undocumented lands in the Philippines as part of the public domain, regardless of how long they have been occupied (Poffenberger 1992). In effect, all inhabitants of the Philippine forests, including indigenous cultural minorities groups, were considered virtual squatters by law. Aetas who did not avail themselves of resettlement accommodation and who chose to remain in Mount Pinatubo's forested lands consequently bear this status.

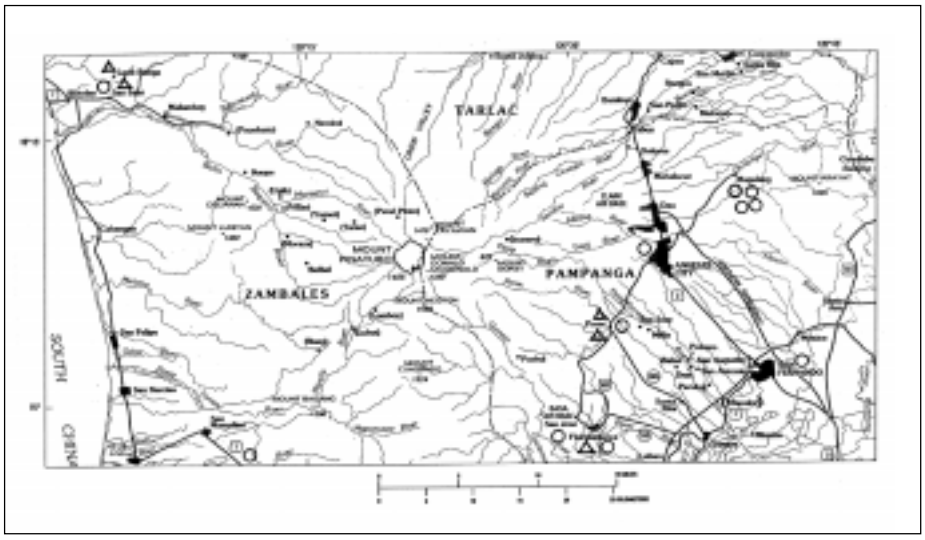

Figure 1: Map showing location of settlements (towns cities and provinces) affected by the 1991 Mount Pinatubo eruption and the location of some government-built resettlement sites. Settlements in brackets were destroyed and buried by the eruption. Settlements in Bacolor and Poonbato were inundated by subsequent lahar flows. (Legend: △= location of upland Resettlement sites, ○= location of Lowland Resettlement sites.)

The resettlement program in a way provides some emancipation from the Aetas' illegitimate state. As beneficiaries of a legitimate piece of resettlement land provided by the government, they have acquired a legal stake and status in society. Hence, even though some Aetas have been able to return to their ancestral lands, they have not broken their new connections with the resettlement sites. Their legitimacy as residents and landowners has ensured their access to free and desired education for their children and medical and social services support. These constitute rights and benefits that they feel they never enjoyed from the government before the eruption.

Settings, policies and housing

The Mount Pinatubo Resettlement Program built a total of ten upland resettlements for Aetas, see *Figure 2*. By the end of 1996, 5,414 families (approx. 32, 484 people) had received permanent housing. Each new Aeta settlement had an average population of 300-600 families. Primary and secondary schools, medical centres, community halls and recreation centres were provided, along with some basic facilities such as deep wells, water distributions systems, public toilets, roads, and for some, electricity. Home plots awarded per family unit range from 100-200 square metres and are legitimised by a 'Certificate of Stewardship Contract' and a 'usufruct contract'[5] (MPC 1996). Family and tribal groupings were closely maintained in the resettlement sites. There has been a mixing of several family grouping from other tribes, but differentiation was visibly defined by block areas within the site. Some had large spaces between them. In some cases bamboo fences were built by the tribal communities themselves.

Grass huts were the principal type of housing provided in upland resettlement areas for Aeta shelters. These were built by a 'self-help' or 'bayanihan'[6] system in which shelter construction is undertaken by the whole community (NHA 1992). Lightweight materials such as bamboo, cogon grasses and nipa thatches were provided by the government and non-government agencies. Each shelter consisted of a core unit of about 2.5 x 4 metres, elevated on stilts at about 0.80–1.2 metres from the ground. Coco lumber was generally used for shelter frames, bamboo poles used for walls and floors, and nipa palms for thatched roofs. Aetas used the core unit mainly for sleeping and storing valuables. The units did not include a toilet, bath, kitchen, and living area. Public toilets, bathing areas and water points were provided in certain blocks along the streets. Beneficiaries, in their own time and with their own

Figure 2: An aerial photo of a typical Upland Resettlement Site built by the government in 1991 to relocate and accommodate Aeta families displaced by the Mount Pinatubo eruption (Source: Mount Pinatubo Commission as of 1994)

Figure 3: An aerial photo of a typical government-built Lowland Resettlement Site to accommodate and resettle communities of the lowland areas displaced by the Mount Pinatubo eruption (Source: Mount Pinatubo Commission as of 1994)

Notes:

1.Pinatubo Lahar is a flowing mixture of loose volcanic sediment and rainwater. Depending on their consistency, they travel at speeds of 2 meters – 8 meters per second. Consistencies of 20-60% sediment by volume erode laterally, while those up to 80% erode vertically, lift large boulders and bridges. (Solidum, 1993).

2. The Aetas is a cultural minority group considered the first immigrants in the Philippines and the inhabitants of the Zambales range where Mount Pinatubo is located.

3. Mount Pinatubo is one of the 21 active volcanoes of the Philippines and lies in the central part of the Zambales range in Central Luzon. It was dormant for 600 years when it erupted in June 1991 (Fernandez, 1993).

4. An Indigenous People's Rights Act 1997 (Republic Act 8371) has just been signed by the Philippine President Fidel Ramos last October 29, 1997. The law's sincerity to ensure rights of indigenous people has however been criticised by human rights groups because of IPRA's Section 56 that states, Property rights within the ancestral domain already existing and/or vested upon effectivity of this Act, shall be respected and recognised. In principle, no ancestral land, which is part of public domain has been free of encroachment and control from the government (mining and developers) or rich landowners.

5. The beneficiaries' current use of land is legalised by a Certificate of Stewardship Contract under the Integrated Social Forestry Program of the Department of Environment and Natural Resources. Usufruct contract, which is currently processed, is defined by the Mount Pinatubo Commission, as the right to use public land.

6. Bayanihan is a Filipino traditional way of showing a spirit of community solidarity and concern for the welfare of the other. It forms part of the Filipino culture and is particularly strong in rural areas. It works on the principles of reciprocity. The family whose house is being built prepares food for assisting members until the house is completed. Normally, it takes 2-3 days to a week, depending on the number of people working, to complete a thatch house.

resources, have to undertake extensions and modifications to achieve other functional spaces, if they wish to. Construction of each core house took from two to three weeks. Length of construction depended on the number of people working on the thatch house.

In contrast, concrete housing was provided to the new town centres built by the government for lowland settlers, see *Figure 3*. More than 39,000 displaced families were housed by the end of 1996. Construction of additional concrete housing is still progressively being done to house eight thousand more families by the end of 1997 (MPC 1997).

A few Aetas were able to build houses in concrete at their own expense. Masonry construction using blocks from volcanic ash and cement mix became very feasible and a profitable industry after the eruption.

The tons of volcanic ash that blanketed thousands of hectares of land were readily accessible for everyone to use. Construction costs at that time became cheaper, and the quality of blocks produced performed better than conventional blocks made from river sand (ITDI, DOST 1991 in UAP 1995). Validity tests conducted by the Department of Science and Technology showed they were as much as 5 to 6 times stronger than river sand blocks. The abundant supply of volcanic ash, its proximity to resettlement sites, and its practical use, makes the material most appropriate for rebuilding and reconstruction after the eruption's devastating effects.

One of the two general policies of the Mount Pinatubo Commission (MPC) has been 'to restore the living conditions of the Aetas and other cultural minorities'. MPC is a funding body mandated by the Philippine government to dispense P10 billion for the Mount Pinatubo victims' aid, relief and rehabilitation and infrastructure support (MPC 1997).

Since the Aetas' have long existed in living circumstances that involve the traditional use of lightweight materials for their dwellings, the commission deemed it was appropriate that lightweight materials be provided for the Aetas in their resettlement accommodations. Such materials, they believed, would replicate their traditional living environment and offer them greater flexibility, unlike concrete dwellings. A trade-off was also made by providing each family unit with a 100-200 square-metre house lot, a lot area twice the size of house lots allocated in lowland settlements.

Figure 4: A typical housing unit constructed in bamboo and grass or nipa, an accommodation provided by the government to Aetas in the Upland Resettlement Site as a permanent post-disaster shelter.

The Office of the Northern Cultural Communities, a government body in charge of advising the government on cultural minority affairs, also endorsed this concept, based on their consultations with Aeta leaders.

Basically, the resettlement program was seen by the government as a rare opportunity to plan new townships and conglomerate different settlements into one area, thereby economising government services such as schools and medical facilities. It was also an opportunity to weave the resettlement program into central Luzon's Regional Spatial Development Strategy, wherein the region was conceived as a transit lane or a catchment area between the resource-rich provinces of northern Luzon and the densely populated industrialised areas of Metro Manila (Bautista 1996).

Envisioned to 'provide for the requirement of Northern Luzon in goods processing, manufacturing and shipment' (Mount Pinatubo Task Force 1991 in Bautista 1996), the resettlement areas were seen to potentially supplement and reinforce this obligation.

Productivity centres (factory-like structures intended for goods manufacturing and packaging) were built in every lowland settlement. The layout of settlements, in both upland and lowland settlements, was strongly linear, with houses and modern community buildings (schools, medical centres, public halls) arranged around a community 'plaza and in rows along grided street systems'. The development and allocation of housing in each resettlement site was administered by a Resettlement Site Manager, employed by a commissioned body[7] charged with the responsibility for managing the rehabilitation and recovery programs for Mount Pinatubo victims.

Satisfaction, symbolism and security

The Aetas' level of satisfaction with their housing setting and settlement communities is very low. Five out of six resettlement sites visited had a majority of its residents preferring concrete housing to housing made of lightweight materials. Houses built of lightweight materials have badly deteriorated since their construction five to six years ago see *Figure 4*. These structures have endured damages from yearly cyclones and rain, and have undergone repeated major repairs. Many roofs constructed of traditional roofing materials have now been replaced with galvanised iron sheets provided by the government and other non-government agencies. This material lasts longer than cogon grass or nipa thatching. The galvanised iron roofing has also been useful with respect to the storing of rainwater. But the walling, floors, doors and windows remain unrepaired and have become very problematic with respect to keeping out stray animals, insects, flies and unwanted visual access to the home.

Those few Aeta families who were able to renovate their houses using concrete blocks and masonry had better access to employment and other resources. Their living conditions were much better than their fellow Aetas who lived in houses made of bamboo and wood, and they were able to realise appreciable savings which

Notes:

7. Initially, it was Task Force Pinatubo. In 1992, Mount Pinatubo Commission was created from R.A. 7637. MPC became a special body for policy formulation, planning and administration of the 10-billion peso Mt Pinatubo Assistance, Resettlement and Development Fund, appropriated for the aid, relief, resettlement, rehabilitation and infrastructure support for the victims of the 1991 Mount Pinatubo eruption (MPC, 1996).

Figure 5: A typical concrete housing unit built in Lowland Resettlement sites by the government. Some Aetas who resettled here availed with this kind of housing.

did not have to be spent on yearly repair and maintenance. The stability of the concrete structure, according to these residents, has given them more security from natural calamities as well as allowing them to make an investment for the future.

This permanence of residence has also boosted their self-esteem. Some reported that their concrete housing has made them feel more human, 'not anymore like egg-laying fowls' living in grass huts. (Lowland people keep their fowls in grass huts. Aetas normally keep their fowls free or tied to poles.) Aetas in some resettlement site were ridiculed with a visiting politician's comment that their shelters looked like 'pigeons' nest' ('bahay nang pati') in comparison to their concrete block public toilets. Such ridicule helped to 'stigmatise' the image of the 'grass huts' as sub-standard and unfit for human habitation. For many Aetas, living in a 'house' which looked and felt like the chicken coops of their lowland neighbours was a matter of considerable shame and embarrassment. Aetas residing in grass huts identified with the stigma and felt less human in that type of dwelling.

Some Aetas who resettled in lowland settlements, and therefore were able to avail themselves of concrete housing, expressed higher satisfaction with their housing and settlement situation as compared to Aetas who resettled in the upland resettlement sites, see *Figure 5*. Though these lowland residents have very pressing problems with respect to employment and access to old homesites where they get most of their living sources, their housing situation, they said, has given them a secure place to stay and tenure that they can rely on. Since these houses were among the newer houses built by the government, their quality was also better (concrete floors were provided unlike the earlier houses built).

No official study or assessment survey has been conducted by the government to determine Aeta housing preferences or satisfaction levels. The government sees Aeta housing needs as a lesser priority as compared to their ongoing need for sustainable work and income occupation. The Aetas' need for better housing and resettlement conditions is neither acknowledged nor supported by strong political platforms, though they have been noted in the basic minimum needs report made by the Department of Social Welfare and Development. Their political organisation is weak and there is great disunity among the different Aeta tribes (which has traditionally existed in Aeta history). In addition, confusion and conflict within Aeta communities is worsened by the presence and influence of varying non-government and religious organisations operating in Aeta communities. Many of these organisations are also involved in developmental programs such as housing, medical, and social services aimed at Aeta disaster recovery and rehabilitation. Many of these programs complemented the government's recovery programs, while others were redundant. Some were critical to the government's capacity to deliver services, further eroding the Aetas' confidence in the government's sincerity or ability to assist them with their resettlement needs.

The provision of masonry housing for Aeta communities has never been the intention of the government, even if each unit by direct contract cost the government only about P49,000 (Aus$2,500). The government's decision not to provide concrete housing to Aetas perhaps reflected the assumption that Aetas did not have the capacity to pay the monthly amortisation required for acquiring government-provided concrete housing. However, looking at the current condition existing in lowland resettlement sites, none, or at most only a handful of the 40,000 families resettled, have so far started paying, or have been willing to pay, the government since they started collecting in July 1996.

An important and unanticipated aspect of concrete housing is the symbolic meaning which has accrued to such housing in terms of permanence, i.e., a better standard of housing, government commitment, and individual security. These meanings are rather independent of the culture-specific symbolic meanings associated with traditional Aeta housing, but they are nonetheless very important aspects of the symbolic meaning of home and place (e.g., Altman & Low 1992; Marcus 1997). What has been ignored is the role which the built environment plays in relocation and disaster recovery situations, and the powerful symbolic, psychological, and political messages that particular kinds of housing solutions convey. From a psychological perspective, the housing solutions which have been implemented have largely frustrated individual and community coping and adjustment, and they have eroded individual control at the same time that they have increased individual and community dependency (Reser 1979, Spacapan & Thompson 1991). Yet there was a real potential in the case of Mount Pinatubo and the Aeta people for more sympathetic and realistic housing and relocation policies which might have assisted and supported individual and community coping with natural disaster and change generally.

The 'traditional' housing units provided to the Aetas at the time of their resettlement have acquired their own status value and symbolic importance, in this instance very negative, and are viewed as a very unacceptable political and policy statement. Up until the present, many Aetas believed the lightweight materials provided by the government were only meant to build temporary shelters.

They claim that ever since they moved in, concrete housing has been promised by government officials. Demand for concrete housing as opposed to the bamboo and grass materials provided by the government was always high, but is currently increasing. The failure of the government to see and recognise this expressed and salient need for stable, permanent housing has left many Aetas frustrated, demoralised, and greatly dissatisfied.

Cultural context, meaning and congruence

Continuity with the past is the greatest challenge Aetas are facing today. The threat to their cultural existence as Aetas has much to do with the Aetas' perception of a growing loss of continuity with the past and little control over the future in their current relocation and resettlement situation. Before Mount Pinatubo erupted, the Aetas' sense of continuity had been secured for generations by the protective walls of a place called 'home', a place always tied to land and community.'Home' was where their ancestors lived, worked, died and were buried. 'Home' was also the family grouping to which where they belonged and identified with, and which made them distinct from other groups, tribes and communities. 'Home' was also where the Aetas' sense of privacy, security, stability and meaning emanated from.

Family groupings of one, two, three or more families characterised the traditional Aeta settlements in Mount Pinatubo (Shimizu 1989). Enclosed structures, often described by researchers as bamboo and wooden huts or sheds, are actually part of an invisible and extended structure of the Aeta home. Enclosed structures are often used only for sleeping at night, and sometimes for keeping valuables. Domestic activities, such as food preparation, eating, washing, laundering, toiletting and bathing take place outside these enclosures, or outside the house as observers may mistakenly say.

Privacy from other family groupings, as well as strangers, was possible because of the nature of the area and the way in which space was structured (See *Figure 6*). Security was also not an issue. Communally owned home lots where Aetas built their dwellings were as big as three hectares, and normally included swidden farms and plots of orchards and vegetable gardens (Shimizu 1989). Bamboo and grass structures and construction sufficed to deter unwanted visual access or social interaction.

Continuity with the past also emanates from the Aetas' great respect and reverence for their ancestors. Burial grounds are kept sacred and protected. Their ancestors' history is passed on from one generation to the other through oral traditions. Things, objects, forests, mountains, hills in their ancestral lands, which they believe they own, are used to tell their stories and are therefore carefully maintained to ensure the continuation of these stories. They constitute a literal and metaphorical text in which people situate their lives and tell their cultural narratives (Howard 1991).

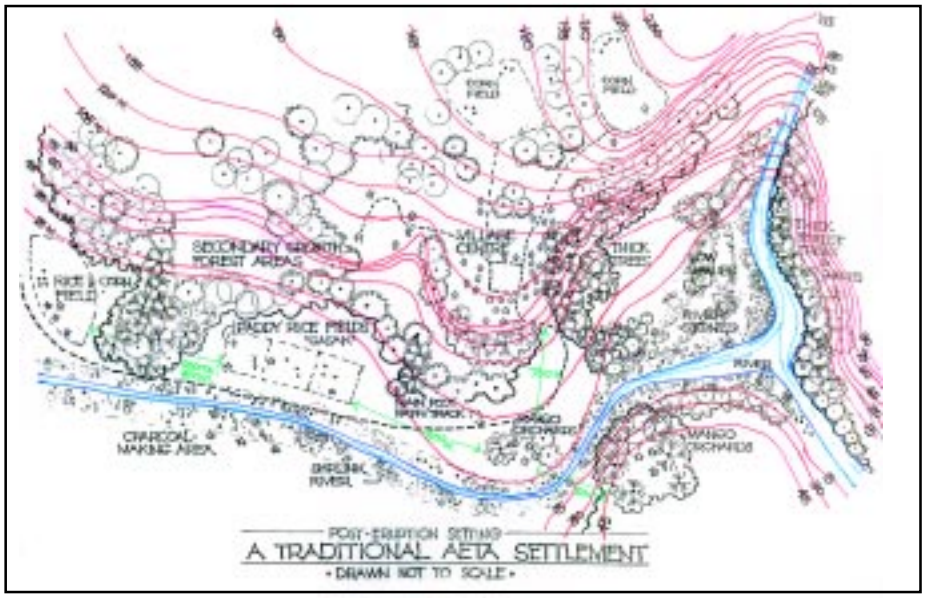

Figure 6: A typical site layout of a traditional Aeta settlement situated near the slopes of Moint Pinatubo after the eruption. Recorded by the researcher as of may 1997. Layout is drawn not to scale. Contours are represented in dummy numbers (highest area is estimated at 250-300 meters from the lowest point of settlement.

The current Aeta resettlement setting, however, though still maintaining family groupings, destroyed the invisible structure of the traditional Aeta 'home', see Figure 7. Privacy, security and sacredness of place have been largely violated. The smaller home plots of 100-150-sq. metre awarded to family units, instead of family groupings, not only disturbed their sense of territorial space and communal ownership, but placed the future of their forthcoming generation in uncertainty. The concept of private ownership, for them, fragmented the cohesiveness of the structure of their family and family groups. Common burial places provided by the government meant they had to share burial grounds with other tribes, many of whom they were at odds with, and some lowland groups, with whom they share a history of considerable antagonism and dislike. Such practices for Aetas would desecrate their ancestors as well as disrupt and distort the continuation of their stories.

The permanence and tangible presence and occupancy of the small land and shelter provided by the government, have become the only heritage Aetas believe they can pass on to future generations. A stable and strong home, like the concrete homes they have seen built by the government for their lowland counterparts, they believe can at least ensure stability in their lives and a modicum of well being. Since they are now in the midst of densely populated communities, with rising crime rates and social conflict, a strong dwelling is seen to ensure security both literally and symbolically. The popular belief is that a concrete house is safer against burglaries, vandalism, cyclones and fire, than bamboo and grass structures. As each cyclone season passes, cyclone and seasonal rain are also seen to cause minimal or no damage to concrete housing, in contrast to the current structures they are living in which need constant repair and maintenance. Such repairs and maintenance have caused them to regularly cut available trees, frustrating reforestation programs and further degrading eroded lands. Since these materials are not always readily available, the demand for maintenance has further pushed Aetas to a degrading dependence on the government and relief agencies. The lack of cash income has deprived them from buying these materials in the market. Operating small 'sari-sari' stores (local name for variety store), food industries and handicrafts are also seen to be more viable and possible in a strong, stable and secure house.

Aeta resettlement settings are also faced with myriad problems of inappropriate design. A telling and very consequential example of totally inadequate design thinking relates to the provision of toilets. Private toilets and bathing places built in concrete are supposed to ameliorate the sanitation and hygiene problems which plague resettlement sites. Unfortunately, the concrete communal toilets beside main streets, designed and built by the government, were grossly inappropriate. The traditional toiletting practices of Aetas, performed in bushes or open fields, are done in private. There was and is no such thing as 'toiletting' together. Even if extraordinary circumstances required this among family members, toiletting with strangers is unthinkable! The lack

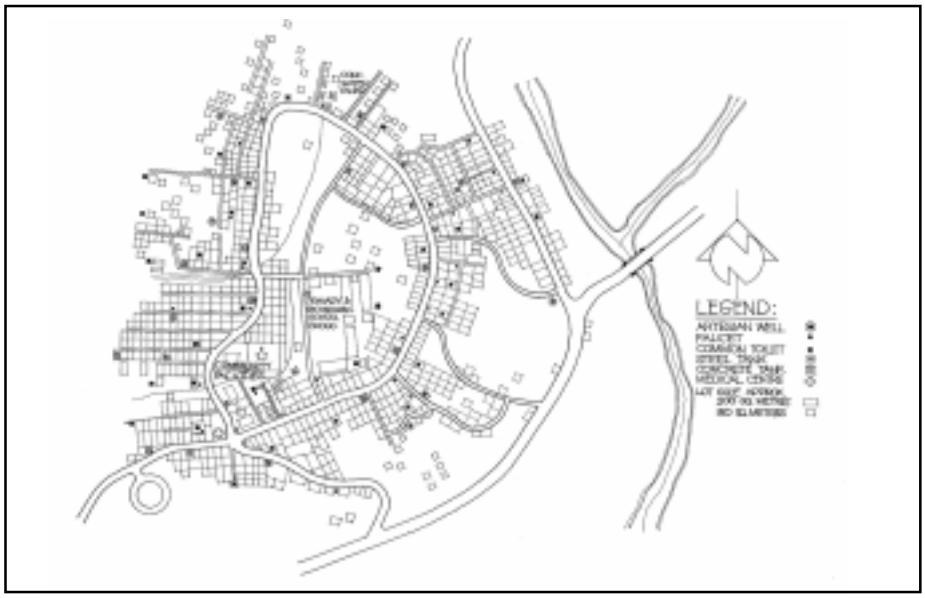

Figure 7: A typical site layout of an Upland Resettlement Site built by the government to relocate and accommodate displaced Aeta families.

of water and the faulty designs of public toilets (some without doors and roofs), makes the maintenance of the toilets very difficult, if not impossible. Even if great efforts were made to clean the cubicles, the dirt/sand floors and the lack of water ultimately clogged waste in the pipes. The absence of roofs and the hot topical environment dried water seals in toilet bowls, releasing the foul smell of the septic tank. Due to poor maintenance, public toilets in resettlement sites have remained unused and abandoned.

At present, efforts through the Department of Health were made by some local governments to provide private toilets to Aetas. Many of these, however, became useless because of faulty construction. In one settlement site only 10 out of 96 toilet bowls installed in 1995 were found to still be functioning in 1996. Faulty construction was blamed, not only on poor construction quality, but also to lack of cement material provided by the agencies responsible. Meanwhile, the majority of the Aetas still uncomfortably seek their private places at night near bushlands for toiletting—places which unfortunately lie near riverbeds and drainage lines. The resulting and severe pollution to water and air has caused serious health and sanitary problems to all residents of the site. Aetas also experience guilt and shame for not only trespassing private land and territory (which is not practised in their culture) but also defiling such land (which is considered a great offence, not only in their own culture but also by the lowlands).

Implications for recovery

The difference in housing materials for upland and lowland settlements has created a clear disparity of living conditions among the two groups of settlers. Lowland settlers appear to be economically better off than upland settlers who have spiralled down into poverty. Instead of assimilating the Aetas to mainstream society, which is one of the government's objectives, their current housing situation has left them effectively marginalised. Since disaster recovery has always been associated with economic development, priority has always been given to emergency support. Housing has not been seen as of equal importance. However, the failure of emergency and relief programs in improving the Aetas' quality of life and economic condition, suggests that such priorities and policies are not realistic. The critical need for more permanent housing for Aetas as an integral aspect of their resettlement, and the symbolic messages of less permanent shelter, have been largely ignored.

In the Aeta resettlement experience there is much to suggest that their housing conditions have affected their ability to cope with the disaster. Instead of supporting and facilitating recovery and integration, their rehousing has, ironically, frustrated this recovery and adjustment in multiple and cumulatively debilitating ways. These impacts typically relate to a cumulative erosion of individual and community control over everything from food, to income, to repairs, to crime, to self advancement, to legacy and security for one's children. There has also been a more subtle erosion of control due to the absence of a more responsive, congruent and supportive built environment in terms of design and planning. What has made these interacting design problems and disaster recovery problems more acute is the fact that the very nature and meaning of the houses provided suggested impermanence, marginal status and no control.

There is a serious need for agencies to evaluate their resettlement programs and realign housing strategies with community needs and cultural and psychological realities. It is very clear in the Aeta case that the use of traditional materials is no longer culturally viable. The physical and psychological stability that concrete construction appears to provide in the Aeta housing context must be further explored. The abundance of volcanic ash for concrete block construction offers an economical and practical solution to the provisional low-cost masonry housing for Aetas. It also minimises the cutting of trees and the clearing of bush lands and ensures a more hygienic and sanitary environment.

Concrete block housing, though objectively rigid and cold, gives the impression of permanence, stability and strength. To the Aetas it offers an alternative shelter that can compensate for the protective environment lost due to the Mount Pinatubo disaster. Natural catastrophes are not the only hazards Aetas perceive in their resettlement situation, but also 'cultural hazards'. The eruption of Mount Pinatubo signifies the birth of a new Aeta existence. The new environment brought about by their resettlement process offers a new Aeta reality—requiring and demanding a new cultural existence and the re-establishment of a 'sense of place' in order for them to survive. Until Aetas find this, until the Aetas are able to re-establish a place they can call their own, the Aeta culture may not survive (Shimizu 1992). Once the Aetas' dignity and pride for their ancestry and identity as Aeta is gone, this will be the end of Aeta culture. And that will be the *ultimate* Aeta disaster. Hence, it is not against natural hazards that they want protection, but against the hazards of a 'cultural imposition' brought about by the process of their resettlement and rehabilitation. Such hazards have threatened and have started to erode the very core of their cultural existence, their pride and dignity as Aetas. Unless they find a 'shelter' that makes them feel safe and less vulnerable to the demands of the 'alien' culture, coping will be much more difficult and recovery may never happen.

Conclusion

The Aetas' demand for stronger and more permanent housing, such as concrete structures, clearly suggests that the

bamboo and grass structures provided by the government, are not the structures that Aetas are seeking to replace lost 'homes'. To the Aeta, 'home' equates with their ancestral land, the mountain, the forests and the rivers. The enclosed structures we see as bamboo huts and sheds (which Aetas use only for sleeping) are just part of the invisible home structure of the Aeta. The large tracks of land, the family groupings of 3-4 families, the abundant supply of housing materials and food provided by the environment are symbolic protective walls that protected the Aetas' privacy and self-sufficient lifestyle. Unfortunately, these do not exist anymore in their current resettlement situation. The bamboo and grass housing provided in resettlement sites, while superficially similar to their traditional housing, has left the Aetas feeling vulnerable, unprotected and unsafe.

There appears to be a strong need on the part of relocated Aeta people for housing and residential community 'solutions' which, symbolically and actually, provide for security (including economic security and security of tenure), experienced control, privacy, and sense of place and home. This place attachment provides not only for psychological and social equilibrium, it provides a 'place' from which the Aeta can come to terms with not only the natural disaster which precipitated their relocation, but their now irreversible loss of their traditional homelands and way of life. The houses in which they now reside have come to express, and symbolically represent, where they are at with respect to all of the events that have taken place, i.e. what they have left and what they have secured for the future. This psychological reality is rather different from the more traditionally-inspired design thinking that characterises indigenous housing literature. Perhaps we, as designers, must be more open to the multiple needs that the built environment serves, and to the reality that the Aeta culture is not encapsulated by the bamboo and grass hut that characterised their Mt Pinatubo existence, but, like all cultures, by an ongoing complementarity of human setting to human need.

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Disaster Events Calendar

March 11-17 2000
Melbourne, Australia

World Water Congress 2000

Sponsors: International Water Resources Association (IWRA) and others.

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IWRA
4535 Faner Hall, MC 4516
Southern Illinois University
Carbondale, IL 62901-4516
or Secretariat, World Water Conference
c/- ICMS Pty Ltd
84 Queensbridge Street
Southbank, Victoria 3006, Australia
ph: 61 3 9682 0244
fax: 61 3 9682 0288
email: worldwater@icms.com.au
www.icms.com.au/worldwater

March 16-19 2000
Melbourne, Victoria, Australia

Third World Conference for the International Society for Traumatic Stress Studies: The long-Term Outcomes of Trauma in Individuals and Society

Contact:
Dr Di Clifton
Scientific Program Coordinator
121 Fortescue Ave, Seaford VIC 3198, Australia
email: dclifton@silas.cc.monash.edu.au
ph (work): 61 3 9550 1479
fax: 61 3 95501499
ph/fax (home): 61 3 9786 1918

Conference Organiser:
PO Box 214
Brunswick East, 3057, VIC Australia
Email: conorg@ozemail.com.au
ph: 61 3 9380 1429
fax: 61 3 9380 2722

The themes of this conference will include, amongst others, understanding the context of trauma, how people heal with and without therapy, factors that increase or lessen the risk of adverse outcome, and the relationship of basic Research to clinical practice. The conference also aims to look at the longer-term outcomes of traumatic stress in individuals across generations and in society, as many of the longitudinal studies undertaken in the flourishing period of research of the last two decades are coming into maturity.

March 27-7 April 2000
Bangkok, Thailand

Fourth Regional Course on 'Community Based Approaches to Disaster Management' (CBDM-4)

Contact:
Zubair Murshed
Senior Program Associate
Learning and Professional Development
ADPC, Asian Institute of Technology
P.O. Box 4
Klong Luang, Pathumthani 12120, Thailand
ph: 66-2 524-5378/5354
fax: 66-2 524-5360
email: adpc@ait.ac.th
www.adpc.ait.ac.th/Default.html
Fee: US$2000

April 3-5 2000
Honolulu, Hawaii

Building a Disaster Resistant Asia

Sponsors: U.S. Trade and Development Agency, Federal Emergency Management Agency, and Department of Commerce.

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'The objective of the conference is to match U.S. technology and know-how with emergency management providers in Asia.' Ten countries will be targeted for the conference: South Korea, Indonesia, Thailand, Philippines, Vietnam, Bangladesh, India, Nepal, Sri Lanka, and Taiwan.

4-6 April 2000
St. Louis, Missouri

Fifteenth International Hazardous Material Spills Conference.

Sponsors: National Response Team, National Governor's Association, U.S. Environmental Protection Agency, and others.

For details:
email: hazmat2000@nrt.org
www.nrt.org/hazmat2000

April 24-28 2000
Rotorua Bay, New Zealand

International Coastal Symposium 2000

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Contact:
T. Healy
Coastal Marine Group
Department of Earth Sciences
University of Waikato
Private Bag 3105, Hamilton, NZ
fax: 64-7-838-4061
email: ics2000@waikato.ac.nz
www.erth.waikato.ac.nz/ics2000/ics2000.htm

25-27 April 2000
Rio de Janeiro, Brazil

First International conference on the sustainable city: urban regeneration and sustainability

Contact:
Susan Hanley
The Sustainable City
Wessex Institute of Technology
Ashurst Lodge
Ashurst, Southampton, SO40 7AA, UK
ph: 44 0 238 029 3223
fax: 44 0 238 029 2853
email: shanley@wessex.ac.uk

The conference aims to bring together professional and practitioners in a wide range of disciplines to exchange ideas and identify best policies in practice for a viable urban environment for the new millennium. Organised by UniverCidade, Rio de Janeiro, Brazil and Wessex Institute of Technology, UK

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