

Disaster resilience through local economic activity in Phuket

Handmer and Choong examine the importance of Phuket's informal economy to local livelihoods after the Tsunami

Abstract

Local economic activity is key to disaster resilience in much of the world. Without the flows of money generated by such activity, the ability to continue living, let alone recover, is limited. The long-term reality for the survivors of local communities is the struggle to rebuild their lives and livelihoods. In Phuket and the surrounding region most money is generated by tourism. However, the bulk of this money leaks out of the local and Thai economies benefiting people overseas rather than in Phuket. We suggest that this is a characteristic of the formal or documented economy, while the informal or undocumented economy keeps money in local hands. The recovery of the informal economy in Phuket has been largely ignored by tsunami recovery plans. Despite an acknowledgement that the informal economy supports about 30 per cent of workers in the tsunami affected area, most of the post-impact initiatives to lure the tourist dollar back have focused on the formal sector.

This paper examines the dynamics of the local economy both formal and informal, and suggests that maximum benefit would be gained by putting more effort into the informal. The implications for Australia are that disaster recovery should concentrate on restoring local economic activity—and in many areas, especially rural areas, should consider the importance of the informal sector for local livelihoods.

The tsunami, tourism and local economic activity

At the 2006 Annual Hazards Workshop in Boulder, Colorado, a researcher hailed the re-opening of a Starbucks coffee shop in Phuket as a positive sign of recovery following the 2004 Boxing Day tsunami. Others queried this interpretation. The re-opening shows investor confidence in the future, but as with many franchises a significant part of the profit goes from a poor country to shareholders in a rich one—and in the process contributes to the leakage of the tourist

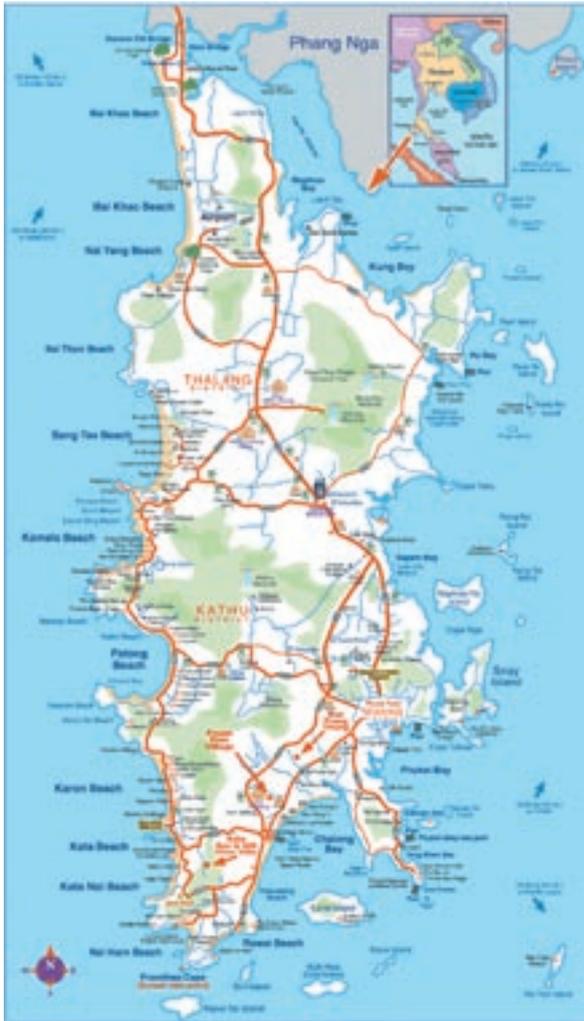
dollar from the Thai economy. It also highlights that the recovery priority lies, by default if not intent, with large scale organized capital rather than with local livelihoods—the opposite to the stated objectives of the main recovery plan. The re-construction and expansion of large tourist resorts raise similar issues, as well as problems concerning land tenure.

The Indian Ocean tsunami of 26 December 2004 devastated many tourism areas including some in southern Thailand. Resorts and natural attractions were destroyed, many local people and international tourists were killed and the region suffered something approaching the worst possible publicity as countless people searched for their missing friends and relatives against a backdrop of devastation. Although much of Phuket escaped serious damage, the scenic west coast of the island and some adjacent island resorts, were badly damaged by the tsunami.

Many people lost their lives, but our concern here is with the survivors and specifically how their livelihoods were, and continue to be, affected by the tsunami. Some governments issued travel warnings, urging their citizens to leave the area immediately after the tsunami and return home, thereby depriving the area and country of desperately needed foreign exchange and employment. But the coastal resorts of southern Thailand have been working to restore their facilities and welcome tourists back as soon as possible.

The paper is based on two fundamental assumptions which are examined in detail elsewhere:

- Firstly, that devastated communities and households need income for survival and recovery, and local governments and commerce are dependent on local economic activity (see also Handmer and Hillman, 2004). Where there is little or no public welfare this need becomes more acute. In this context, the economy is not simply that reported in official statistics. It includes the unofficial or informal activities which are often more important for local livelihoods.
- Secondly, that tourism is a key industry for the Thai economy. It dominates the economy and is the primary source of livelihood in Phuket and the surrounding region. The six main affected provinces



The impact of the tsunami on the tourism industry

The impacts of a major disaster on a tourist area will generally be the obvious physical damage to the built and natural environments, and the immediate drop in tourist numbers. Less obvious but often more important is the sense of insecurity which may act as a deterrent to tourists long after the physical damage is repaired. The critical issue for any tourist area is rapid restoration of the money flow generated by visitors.

The scene immediately after the tsunami was one of devastation with some beachfront areas all but wiped out. Nevertheless, overall, Phuket was not seriously damaged. Major infrastructure was left largely intact as the tsunami did not reach far enough inland with enough force to destroy roads, bridges, the airport etc (Dalrymple and Kriebel 2005), and within three weeks of the tsunami 90 percent of the pre-impact hotel rooms were available (Birkland et al 2005). So lack of accommodation has not been the issue. The death toll in Phuket itself was about 250, quite small given that in Southern Thailand over 5000 lost their lives with an additional 8000 injured as of 21 February 2005 (WHO (2005) (originally from Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior). These figures include both Thai nationals and foreign tourists.

The real impact was not physical: the impact has been to the flows of people and money that make up the local economy. Immediately after the tsunami foreign visits all but ceased, while visits by Thai tourists fell but recovered quickly. In 2004 there were over 800,000 foreign visitors to Phuket, while in 2005, the year after the tsunami there were about 90,000. By early 2006 it was clear that visitor numbers were steadily increasing for both Thais (up by 60%) and foreigners (up by 78%) over the period from March 2005 to March 2006 (TAT 2006). However, the total visitor numbers are still just over half the pre tsunami figures. Spending by visitors is down, and importantly the area's total revenue is down by 67% indicating limited cash would be circulating in the informal economy.

The majority of tourists to the region are long haul international travellers—a sensitive and highly competitive market. Media reports and foreign perceptions about a region have the potential to cause further devastation to a disaster-affected destination because of the discretionary nature of travel: “the quest for paradise (can) suddenly transform into a dangerous journey that most travellers would rather avoid” (Cassedy, 1991: 4). An area can become stigmatised by a major disaster. Tourists have to see that the cleanup is complete and that the areas are safe. In reassuring tourists, the Thai authorities have had to counter travel advisories that exaggerate health and safety risks beyond what the World Health Organization believes

of Phang Nga, Krabi, Phuket, Ranong, Trang and Satun earned around 25% of Thailand's recorded tourism revenue for the period (Tourism Authority of Thailand (TAT)). For many of those in the Thai tourism sector, tourism is not about pleasure, cultural exchange or learning; it is about survival. Some analysts argue that ideally, post-disaster recovery in tourist dependent areas should be about making the local economy (and community) more sustainable through diversification (Monday, 2002; Gurtner, 2004). We believe that this is problematic for those whose priority is survival.

This paper is not concerned with the tsunami as such. Rather the question examined is the role of the local economy in resilience after a major disaster. Particular attention is given to the recovery of those engaged in the informal or undocumented sector of the economy, especially those who have been involved in the tourism industry and other industries that are often connected with tourism including fishing, agriculture and construction.

to be present (WTO, 2005; Morison, 2005). Further contributing to the slump has been the escalating insurgency in the south of Thailand.

This highlights the importance of perceptions which may last for years—something that the post tsunami marketing by the TAT, the Association of Thai Travel Agents, and the Thai Hotels Association has worked hard on with limited success (Tourism Concern 2005; Birkmann et al 2005). Even if the specially targeted, cheap package deals had been successful at luring the tourists back, the discounted nature of this travel would mean that the revenue generated would remain low—as borne out by the steady increase in visitor numbers but weak recovery of revenue (UNRC 2005).

The local economy, tourism and revenue leakage in southern Thailand

Tourism revenue is typically expressed in terms of the average amount spent per person per visit—with analysis of different types of visitors and so, for example, the tourism sector may decide to target high spending wealthy golf players, or concentrate on backpackers and the relatively low up-front investment this sector requires. However, the total spend is only part of the story. Where the money goes is also important. If most of the tourist dollar leaks straight out of the local economy to pay for imports purchased by tourists (such

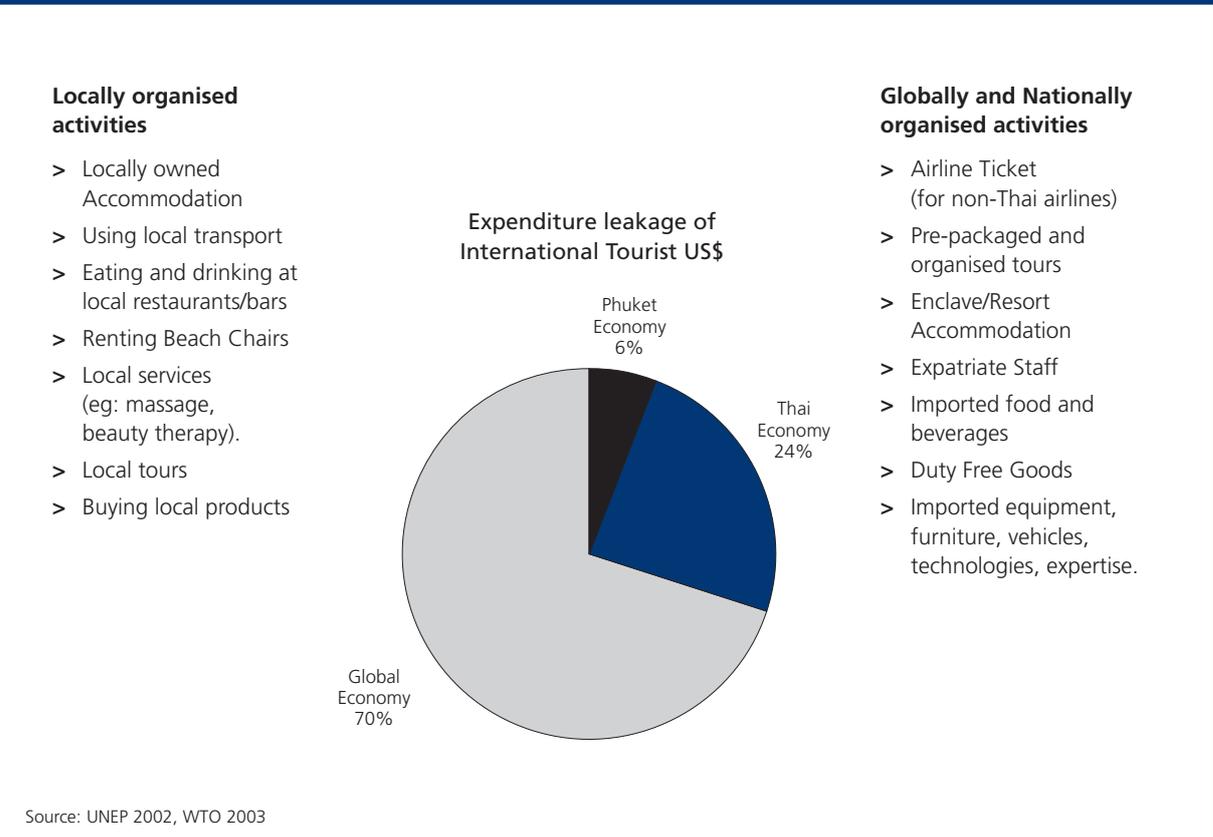
as foreign owned tour operators, hotels etc) and the remittance of profits to outsiders (UNEP, 2002), then local benefits will be limited (see also Handmer and Hillman 2004; IFRCRC 2001).

The average amount spent per international tourist visiting Thailand in 2003 was US\$726, which is high compared with other Asia-Pacific destinations such as Malaysia where the average amount spent by foreign tourists is US\$510 (WTO, 2003). In Thailand, leakage of this money from the national economy may be as high as 70%, which indicates that the average amount injected into the national economy per international tourist could be as low as US\$218 (UNEP 2002), with even less remaining in the Phuket local economy (see Figure 1). This raises questions for the recovery of the post-tsunami tourism industry and how it can be planned to best contribute to the livelihoods of those in the affected areas. These livelihoods are not simply what is captured in official statistics; many people derive their income through the informal or undocumented economy.

The Informal Sector in Thailand and Phuket

Global economic activity can be thought of as falling into four general categories: formal; informal; household; and criminal. Only the formal is properly

Figure 1. The fate of dollars spent by overseas visitors to Phuket



* Net gain does not include multiplier.

documented, and is the sole basis of most economic analysis. However, for much of the world including some sectors within rich countries, understanding the informal economy (which may overlap with the household sector) is the key to understanding the livelihoods of some three quarters of the world's population (Shanin, 2002). There is little consensus around the definition and measurement of the informal sector (Allal 1999, NESDB & NSO 2004), so for simplicity we have defined the sector in terms of commercial activity that takes place outside the framework of corporate, public and registered private sector establishments. Such enterprises usually do not comply with regulations governing labour practices, taxes and licensing requirements. As a result informal economic activity is often seen as representing lost revenue by tax collectors, who work hard to formalise it. In addition to the tax issue, informal activity may be seen to be competing "unfairly" with formal activity, selling fakes, and posing a health risk (Cross, 1995). The World Bank sees the informal sector as something to be eliminated (World Bank, 2005), arguing that it is primarily a tax dodge and connected with over-regulation.

Informal sector traders often argue that they do not earn enough to enable them to participate in the formal sector (eg see Edgcomb and Thetford 2004). However, there are instances where informal sector traders such as Thai taxi services, can manipulate market prices by monopolising services (*Phuket Gazette*, 2005a).

A common misperception about the informal economy is that it represents the criminal economy (ILO, 1993). Some activities may be technically illegal but generally tolerated such as the sex industry. We include this sector in our analysis. Households are treated following the ILO definition whereby paid informal sector domestic workers are included in "households" rather than the rest of the economy (ILO 1993).

According to the ILO (1993) the informal sector has the following features or characteristics:

- small size of operations (in southern Thailand 5 or fewer)
- reliance on family labour and local resources
- low capital endowments
- labour-intensive technology
- limited barriers to entry (although may be controlled by local "mafias")
- high degree of competition
- unskilled work force and acquisition of skills outside the formal education system

This list is generally applicable to the informal sector in coastal Southern Thailand. Although skills in the workforce may include the passing on of cultural

traditions and knowledge and language skills, workers in the formal sector have a higher level of educational attainment than those in the informal sector (Allal, 1999). Although informal sector workers pay no tax, their formal sector counterparts are generally paid more, enjoy a higher degree of job security than those employed in the informal sector (Allal, 1999), and may have supplementary benefits such as overtime payments and bonuses. Where these exist at all for informal workers, supplementary benefits tend to be in the form of food supplies or housing. Migrant workers are the worst off in both sectors (Mobile Assistance Centre for Affected Worker, 2005). But this may not be a universal picture, and the size of the informal sector in parts of the US may indicate also that there are few advantages to being formalised—in addition to the very large illegal or undocumented workforce in that country.

Many occupations occur both within the formal and informal sectors. For instance, a subsistence fisherman from a coastal village—who may occasionally take tourists out fishing for cash—would be classified as informal. However, if he was employed by a resort to do the same thing, he would be classified as part of the formal sector and would appear in Thailand's GDP.

Size and importance of the informal sector

In Thailand, the informal sector is very important in terms of employment with just under three quarters of the Thai workforce depending on the informal sector (NESDB and NSO, 2004). Its contribution to GDP stands at about 44% (52% according to Schneider 2002). By way of comparison, in Los Angeles County it is estimated that some 29 percent of the population work informally (Losby et al, 2003). In Australia the informal sector is estimated to be worth about 15 percent of the total economy (calculated by the currency demand method which excludes barter) (Schneider 2002).

In the six Southern tsunami affected provinces of Phang Nga, Krabi, Phuket, Ranong, Trang and Satun that are largely dependent on the tourism industry, the informal sector accounts for about 56% of employment, with the province of Phuket at 31% (NSO, 2005). A likely reason for the lower figure for Phuket may be the success of Phuket as an international coastal tourist destination that has attracted major investment from overseas and from Bangkok—driving small informal sector operators out of the market and formalising the workforce.

A related issue concerns the importance of traditional informal land tenure in southern Thailand. Many fishing villages, for example, are located on prime beachfront land, and even though they may have occupied the land for generations, they often do not have formal legal title. The tsunami provided an opportunity for some development interests to seize such land, displace

the traditional occupants (CNRACNR & CNACCS 2005)—thus transforming public beaches into private goods that fence out the local community. It is argued that this violates the international law concerning the right of return. It may also undermine local livelihoods especially in the informal fishing sector—and will lead to increased value of assets at risk from coastal hazards. We do not examine this issue further here.

Recovery and adaptation strategies

Financial and economic recovery depend on making up the disrupted flows of goods, services and ultimately money that provide the affected people and enterprises with livelihoods. Insurance and aid are important mechanisms which act to spread the risk and costs of disaster. For major events, government sponsored plans and strategies will typically also play important roles.

Insurance has favoured large scale commercial enterprises, although insurance payouts have been limited given the extent of devastation (McNaughton, 2005). Many small businesses affected by the tsunami were either not insured, or did not have appropriate coverage (The Economist Intelligence Unit, 2005). The informal sector rarely has access to formal financial recovery mechanisms such as insurance and national compensation packages. At the time of fieldwork, it appeared that few, if any, informal or small formal businesses had received post-tsunami assistance.

The major strategic recovery plan for the tourism sector in Southern Thailand is the Phuket Action Plan. This plan was developed by the World Tourism Organisation with input from regional tourism bodies including the Pacific Asia Travel Association (PATA) and the Tourism Authority of Thailand (TAT). The Phuket Action Plan has received widespread support and endorsement at an international and regional level.

The formal sector

Formal sector recovery is guided by the Phuket Action Plan. The Plan focuses on restoring the tourist flows which generate income for the sector and those whom it employs, rather than simply rebuilding assets (see also Handmer and Hillman, 2004). It concentrates on saving local tourism jobs, relaunching small tourism-related businesses, and recovering the visitor flows that underpin the local economy. It specifically mentions as an aim more tourist revenue remaining in the local community—although it is not clear how this will be achieved. Associated marketing aims to restore confidence in the coastal region as a tourist destination (also see Faulkner, 2001). The holding of the Miss Universe contest in Phuket in May 2005—with US\$6.5 million in support from the Thai government—was a high profile opportunity to show how the area is rebounding.

A majority of the businesses affected by the tsunami are family micro and small enterprises. Many are struggling with the loss of family members as well as the collapse in tourism. However, micro enterprises and the informal sector are not specifically mentioned in the Plan, even though these groups appear to have little access to recovery funds. Instead, the Plan is centred on assistance to small and medium sized enterprises (SMEs). Some local residents, who are now unemployed, have been unable to satisfy the bureaucratic requirements involving the provision of documentation to be able to be classified as 'tsunami affected' and so have effectively been denied access to much assistance. In contrast, US officials were able to provide assistance to the families of the 500 undocumented workers killed on 9 September 2001 (Wisner 2003), as were the Dutch in the 1992 El Al cargo plane crash into an apartment block in Bijlmer. Many residents believe they have missed out because of where they lived in relation to the tsunami's path with the focus being on immediate impact rather than long-term capacity to recover. There is concern that if the tsunami highlighted the acute vulnerability that accompanies financial dependence on the tourism industry, then the tsunami reconstruction plans may exacerbate this even further.

Part of the Phuket Action Plan aims to make coastal tourism destinations more secure from natural disaster by limiting beachfront construction. However, this emphasis prevents many locals from re-establishing their homes where they were before, while hotels are being constructed on beachfronts.

Informal sector

Although the Phuket Action Plan emphasises, on paper, local level engagement via the tourism sector, it appears that there has been little official involvement of local communities. There is also the question of addressing the issue of 'leakage' of tourism revenue out of Phuket. While the plan aims to revitalise the tourist industry, the lack of recognition of out-movement of desperately needed tourist dollars may significantly slow the local recovery process. Some aid groups have been concerned that lower income groups in both formal and informal sectors, of local or immigrant backgrounds, are unable to receive compensation and assistance—'they should have their voices heard in any related rehabilitation programme' (Friedrich Ebert Foundation 2005). There is an assumption by those in the informal sector that the recovery of the tourism industry will directly influence their livelihood security. In the meantime, recovery strategies are diverse as people seek new economic activities, move to new areas in search of employment and expand their income sources to survive.

Many people move between formal and informal employment. Some asset reconstruction in Phuket is contributing to the livelihoods of those economically displaced in the informal sector. For instance, the



The Miss Universe contest in Phuket in May 2005.

building and construction industry has provided a source of employment to many previously employed in the tourism industry. So while building materials are predominately imported into the region from mainland Thailand, the labour used in reconstruction has been provided from local informal workers who previously worked in the tourism business. Although they are paid less than they earned in their previous occupations, it is still a significant proportion of household income. The construction of large up-market resorts—which in themselves will have long term ramifications for the informal sector—is providing work that local people hope will last until the tourism industry recovers and they can return to their usual occupations.

When asked about their recovery in August 2005, interview participants felt that no attention was being given to long term issues. Those involved in the informal sector were aware that they would not be part of the government scheme, but they were becoming increasingly concerned that tourists had not returned to the area. No participants will rely upon the government to assist in their direct recovery, but many feel that it is the government's responsibility to boost tourism again. Yet they know that survival and the immediate livelihood security for their families is their responsibility.

In light of the lack of recovery assistance, the linkages and networks of strong kinship ties become a source of support both financially and emotionally. Many people in the informal economy with family residing in other provinces in Thailand have opportunities to seek employment outside Phuket either on family farms and business, or are able to rely on relatives sending money. However, those with a family base within Phuket are less likely to receive much support as more family members

were affected. Participants spoke of sharing food, work and other resources during the first few months after the Tsunami. Yet despite the resilience of the informal sector community, they remain worried about the future.

It is clear that the informal sector is largely ignored in practice by government agencies, in spite of being acknowledged in documents and the occasional high profile political visit. This leaves a third of the Phuket workforce to cope through their personal networks and in some cases informal assistance from networks overseas. This is particularly pertinent in light of the land tenure issues mentioned earlier.

Conclusion – recovery and adaptation as resilience

Following a major impact a key element of managing vulnerability is the adaptation and recovery of local economic activities underpinning local livelihoods. Recovery is not restoration—full restoration is not possible after such wholesale destruction, hence the emphasis on resilience; on flexibility and adapting to new circumstances and new livelihood opportunities. We have concentrated on the often ignored informal economy which supports a substantial proportion of the people in Phuket. For Thailand as a whole the informal economy helps support nearly three quarters of the population, and should not be overlooked if we are really interested in reducing vulnerability. The affected people have shown flexibility and resilience through shifting sectors to take advantage of short-term employment opportunities in the building and reconstruction boom, by sharing resources and work, and by harnessing their kinship networks within the immediate disaster area, within Thailand and abroad.

The Phuket Action Plan provides a good framework on paper for the recovery process, with its emphasis on the money flows that employ people and sustain local enterprises, rather than on asset construction—which may give the appearance of a building boom and local economic resilience even though benefits for local people may be limited to short term construction employment. What is needed most is a revitalisation of the local economy and increased retention of the tourist dollar locally. Instead it appears that the opposite may be happening. This highlights the gap between government and bureaucratic rhetoric and the reality of needing secure livelihoods to underpin the rebuilding of people's lives.

What is emerging is the question of how and whether recovery plans will benefit the livelihoods of local communities. If recovery of the tourism sector is structured in a way that puts the interest of large scale business ventures—including the acquisition of land held by informal tenure—ahead of those of the local communities, then the benefits may be limited for local people. We already know that many 'packaged' holidays and more exclusive luxury resorts, where tourists scarcely venture outside the resort, do little to provide revenue flows back into the local communities—in the absence of redistribution policies (UNEP, 2005; see above). If local livelihood restoration is ignored, it is difficult to see what future the people have.

One issue for other countries to ponder is the focus on the maintenance of business activity in Phuket, with cleanup and rebuilding commencing immediately after the disaster. Another is the question of how much emphasis should be placed on the needs of local people and their livelihoods—the local economy—versus larger economic forces. The informal economy is relatively small in Australia, but still important in some areas, for

example aspects of the fruit and vegetable backpacker workforce, which is seasonally essential in many areas.

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References

- Albala-Bertrand, JM 1993. *The political economy of natural disasters with special reference to developing countries*. Oxford: Clarendon Press.
- Allal, M. (1999), 'Micro and small enterprises (MSEs) in Thailand – Definitions and contributions', *Micro and Small Enterprise Development and Poverty Alleviation in Thailand*, Working Paper 6, Finnegan, G. (Series Editor), International Labour Organization, Bangkok (Available online: <http://www.ilo.org/htm>)
- Bah, A., & Goodwin, H., (2003), 'Improving access for the informal sector to tourism in The Gambia', *pro Poor Tourism (PPT) Working Paper No. 15*, Economic and Social Research Unit (ESCOR), UK Department for International Development (DFID).
- Birkman, T. A., Herabat, P., Little, R.G. and Wallace, W.A. (2006) *Impact of the Boxing Day Tsunami on Tourism in Thailand*. Prepared for Presentation at the 2005 Meeting of the American Sociological Association, August 2005.



Informal sector workers shift to construction to secure a short-term income. Photo by Wei Choong.

- Cassedy, K., (1991), *Crisis Management Planning in the Travel and Tourism Industry: A Study of Three Destination Cases and a Crisis Management Planning Manual*, Pacific Asia Travel Association, San Francisco.
- Chong, T. (2005) 'Ghosts stalk Thai tsunami survivors', BBC news, Phuket. 25 January 2005.
<http://news.bbc.co.uk/1/hi/world/asia-pacific/4202457.stm>
- Collaborative Network for the Rehabilitation of Andaman Communities and Natural Resources & The Coalition Network for Andaman Coastal Community Support (2005), *Policy Recommendation on the Rehabilitation of Andaman Small-scale Fisherfolk Communities: Tsunami Aftermath* (Available online: <http://www.icsf.net/jsp/english/flashnews/rehabDocs/tha0401.doc>)
- Cross, J. 1995. *Formalising the informal economy: the case of street vendors in Mexico City*. www.openair.org/cross/vendnow2.html.
- Dalrymple, R.A., and D.L. Kriebel. (2005) *Lessons in engineering from the Tsunami in Thailand*. The Bridge 35: 4-16.
- Economist Intelligence Unit (2005), *Asia's Tsunami: The Impact*, Patersons Dartford, Kent, UK.
- Edgcomb, E and Thetford T (2004) *The informal economy: making it in rural America* Washington DC: The Aspen Institute.
- Friedrich Ebert Foundation (2005), *Tsunami Impact on Thai Workers*, (Available online: <http://www.fes-thailand.org/tsunami.htm>)
- Faulkner, B. (2001), Towards a framework for tourism disaster management, *Tourism Management*, Vol. 22, pp. 135-147.
- Gurtner, Y. (2004) *After the Bali bombing the long road to recovery*. The Australian Journal of Emergency Management, Vol. 19 No. 4, November 2004.
- Handmer J. and Hillman M., 2004 Economic and financial recovery from disaster. *Australian Journal of Emergency Management*.
- International Federation of Red Cross and Red Crescent Societies (IFRCRC), 2001. *World Disaster Report* Geneva: IFRCRC.
- ILO (1993) *Guidelines Concerning a Statistical definition of Informal Employment*, The Seventeenth International Conference of Labour Statisticians, Available online: <http://www.ilo.org/public/english/bureau/stat/download/guidelines/defempl.pdf>
- Losby JL, Kingslow ME, and Else JF (2003) *The informal economy: experiences of African Americans*. Washington DC: The Aspen Institute.
- Miller, M.L. and Auyong, J., (1991) Coastal zone tourism. A potent force affecting environment and society. *Marine Policy*, Vol. 15, No. 2, pp. 75-99
- Monday, J. (2002) Building back better: creating a sustainable community after disaster. *Natural Hazards Informer* 3. University of Colorado: Boulder.
- Mobile Assistance Centre for Affected Workers (2005), *Tsunami Impact on Workers in Thailand*, Friedrich Ebert Stiftung Foundation, Bangkok.
- McGeown, A., (2005) 'Rebuilding Thailand's Island Dream', *BBC News*, 18 March, (Available online: <http://news.bbc.co.uk/1/hi/world/asia-pacific/4361541.stm>
- McNaughton, T., (2005) *The Economic Impact of the Asian Tsunami*, BT Financial Group, January (Available online: http://www.btfincgroup.com/downloads/commentaries/bto_tsunami_impact.pdf)
- NESDB (2005) *Macroeconomic Outlook: National Income and Accounts for Thailand*, (Online: http://www.nesdb.go.th/econSocial/macro/macro_eng.php)
- NESDB & NSO (2004) *The Measurement of the Non-Observed Economy in Thailand National Accounts*, Paper prepared for the United Nations Economic and Social Commission for Asia and the Pacific, Workshop on Assessing and Improving Statistical Quality: Measuring the Non-Observed Economy, 11-14 May 2004, Bangkok.
- PATA/VISA (2005) *VISA/PATA Post Tsunami Update, Tsunami Destinations-Overall, August 2005*.
- Phuket Gazette (2005) Governor lays out strategy for war on 'taxi mafia', 10 June 2005. online: <http://www.phuketgazette.net/news/index.asp?fromsearch=yes&id=4346>
- Schneider, F., (2002), *Size and Measurement of the Informal Economy in 110 Countries Around the World*, World Bank, July (available online: http://rru.worldbank.org/Documents/PapersLinks/informal_economy.pdf)
- Shanin Teodor (2002) How the other half dies? *New Scientist*. 3 August.
- TAT (2006) Air movements increase 70%, TTR Weekly August 1, 2006 accessed: <http://www.tatgovernor.com/govcorner.aspx?id=585> (October 2006)
- The Nation (2005) Post-Tsunami Tourism: Phuket struggles to reverse slump, 27/06/05. Online <http://www.nationmultimedia.com/search/page.arcview.php?clid=6&rid=117591&date=2005-06-27&usrress=\>
- Tourism Concern (2005) Post-tsunami reconstruction and tourism: a second disaster? A report by Tourism Concern UK, October 2005, By Rice, A. and Haynes, K.
- UNEP (2002) 'Economic Impacts of Tourism', United Nations Environment Programme, (Available online: <http://www.uneptie.org/pc/tourism/sust-tourism/economic.htm>)
- UNRC (2005) Disaster Field Situation Report 16, 7 July 2005
- WHO (2005) Emergency Preparedness and Response – South East Asia Earthquake and Tsunami - Thailand Tsunami Situation Report.
 Online: http://w3.whosea.org/EN/Section23/Section1108/Section1835/Section1851/Section1870_8810.htm
- Wisner, B. (2003) Tepeyac: Case Study of Institutional and Social Learning Under Stress. *International Journal of Mass Emergencies and Disasters*. Vol. 21(3): 57-66.
- World Bank, (2005), *The Informal Economy and LED (Local Economic Development)*, The World Bank Group, Available online: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTLED/0,,contentMDK:20199025~menuPK:341145~pagePK:148956~piPK:216618~theSitePK:341139,00.html>
- WTO (2005) *Tsunami Relief for the Tourism Sector: Phuket Action Plan*, World Tourism Organization Press, Spain (Available online: <http://www.world-tourism.org/tsunami/Phuket/Draft%20Phuket%20Action%20Plan-A%20Rev.3.pdf>)

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