Culture, environment and livelihood: potential for crafting sustainable communities in Chiang Mai

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Abstract: Culture is touted as integral to the concept of sustainable development, yet most sustainable development efforts omit a cultural component. This paper targets traditional handicrafts as a potential cultural component for a sustainable development strategy. This paper analyses two of the traditional crafts of Chiang Mai, Thailand – saa papermaking and laquerware production – to identify the aspects of culture, environment and livelihood embedded in these crafts. The traditional production processes are diagrammed to illustrate the natural resource inputs and environmental impacts of these processes, as well as to identify spin-off economic activities from those same natural resources. The objective is to build a case for a culturally sensitive sustainable development that would revive traditional knowledge and skills, revitalise renewable natural resources and spawn new restorative economic activities that work in synergy with nature and culture.

Keywords: sustainable development; handicrafts; culture; Thailand; tourism; Chiang Mai; natural resources; restorative economy; urban sustainability; traditional knowledge.

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1 Introduction: linking culture, environment and livelihood for a sustainable solution

The discourse of sustainable development is concerned with identifying models of development that facilitate the equalisation of benefits across time and space. This necessitates the rethinking of the relationships among natural, social, cultural, political, economic and built systems as they act and are acted upon along a pathway of change.

This discourse opens an arena to reexamine our conceptions of progress and to redefine trajectories that will enable that progress for more people both today and long into the future (Meadowcroft, 1999). A proliferation of definitions and explanations of sustainable development fill the academic and practitioner literature, but Selman (1996, p.11) elegantly distills most of these down to three principles: inter-generational equity, intra-generational equity and transfrontier responsibility. These three principles are interpreted to reflect a long-term human and environmental interconnectivity that must be considered across administrative boundaries if we are to strive to improve the quality of life for more people on the globe today and to continue to be able to maintain this trend into the future. In other words the implementation of sustainable development requires the integration of environmental resource management, economic development and socially sensitive planning and implementation processes while thinking of the earth as an environmentally, economically and socially integrated system.

This holistic view of development is easier to prescribe than to operationalise. It requires the linking of traditionally separate sciences and approaches. The unevenness of accomplishing integration across disciplines has influenced the dominant approaches to putting sustainable development into practice. At the heart of most of the interpretations of sustainability is the reorientation of understanding society in relation to nature (Redclift, 2000). Even though this focus does not necessarily imply such an outcome, most implementation of sustainable development has been satisfied with the integration of environmentally sound practices and policies into development programs and projects (Lele, 1991; Selman, 1996). Building on this foundation of increased environmental awareness, interpretation of economic development as integral to environmental and social systems has gained momentum and been expressed in a variety of ways, such as the redesign of economic processes to work with nature instead of against it (McDonough and Braungart, 2002) or rethinking the linkages among livelihood strategies, poverty alleviation and environment (Chambers, 1992; Neefjes, 2000; Redclift, 2000). Thus, the environmental and economic components of our world system are firmly ingrained in the interpretation and operationalisation of sustainable development. Following far behind are the rest of the components of this system often vaguely referred to as the social aspect. Most commonly, these social aspects are expressed as empowering more people to participate in development decisions. However, there are potentially powerful components embedded in this social aspect including politics and culture.[1]

A budding interest in the role of culture in the implementation of sustainable development is exemplified in the World Bank's 2000 meeting on Culture and Development in Tokyo. Amartya Sen's keynote speech provides one framework for inserting a cultural dimension into the sustainable development discourse. Sen (2000) points out that the long-term viability of development efforts is inextricably tied to culture as both a means and an end. As a means towards development, culture acts as a filter that will influence which approaches may succeed in improving quality of life and economic progress in a particular place. Cultural investments, such as historic preservation or dissemination of traditional skills, can also work to provide economic benefits while preserving connectivity to the past. As an end objective of development, cultural expressions can be more broadly nurtured and disseminated as poverty is alleviated, becoming part of the indefinable package of quality of life. Drawing culture into the idea of sustainable development

increases the complexity of the arena of concerns to be considered as development is pursued, but it adds a dimension, which only further completes the holistic vision of sustainability.

The purpose of this paper is to further explore the potential role of culture in sustainable development, revealing the relationship of culture with livelihood and nature. One case that may shed light on this interrelationship and its potential for sustainable development is that of handicraft production. It is a livelihood strategy that embodies heritage (Nolten and Tempelman, 1986) as well as traditionally having closer ties to the natural environment through the natural materials that are transformed into cultural expressions. Handicrafts, although fraught with issues such as exploitation of labour, skewed distribution of profits along the distribution chain, and increasing competition from mechanised mass production (Scrase, 2003), have been a common choice by development agencies for small-scale development improvements, especially aimed at rural women. In recent decades, handicrafts have been targeted as a potential export generator, both in conjunction with tourism as well as with global markets for inexpensive 'ethnic' items. Economic growth, job creation, gender empowerment, cultural preservation and fair trade objectives have all been linked to the development of the handicraft sector (Agusni and Agusni, 1995; Kaino 1995). However, a weak, if non-existent, objective is the association of handicraft production with the revitalisation and protection of natural environmental resources.[2] By adding the environmental link of handicraft production to the existing elements of economic improvement, and social equity found in handicraft promotion programmes, handicraft production could be crafted as a component of a sustainable development programme that is culturally driven.

Handicraft production is not just evoked as a rural economic development strategy anymore. It is promoted as an integral component of a tourism economy, as both the observation of handicraft artisans and the buying of souvenirs or art objects are activities that draw tourist interest and spending (Government of Thailand, 1998). Handicrafts are increasingly targeted as an export sector, supplying items to both other tourist regions (e.g. many of the handicrafts found in the tourist markets of Greece are produced in Thailand, Indonesia and China) and gift items for urban stores around the world (including large chain stores, such as Pier One and World Market, and smaller independent ethic gift shops). Tourist destinations, such as Chiang Mai, Thailand, have capitalised on this handicraft–tourism bond. The region of Chiang Mai is home to a wide range of artisan skills, some which have survived a long history of craftmaking and others that have been purposefully revived or even invented as take-offs of traditional skills and items (Gallagher, 1973; Campbell, 1978; Lubeigt, 1994; National Identity Office, 1995; Cummings, 2004). Venues for the observation of craft production and the purchasing of crafts are a primary attractor for tourists to Chiang Mai. Much of the development of these venues has been planned and/or subsidised by the national government. In addition, large numbers of manufactured handicrafts are exported to other cities in Thailand to be sold as Thai tourist souvenirs and to other tourist and non-tourist markets around the world (Pye, 1988).

For regions like Chiang Mai, which rely on tourism for a large portion of their economy, it is in their interest to maintain the amenities that draw visitors. The attraction of tourist destinations usually include a combination of natural beauty, environmental amenities (such as beaches, mountains or good weather), historic sites, a cultural milieu (including music, food and festivals) and cultural artefacts (such as handicrafts). In regions where tourism is a major component of the local economy, the influx of

visitors and their demands often place excessive stresses on the natural environment, urban service provision, cultural preservation, social identity and even local economic development. So the paradox of tourism is that the attractors to the region are often negatively impacted by the growth and change induced by this tourism. A concerted effort has to be made to reduce these impacts and even enhance these attractor elements both to maintain a tourism income to the region as well as to maintain a quality of life and preserve an essence of place and identity. A multiplicity of approaches, such as historic preservation, improved service provision, design and planning standards and nature preservation will be needed in most tourism locations to achieve this. As Romanos makes clear, there is a distinction between sustainable tourism and tourism for a sustainable development. This latter concept refers to the "role tourism can play as a dynamic system of activities, products, and human interactions in the long-term sustainable development of a community or region" (Romanos, 2002, p.132). Tourism which contributes to sustainable development should mitigate the negative impacts it instigates, and try to reestablish positive linkages among culture, environment and this type of economic opportunity.

Based on fieldwork carried out in Chiang Mai, Thailand in the summer of 1998, this paper delves into the details of the cultural, environmental and economic linkages found in the sector of traditional handicrafts in that region. In other words, the characteristics of this economic activity that have symbiotic relationships with nature are identified to extract those characteristics that could be used to facilitate a more multi-objective development outcome with mutually supporting outcomes of cultural preservation, environmental protection and economic improvement or a more sustainable trajectory into the future. Although production of handicrafts is not the primary economic engine of the Province of Chiang Mai, it is a significant component of its identity, and is a primary draw for tourists and increasingly has been a growing export business. Today Chiang Mai produces a remarkably wide range of handicraft products, many a continuation of or spin-offs of traditional crafts and production skills. These include gems, silver jewellery, silverware, hilltribe crafts and embroidery, silk and cotton fabric and garments, baskets, celadon ceramics, furniture, lacquerware, wood carvings, parasols and saa paper items such as stationary and picture frames. A few traditional skills underlie this panopoly of products, including weaving, wood carving, silversmithing, construction of lacquerware, pottery making and papermaking, all of which have long histories in Chiang Mai.

This paper first illustrates the unsustainable path that the pressures of tourism and growth have led Chiang Mai. Then, the environmental, economic and cultural linkages in two traditional handicrafts, with deep roots in the region, are dissected and drawn from to discuss the potential of utilising crafts to facilitate the improvement of the long-term relationship among environmental quality, economic activities and culture. The key objective is to show how by focusing on handicrafts in a new light, an economic activity could be harnessed to contribute to the continuity of culture, skills and history as well as realign relationships with nature along a more sustainable path.

2 Unsustainable Chiang Mai: tourism and environment

Many historic cities thrived for centuries by managing the resources in their hinterlands to fuel their economy and service their population, supporting a relative quality of life by

finding a viable, though not necessarily ideal, balance of economic progress, cultural enhancement and environmental resource base management. Those cities and societies that did not find this workable balance failed. This is not to assert that long-lasting cities had achieved the objectives of sustainable development, but they must have elements of a sustainable path to be able to survive and grow over centuries. Certainly, all human settlements and interventions in the landscape impact the integrity of the natural environment, but many found the means of overcoming the impacts of that destruction. However, changes in economic activities, movements of populations, increases in levels of wealth and changes in consumer demand are all contributing to changing these previously livable relations with nature, causing many cities to face rapidly growing threats to a sustainable relationship with the nature.

Chiang Mai, now the eighth largest city in Thailand and formerly the seat of the royal families of the Lanna Tai Kingdom, is one of these cities on an unsustainable path. Threats to the environment, culture and economic development are becoming apparent. For example, the range of environmental problems include decreasing air quality mainly from increasing traffic congestion, inadequate solid and hazardous waste management resulting in land and water contamination, inappropriate methods of water management resulting in floods, insufficient wastewater treatment inundating the surface water with pathogens; and rapid, unplanned growth and land speculation destroying natural resources and habitat (Romanos et al., 2002; Schultz, 2002; Wang and Liu, 2002). Loss of historic structures, degradation of historic and culturally significant places, loss of traditional skills, commercialisation of traditional arts and crafts, changes in the land use patterns and neighbourhood forms are all rapidly interfering with the preservation and enhancement of cultural heritage and identity (Chifos and Looye, 2002; Rincon and Rahmi, 2002; Romanos, 2002; Scheer and Scheer, 2002). And, economic success is still not being distributed across the population. Issues related to the economic integration of the rural-to-urban shift of population in the region are especially challenging (Auffrey, 2002; Barry, 2002; Chifos and Looye, 2002).

Although causality is difficult to confirm, a few forces can be identified which are likely driving Chiang Mai down this increasingly unsustainable path. The increasing affluence of residents in Bangkok has contributed to the rapid development of land around Chiang Mai. Chiang Mai is the primary location of choice for the highly desirable second home of wealthy Bangkokians. In addition to this local increase in affluence, a global increase in affluence and leisure time has made tourism a viable economic sector. Chiang Mai experiences over 900,000 of these international visitors and over 1.7 million from Thailand each year.[3] Enhancing this trend towards tourism has been the conscious choice of the government of Thailand to promote tourism as a major economic development driver. Chiang Mai is one of the targeted destinations promoted by the Tourism Authority of Thailand (TAT). On top of this influx of visitors each year, the number of people choosing Chiang Mai as a new home and destination for new economic opportunity has grown more rapidly than the local government has been able to keep up with. Land is being consumed in an unplanned manner, environmental services are bursting at the seams and unable to reach all residents of the city and region, and traffic is growing faster than the road network can be improved. What was once an isolated, sleepy town, is now both a domestic and international destination driving physical growth without sufficient accompanying growth in economic resources and management capacity to maintain a livable environment.

So, it appears that a predominant force shifting Chiang Mai's long-term viability is tourism. Three characteristics of Chiang Mai's tourism appear to contribute to the preponderance of the above-mentioned environmental, cultural and economic impacts. First is the sheer volume of people visiting the region. Over 3 million visitors a year descend on Chiang Mai in addition to its own population of 178,000, which has been growing at a rate of about 2% per year. These rapid and seasonal influxes of population have an obvious impact on deterioration of tourist sites, loss of natural ecosystems as development expands without sufficient planning and the shortfall of infrastructure, environmental services and transportation networks (Romanos, 2002, pp.138–141). Nimmonratana (2000) observes impacts on local culture, such changes in values and norms due to heavy exposure to other cultures, changes in neighbourhood activities interfering with local lifestyles and uses of space and commercialisation of traditional products. In addition, more and more of the tourists and new residents alike are seeking opportunities to experience and enjoy the natural amenities that the region has to offer. This is evidenced by the more than 200 trekking companies and two self-designated eco-tourism agencies identified in the late 1990s (Romanos, 2002, p.138). However, it appears that just visiting nature is no longer enough and increasingly Chiang Mai is experiencing development of homes and resorts in the countryside which is disrupting ecosystems and habitat (Romanos, 2002, p.142). And finally the focus on producing and selling handicrafts as a major component of the tourism attractions, Chiang Mai has to offer is instigating an array of economic, cultural, social and environmental consequences (Chifos and Looye, 2002). They include inequities between income and level of work for the artisans, questionable amount of multiplier to the region, loss of quality of art, loss of traditional reality, health impacts to workers as the production becomes more based on chemicals and sitting for long hours in factory buildings, the impacts on the natural resource base that provides the traditional materials, the increasing levels of pollution both from the production and the consumption of these items and the environmental impacts of the land use patterns evolving around the sales of these items.

Therefore, it is obvious that tourism as it takes place today in Chiang Mai is leading to an unsustainable future. These impacts can be reorganised under at least three categories. First is the increased demand for infrastructure, services, buildings, transportation options and entertainment outlets. Next is the increased demand to see the natural and cultural amenities of the city and region driving the need for more of all the above demands in increasingly remote areas. And finally the increase in demand for local products. Data from 1992 shows that about 29% of foreign tourist spending and 23% of Thai tourist spending went to souveniers (Photiwaswarin, 1993). Parnwell (1993b, p.235) also reports that about a third of tourist spending goes to souveniers, with much of that going to handicrafts with the help of government promotion of arts and crafts in connection with tourism. This consumeristic expectation of Chiang Mai's tourism has led to the exhaustion of local natural resource inputs to these products, has increased the level of small-scale manufacturing using chemicals to replace natural materials and is driving apart the inherent relationship of traditional handicrafts with the nature. The production of handicrafts, which embody a cultural heritage, can provide a venue to rethink some of the activities, products and human interactions, which shifted away from sustainability and find venues to use handicrafts to restore or establish anew more appropriate relationships with the nature and culture.

3 The relationship between handicrafts and nature in Chiang Mai

To illustrate the point of this paper, which is to make a case for the linking of at least some handicraft production to a sustainable development agenda, by adding the missing link of balanced environmental resource management to the already existing economic development and cultural preservation objectives, two of the traditional handicraft products, saa paper and lacquerware are analysed. These two crafts, along with weaving, wood carving, pottery making (in particular celadon) and silversmithing, are the traditional crafts that were still taking place in Chiang Mai from the 1950s (ILO, 1959; ILO, 1960) and have continued until today. Saa paper production is the most developed example in this section. There has been much more interest by both the scientific and development communities in Thailand on the paper mulberry tree, which is the source of the primary ingredient for saa paper production. This interest has resulted in the published literature that can be used to piece together the sustainable development potential of saa paper industry (Hurst, 1990; Subansenee, 1995; England, 1997; Lamxay, 2001; Bilski, 2003). Lacquerware is another craft that relies on trees and other plant material, for which little published research was available. However, as lacquerware is actually linked to the saa paper story it is included.

Each handicraft will be discussed in three steps. Firstly, the evolution of the production of the craft in Chiang Mai is described. In this section a picture is painted of the economic and cultural importance over time of the handicraft as well as the state of the production activity today. Secondly, a description of how the product was traditionally produced and the changes to that process that have evolved. Of particular interest is to identify the natural resource inputs to the production process as well as any outputs (i.e. waste products) that have to be reabsorbed by nature. Finally, the economic–environmental linkages in the handicraft production are extracted. The objective of this section is to define the flow of natural materials through the production process and then identify actual and potential economic products/opportunities linked to these resources.

3.1 Saa paper

3.1.1 Description of the sector

Papermaking in Northern Thailand can be traced back to sometime around the 11th century. The Karen tribal group picked up the craft of paper making which had been diffusing throughout Asia from China where it was originated in 105 AD. Handmade paper from mulberry (*saa* in Thai) bark quickly found many uses in the Lanna Kingdom, including for Buddhist scripts, temple decorations, parasols, fans and kites. Documentation of continuous papermaking in Chiang Mai is not available. However, oral histories relate the existence of papermaking, particularly for umbrella making, in Bo Sang since the 18th century (King, 1977, p.7). Bo Sang is a village in the San Kampang district, 8 km southeast of Chiang Mai. The government of Thailand capitalised on the papermaking skills in Chiang Mai for economic development purposes during the World War II. A factory was established in the city of Chiang Mai in 1941 to make umbrellas, as well as other paper products (it is reported that they attempted to make paper raincoats for the occupying Japanese troops (King, 1977, p.10)). This factory employed 300 workers and was in operation until 1962. An ILO study in the late 1950s

reported 1000 families in Chiang Mai making umbrellas (which was protected with an import ban) (ILO, 1960), while field work in 1968 found 160 households in Bo Sang making umbrellas (King, 1977, p.3). During this 1968 field study, the umbrella makers of Bo Sang revealed that they felt that the quality of the paper and umbrellas was declining due to substitution of non-traditional materials and the adoption of modern 'short cuts' in the paper making process. In the mid-1970s, the Thai government intervened again in umbrella making in Chiang Mai, by instigating the revival of the traditional umbrella village of Bo Sang as a tourist destination where visitors could see paper and umbrellas being made as well as buy the products there.

Today in Thailand, much of the demand for traditional handmade paper products has declined. However, the making of paper and paper products, both copies and interpretations of traditional items such as umbrellas and crafting of new items such as notebooks and picture frames, has remained a viable economic activity due to the interest of tourists and the opening of export markets both in the West (gift shops in the USA and Europe) and East (mainly Japan where the demand for a high-quality saa paper is deemed to be the largest in the world). In response to these markets the production of Saa paper has taken at least three forms. Firstly, is the small-scale home industry where a family harvests its own raw materials and then follows the basic traditional method of making the paper. This type of operation may be supplying piecework to shops or other outlets, sometimes aided by non-governmental organisations, which help the producer find a buyer and then to obtain a fair wage for their labour. Secondly, is a small factory where up to 100 or so employees work at making paper in a modified traditional method using machinery to enable larger-scale production, but still using the original raw materials and modified screening and drying methods. The mulberry bark is bought by this type of factory from local collectors although sometimes they must import the bark from Laos or other surrounding countries to get enough for their production needs. And finally, is the large modern factory where mulberry pulp is used, but the paper is made using modern technology and is shaped into large sheets or rolls. This type of factory is for all practical purposes like any other paper mill. Details about the number of people employed or amounts of saa paper produced are scattered and often conflicting, so any reliable estimates cannot be given.

3.1.2 How is saa paper made?

Following a method very similar to the original Chinese method, the bark of the 'paper mulberry' (*Brossonetia papyrfera* or commonly called *Po Saa* in Thailand) provides the fibre for saa paper. The best bark for paper making is found on the smaller (1–3 inch diameter) branches. The paper mulberry tree easily grows wild in the forests and along the river edges of Northern Thailand but has also been cultivated on plantations. Today about 60% of the bark is harvested from uncultivated trees in the wild, with the remaining coming from mulberry plantations (Thammincha, 2001). A quick growing tree can continue to provide fresh bark yearly if harvested correctly. In reality the harvesting is a method of pruning or coppicing the tree. This type of pruning induces the mulberry tree to resprout new branches again for many years. The tree can flourish under this type of cutting twice a year, and works best during the rainy season (May–October).

To make pulp, the entire fibrous cushion encasing the woody branch is removed and dried. Once dried, the outer skin is taken off, leaving a fibrous material to be shredded for paper making. This bark fibre is cooked and beaten until a pulp is produced. An alkali

agent is needed during this phase to soften the fibres and neutralise some of the elements in the bark to achieve the level of softness, texture and durability desired. Traditionally wood ash (potash) was used for this. Today some of the processes use soda ash or caustic soda, which are stronger chemicals. These stronger chemicals will pose some safety and environmental issues, but they produce a higher quality of paper.

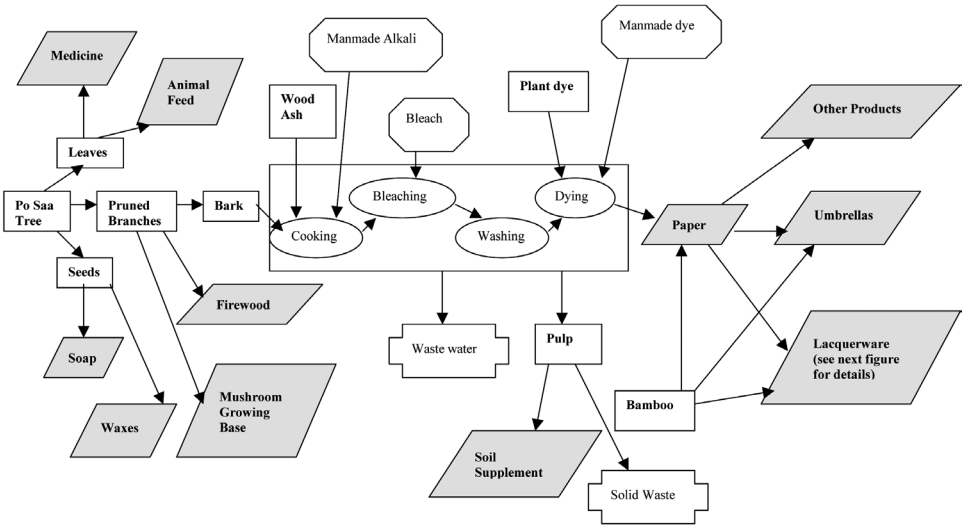
Once the pulp is made a bleaching agent is often added to whiten pulp. Then the pulp is washed to remove as much of the chemicals as possible. Dyes may also be added after the washing. At this stage the pulp is then diluted and stirred so that the mesh forms (traditionally of bamboo) can be pulled through the soupy mixture. Fibres are repeatedly caught on the mesh to build up the paper surface.

It has been estimated that during the cooking, bleaching and washing phases about 10,800 kg of waste pulp/year is produced for every 1000 sheets/day (Mungcharoen and Papong, 2001).

3.1.3 Economic–environmental linkages

Figure 1 illustrates the economic–environmental linkages associated with the production of saa paper. The primary natural resource for saa paper, the paper mulberry tree, has multiple uses, making it a potentially versatile crop for a farmer. As mentioned above there is a demand both within Thailand and outside of Thailand for the finished saa paper as well as the raw saa bark for both traditional handmade and modern machine manufactured paper. In fact, Thailand has to import bark to supply all its papermaking activities. Thus, just as a source of bark, there is potential for income generation by owners of mulberry trees. In addition to the bark's use in paper making, parts of the tree can be used for other purposes. For example, the seeds can be used to make soap and waxes, the leaves are food for livestock and fish, the debarked stems can be used as firewood or for growing mushrooms and most parts of the plant can be used for traditional medicines.

Figure 1 Saa paper production linkages



The paper can be an end product in itself, or can be transformed into paper products such as notebooks or picture frames, all with both domestic and foreign demand. Traditionally saa paper has been used as an input to other traditional products. Saa paper was used as part of the production process of lacquerware. It also shows up transformed into another product, mainly umbrellas. Umbrella making can have its own economic–environmental linkage chain, which would include bamboo and a set of plants that produce the resins and oils that were used to waterproof the paper. So, in addition to the paper mulberry tree, other natural resources used in transforming the saa paper into various end products, such as the natural resins and dyes or bamboo, offer more potential economic linkages.

It has been found that even the pulpy wastewater from the paper making process has economic usefulness. The wastewater has potassium in a form that has been found to be a beneficial supplement to the soil in rice paddy cultivation (Chanchareonsook et al., 2001).

3.2 Lacquerware

3.2.1 Description of the sector

It is most likely that the technique of using lacquer to protect and decorate bamboo and wooden items came from China, possibly around 3000 years ago. This skill migrated to Burma and Northern Thailand, where a different but similar tree to that used in China and Japan produced a sap that would dry into a protective resin layer over a bamboo or wooden structure. The original purpose of lacquer was not decorative, but as a waterproofing/leakproofing process for household and religious items. Bowls, storage containers, plates, baskets were all covered with lacquer. As the art developed it was used to protect and decorate the doors and windows of temples as well as for the creation of elaborate cabinets for the storage of sacred items. By the 11th century, Chiang Mai became a centre of production of incised laquerware. There is evidence that by the 14th century the area of San Kampaeng was a preferred site of artisans, including those making lacquered items. An influx of Burmese (Khoen) lacquer artisans arrived during the late 18th and early 19th centuries and located near the neighbourhood of Wualai (were the silversmiths were) in a district then named Ban Khoen (Leesuwan, 1981, pp.53–60). As with umbrella making, the Thai Ministry of Industry opened a factory in Chiang Mai in 1964 for lacquerware production as an economic development strategy. Today lacquerware is still done in households of the district of Ban Khoen, as well as in the area of San Kampaeng. Lacquerware is also one of the traditional crafts that is part of the queen's Promotion of Supplementary Occupations and Related Techniques program (SUPPORT), which offers training as well as marketing outlets for high-quality traditional craft products.

3.2.2 How is lacquer made?

A black resin is tapped from the *Melanorrhea usitata* tree, a large native tree to the forests of Northern Thailand and Burma. This is usually done at the end of the rainy season (November). The tapped resin was traditionally filtered through saa paper. Once cleaned, this sap (*rak or lac*) is mixed with rice husk ash, which helps to make the resulting polymer-like layer more flexible. This resin mix (*samuk*) is painted onto bamboo or wooden frames. The best quality work is that which has a bamboo

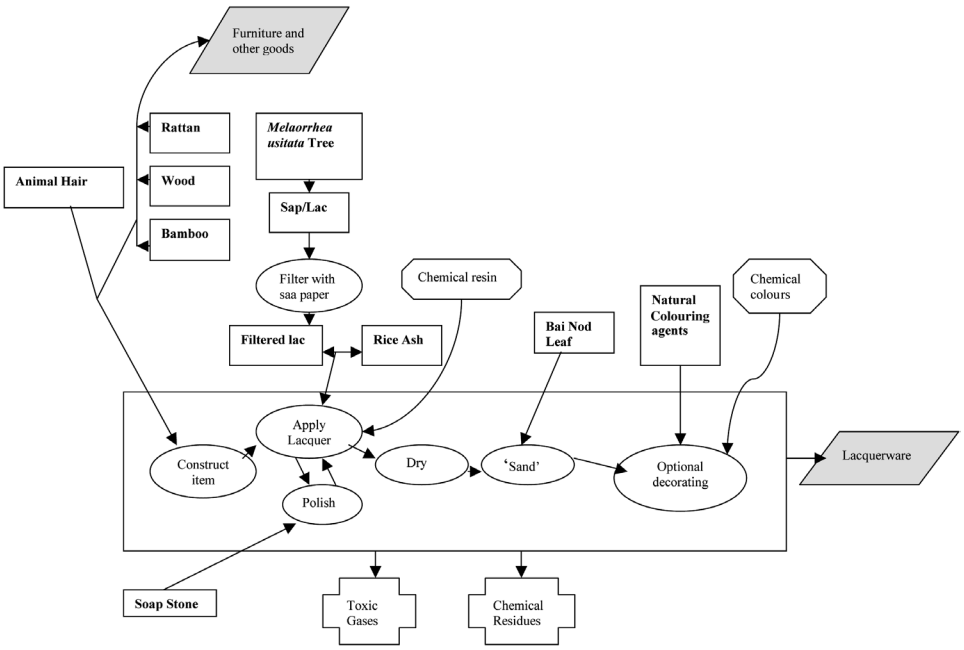
substructure that is woven with horse or donkey hair. Today most of the work is a bamboo frame without the hair, or even a light wooden frame. Between each layer of lacquering the resin must dry and then be polished with a soapstone. Up to 15 layers are applied. The top layer is then polished with a bai nod leaf (which is like a soft sandpaper). A good piece of lacquer may take five to six months to make especially if incising or gold leaf or other painting decorations are done.

Increasingly artificial materials are replacing the natural ones, mainly due to the lack of supply of the natural materials. One of the ILO studies in Chiang Mai in the 1950s reported that lac was still obtained from the local forests at that time. Today the lacquer is becoming scarce and increasingly various chemical mixes are used to replace the natural lacquer. In addition, the traditional base material of rattan and bamboo were once abundant in the Ban Pha Bong region, but the demand depleted the stock, requiring importation of cheaper substitutes (Cohen, 2000, p.278).

3.2.3 Economic-environment linkages

Figure 2 provides a summary of the economic–environmental linkages found in the production of lacquerware. It is not so clear as in the saa paper example if additional possibilities for increased economic linkages to the natural inputs of the lacquerware production process exist. However, two of the traditional inputs to lacquerware, rattan and bamboo, both have extensive non-handicraft-related economic potential, including furniture and construction. Unfortunately, bamboo suffers from overuse due to high demand and weak if non-existent management (Perez, et al, 1999). The lacquer resin has been protected by law under the Forest Act BE2484 (1941) and updated in 1987 and 1989, however, quantities of the resin are still low.

Figure 2 Lacquerware production linkages



3.3 Linking culture, environment and livelihood

Evidence supports the claim that handicrafts have been an integral part of the heritage, culture and economy of Chiang Mai throughout its history. These crafts embodied the spiritual to the mundane, capturing both a way of life and an artistic expression of cultural meaning for that place and people. But these crafts were more than that; they were a source of livelihood. And less recognised, until recently these crafts also required a knowledge of natural materials – the properties, the sources and the techniques for maintaining a supply of these materials. This specialised environmental knowledge was also a part of the culture and embedded in the traditional crafts. From the two examples of traditional handicraft products from Chiang Mai detailed above, the tight web of natural resource inputs, outputs into the natural environment, economic opportunities, heritage and cultural expression are unraveled, providing insights into past and current linkages among culture, environment and economy. Traditional crafts were probably never the dominant linkage of Chiang Mai's economy to the world and today they cannot be the primary form of crafts or a major component of the GDP (Graeburn, 1982). These crafts were also probably not the primary driver of the Lanna culture's environmental knowledge, and today a revival of traditional crafts alone would not solve the complex and growing environmental problems of the region. However, after closer examination, traditional handicrafts offer several potential opportunities for moving towards a more sustainable trajectory in Chiang Mai.

The two cases of handicrafts detailed above reveal a similar set of findings about the nature of these traditional handicrafts and their past and present linkages with culture, environment and livelihood. The historic roots to these two crafts run deep and far. These crafts have an almost continuous history in the region of Chiang Mai for well over a millennium. Both the skills and the products have become intertwined with both daily life as well as in religious and artistic expressions. The saa paper and the lacquerware are both products that people from Chiang Mai identify as part of their cultural expression. Especially those from families and/or villages that have kept these crafts alive, there is still a semblance of pride in maintaining a level of skill and product quality. But there is also regret expressed by some about the loss of the traditional materials and complex handwork that characterised these handicrafts in the past. It is interesting to note that at various points in history there was government intervention and support to maintain these and other traditional handicrafts in Chiang Mai. Usually these interventions, while valuing the cultural aspect of the artisans and their products, attempt to provide economic outlets or opportunities to turn these skills into economically viable activities. In the last 50 years, this intervention has been predominantly linked with tourism.

Innovation in the application of the skills and materials related to saa paper and lacquerware has occurred over time and those changes in and expansion of products have kept the crafts alive. Creative uses for this paper and lacquering have expanded the market for these skills and products. However, in the drive to increase economic efficiency by reducing the time and labour required for these traditional handicrafts the trajectory has been towards less and less authenticity and more concession to modernisation. By authenticity, I am not referring to the design and use of the end products as much as to the process of production. Labour intensive skills, in which an environmental knowledge as well as an artistic expression are embedded, have been

slowly forgotten. Mechanisation is replacing labour, manufactured and imported materials have been substituted for local, natural materials and cheap commercialised imitations have all but replaced artistic objectives.

One strong common characteristic of the changes in the production of these two handicrafts is a decrease in the positive environmental links and an increase in the negative environmental links. The analysis of the two production processes reveals a strong reliance on non-timber forest products. The utilisation of forest products that do not destroy the trees can be managed and maintained for sustainable harvesting. While this must have been done to some degree in the past, the maintenance of the various plants used in the production of these crafts has declined drastically, with some of the plants no longer available locally. Many forces are contributing to the loss of forest and habitat in Thailand, but the decline of this natural resource constituency and the related economic opportunities decrease the potential to counteract some of these destructive forces. Additionally, the increasing use of chemicals and mechanisation in craft production is adding new, and potentially hazardous waste streams to the process. These waste products can be harmful to both the workers and to the environment.

The picture painted by this analysis of these two handicrafts in Chiang Mai is one of breaking of linkages among environment, economy and culture. For over a thousand years, through social, political and economic upheavals, crafts provided a livelihood for artisans who knew how to harness and sustain the natural resources they needed. A snapshot of today shows a handicraft industry that pushes to improve economic variables – profits and efficiency – which are important, but social equity issues, the symbiosis with nature, and the heritage of skills, knowledge and art are delinked from the industry and the products. The reestablishment of positive, synergistic linkages and the minimisation of destructive linkages is one way to envision sustainable development. Shifting towards sustainable development can influence the current trajectory – reforging the links among culture, economy and environment for positive change.

3.4 Potential opportunities for sustainability

In the past, crafts were integral to daily life, today many of these same crafts find justification for their continued existence in tourism. Both products and production may be part of the tourism experience. In Chiang Mai, the range of possibilities have been explored – designating craft villages, making factories accessible for visitors, diversifying types of market outlets both locally and in Bangkok, and exporting products, especially to other tourist destinations around the world. A niche that could still be explored is to revive traditional craft techniques with an emphasis on the links to the natural environment. Such an approach would not just open a new economic market, but would be the first step in a restorative approach to economic development. This proposal is not so naïve as to assume that all handicrafts in Chiang Mai should be ‘pure’ or true to traditional materials and processes – the demand from the export markets will require items that meet their own needs and tastes (Cohen, 1993). But there is an interest in authenticity – both as local cultural preservation and as appreciation of this culture by outsiders who value owning such items. There is a value added to items from adherence to traditional methods, which often embody relations to the earth. For example, the native American pottery – the resurgence of traditional methods, such as exemplified by Maria Martinez of Santa Clara Pueblo in New Mexico, her pottery and that done

following the methods she revived are of much more value in the art market than pottery done using modern short cuts and store bought materials.

> "The intrinsic value of crafts to the sophisticated traveler or catalogue consumer is precisely the human labor embodied in that product and what it tells about a whole way of life. In contrast to industrial production, with the minutely subdivided tasks defined by engineers and controlled by managers remote from the work process, artisan production still links conception with execution" (Nash, 1993, p.10).

This study of two traditional handicrafts in Chiang Mai reveals that more than a new product niche of a traditional artistic piece can be achieved by reviving traditional materials and methods. With respect to the case of saa paper, it is true that the local demand for saa paper and the traditional uses of this paper do not appear to be very strong in Thailand either because the modern replacements for the saa paper are more convenient or the objects, such as the paper umbrellas and fans have become more symbolic than useful. However, it was identified that traditional saa paper is highly valued in Japan. In addition, saa paper and the copies of traditional products as well as modern uses for the paper, have a market, both among the visiting tourists to the region as well as in stores around the world. By responding to this demand, there is potential to facilitate reforestation using the paper mulberry trees as well as other plants needed in this handicraft and other traditional handicrafts. Already most of the bark and pulp for saa papermaking in Thailand is imported from Laos (Forsen et al., 2001). As the resource analysis done in Figure 1 illustrates, there are a myriad of economic activities that can also use non-timber components of the trees, many of these reviving traditional knowledge about the usefulness of these trees and other plants. Additionally, the research that is searching for reuse of the waste products from saa papermaking is promising. This type of life-cycle approach to production should be emulated in for other products, so that waste streams and their negative impacts are reduced. Traditional lacquerware production also relies on various forest products. And although the analysis of this product does not highlight as broad a set of opportunities for economic development from the various resins, the base material of bamboo has many economic possibilities (Belcher et al., 1995). Research on bamboo is identifying a wide range of modern applications for the material.

Experiences from the Appropriate Technology Association of Thailand point to how the small changes in production practices to improve the environmental relations of the process have induced broader changes towards more environmentally friendly behaviour. For example, the promotion of natural dyes for weaving in one village then inspired the villagers to reduce other uses of chemicals, such as in their fields. Reminding people about the importance and potential of their natural resources and showing them that good resource management and economic development can go hand in hand through successful demonstration projects can help build environmental awareness.

Through this examination of a small sample of the traditional handicrafts in Chiang Mai evidence is collected that can justify further exploration of using traditional handicrafts as one of many entry points for implementing sustainable development. This counters what some development specialists believe – that if handicrafts are to bring economic development to rural areas in Thailand, then the

sector must modernise even at risk of changing tradition and cultural heritage (Parnwell, 1993a,b). If handicrafts are to bring sustainable development to rural areas in Thailand, then capitalising on the tradition and cultural heritage can bring environmental improvements (reforestation, cleaner production processes and awareness building) and new niche economic activities (based on the various plant products). This restorative approach to economic development, that values cultural heritage, can shift the current trajectory of environmental damage and quality of life decline to one of a sustainable future with more opportunities for more people to experience a quality life.

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References

Agusni, Soejatni and Sulikanti Agusni (1995) 'Women's groups in West Javanese cooperatives: as case study of the development of an exchange and marketing network', in L. Kaino (Ed.) *The Necessity of Craft: Development and Women's Craft Practices in the Asian-Pacific Region*. Nedlands, Western Australia: University of Western Australia Press, pp. 84-97.

Auffrey, C. (2002) 'The informal settlements of Chiang Mai: lessons of sustainability for other intermediate size cities', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.273–294.

Barry, R.J. (2002) 'Sustainable development and sustainable employment in the manufacturing sector of Chiang Mai', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.75–90.

Belcher, B., Karki, M. and Williams, T. (Eds) (1995) 'Bamboo, people and the environment: socio-economics and culture', *Proceedings of the Fifth International Bamboo Workshop and the Sixth International Bamboo Congress*, June, Ubud, Indonesia, Vol. 4.

Bilski, S. (2003) 'Saa paper: an age-old tradition', *Sawaddi*, 4th quarter.

Campbell, M. (1978*) From the Hands of the Hills*, Hong Kong: Media Transasia Ltd.

Chambers, R. (1992) 'Sustainable livelihoods: the poor's reconciliation of environment and development', in P. Ekins and M. Max-Neef (Eds). *Real-life Economics: Understanding Wealth Creation*, London: Routledge, pp.214–230.

Chanchareonsook, J., Panichaskpatana, S., Suwannarat, C. and Puargraya, N. (2001) 'Utilization of KOH – pulping waste water as a source of potassium for paddy', *Proceedings of Paper Mulberry and Hand-Made Paper for Rural Development*, Bangkok, Thailand, March, pp.19–24.

Chiang Mai University (1995) *The Statistical Report on Tourism in Chiang Mai*, Chiang Mai Department of Statistics, Chiang Mai.

Chifos, C. and Looye, J. (2002) 'The handicraft sector in Chiang Mai: its role in sustainable urban development', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dortrecht: Kluwer Academic Publishers, pp.91–126.

Cohen, E. (1993) 'The heterogeneization of a tourist art', *Annals of Tourism Research*, Vol. 20, No. 1, pp.138–163.

Cohen, E. (2000) *The Commercialized Crafts of Thailand: Hill Tribes and Lowland Villages*, Honolulu: University of Hawai'i Press.

Cummings, J. (2004) 'Chiang Mai: home of legendary Lanna Thai artisans', *eMagazine. Tourism Authority of Thailand*, Available at: www.Tatnews.org/emagazine/2081.asp.

England, P. (1997) 'UNCED and the implementation of forest policy in Thailand', in P. Hirsch (Ed). *Seeing Forests for Trees: Environment and Environmentalism in Thailand*, Chiang Mai: Silkworm Books, pp.53–71.

Forsen, M., Larsson, J. and Samuelsson, S. (2001) 'Paper mulberry cultivation in the Luangprabang Province, Lao PDR: products, marketing, and socioeconomic aspects', *Minor Field Studies*, No. 140, Uppsala, Sweden: Swedish University of Agricultural Sciences.

Gallagher, B.M. (1973) 'Craft villages of northern Thailand', *Arts of Asia*, Vol. 3, pp.48–55.

Geertz, C. (1973) *The Interpretation of Cultures*, New York: Basic Books.

Government of Thailand (1998) *Investment Plan for Chiang Mai Province. Executive Summary*, Bangkok:Government of Thailand.

Graeburn, N. (1982) 'The dynamics of change in tourist arts', *Cultural Survival Quarterly*, Vol. 6, No. 2, pp.7–11.

Healey, Robert (1994) *Ecotourism, Handicrafts and the Management of Protected Areas in the Developing Countries.* Washington, DC: United States Agency for International Development.

Hjorleifur, R.J. (1996) 'Rhetorics and relations: Tai states, forests, and upland groups', in E.P. Durrenberger (Ed). *State Power and Culture in Thailand*, New Haven: Yale University Southeast Asia Studies, pp.166–200.

Hurst, P. (1990) *Rainforest Politics*, London: Zed Books.

International Labour Office (1959) *Report to the Government of Thailand on Handicraft Activities at the Fundamental Education Centre in Ubol, Part I*, Geneva: ILO.

International Labour Office (1960) *Report to the Government of Thailand on Handicrafts Designing and Marketing.* Geneva: ILO.

Kaino, L. (1995) *The Necessity of Craft: Development and Women's Craft Practices in the Asian-Pacific Region*. Nedlands, Western Australia: University of Western Australia Press.

King, W. (1977) 'Umbrellas make their day', *Journal of the National Research Council of Thailand*, Vol. 9, No. 2, pp.1–33.

Lamxay, V. (2001) *Important Non-Timber Forest Products of Lao PDR*, Vientiane: Forest Research Center.

Leesuwan, V. (1981) *Thai Cultural Heritage*, The Office of the National Culture Commission, Ministry of Education, Bangkok.

Lele, S. (1991) 'Sustainable development: a critical review', *World Development*, Vol. 19, No. 6, pp.607–621.

Lubeigt, G. (1994) 'Traditional and recent aspect of the urban development of Chiang Mai, Thailand', in M. Askew and W.S. Logan (Eds). *Cultural Identity and Urban Change in Southeast Asia: Interpretative Essays*, Geelong, Victoria, Australia: Deakin University Press, pp.117–134.

McDonough, W. and Braungart, M. (2002) *Cradle to Cradle: Remaking The Way We Make Things*, New York: North Point Press.

Meadowcroft, J. (1999) 'Planning for sustainable development: what can be learned from the critics', in M. Kenny and J. Meadowcroft (Eds). *Planning Sustainability*, London: Routledge, pp.12–38.

Mungcharoen, T. and Papong, S. (2001) 'Clean technology: application to paper mulberry pulp and paper industry', *Proceedings of Paper Mulberry and Hand-Made Paper for Rural Development*, Bangkok, Thailand, March, pp.19–24.

Nash, J. (1993) 'Introduction: traditional arts and changing markets in middle America', in J. Nash (Ed). *Crafts of the World Market: The Impact of Global Exchange on Middle American Artisans*, Albany, NY: State University of NY Press.

National Identity Office (1995) *Thailand in the 90s*, Bangkok: Amarin Publishing and Publishing Public Co. Ltd.

Neefjes, K. (2000) *Environments and Livelihoods: Strategies for Sustainability*, London: Oxfam Publishing.

Nimmonratana, T. (2000) 'Impacts of tourism on a local community: a case study of Chiang Mai', in K.S. Chon (Ed). *Tourism in Southeast Asia: A New Direction*, New York: The Hawarth Press, Inc., pp.64–86.

Nolten, M. and Tempelman, J. (1986) 'Handicrafts as a means for rural development – a case study from Pahang, Peninsular Malaysia', *Malaysian Journal of Tropical Geography*, Vol. 13, pp.37–45.

Parnwell, M.J.G. (1993a) 'Environmental issues and tourism in Thailand', in M. Hitchcock, V.T. King and M.J.G. Parnwell (Eds). *Tourism in South-East Asia*, London: Routledge, pp.286–302.

Parnwell, M.J.G. (1993b) 'Tourism and rural handicrafts in Thailand', in M. Hitchcock, V.T. King and M.J.G. Parnwell (Eds). *Tourism in South-East Asia*, London: Routledge, pp.234–257.

Penth, K. (2000) *A Brief History of Lan Na: Civilizations of North Thailand*, Chiang Mai: Silkworm Books.

Perez, M.R., Maogong, Z., Belcher, B., Chen, X., Maoyi, F. and Jinzhong, X. (1999) 'The role of bamboo plantations in rural development: the case of Anji County', *World Development*, Zhejiang, China, Vol. 27, No. 1, pp.101–114.

Photiwaswarin, S. (1993) 'Economic effects of tourism industry in Chiang Mai vis-à-vis the whole Kingdom', Masters of Economics Thesis, Chiang Mai University.

Pye, E.A. (1988) *Artisans in Economic Development: Evidence from Asia*, Ottawa: IDRC.

Redclift, M. (Ed) (2000) *Sustainability: Life Chances and Livelihoods*, London: Routledge.

Rincon, H. and Rahmi, D. (2002) 'Preservations of cultural and historic heritage as a tool for sustainable development', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.295–320.

Romanos, M. (2002) 'The city of a thousand smiles: sustainability and the pursuit of tourism in Chiang Mai', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.127–154.

Romanos, M., Wagner, T.E. and Thadaniti, S. (2002) 'Environmental management in Thai cities: local challenges, state responses', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.155–186.

Scheer, B. and Scheer, D. (2002) 'Towards a Sustainable Urban Form in Chiang Mai', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.253–272.

Schultz, J.A.M. (2002) 'A study of changing traditional urban solid waste management approaches to sustainable practices', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.209–222.

Scrase, T.J. (2003) 'Precarious production: globalisation and artisan labour in the Third World', *Third World Quarterly*, Vol. 24, No. 3, pp.449–461.

Selman, P. (1996) *Local Sustainability: Managing and Planning Ecologically Sound Places*, New York: St. Martin's Press.

Sen, A. (2000) *Culture and Development*, World Bank Tokyo Meeting, 13 December.

Subansenee, W. (1995) 'Major non-wood forest products of Thailand', in P. Durst and A. Bishop (Eds). *Beyond Timber: Social, Economic, Cultural dimensions of Non-wood Forest Products in Asia and the Pacific*, Bangkok: FAO.

Thammincha, S. (2001) 'Role of saa fiber to rural development', *Proceedings of Paper Mulberry and Hand-Made Paper for Rural Development*, Bangkok, Thailand, March, pp.19–24.

Wang, X. and Liu, L. (2002) 'Water resources for a sustainable Chiang Mai', in M. Romanos and C. Auffrey (Eds). *Managing Intermediate Size Cities: Sustainable Development in a Growth Region of Thailand*, Dordrecht: Kluwer Academic Publishers, pp.223–236.

Warren, W. and Tettoni, L.I. (1996) *Arts and Crafts of Thailand*, San Francisco: Chronicle Books.

Notes

[1]Culture is a complex idea with many competing definitions. For this paper, Geertz's (1973) widely accepted definition of culture, where culture is a shared pattern of meaning, is used.

[2]In a search of the development programs of several aid agencies only one study was identified which related handicrafts with environmental management. This study by Robert Healy, entitled "Ecotourism, handicrafts and the management of protected areas in the developing countries", was funded by USAID in 1994. Within the US, the USEPA funded a project through their Sustainable Communities Grant Program in 1996, which linked the restoration of the grasses and other native plants of North Carolina's riparian ecosystems with the revitalisation of local traditional basketry.

[3]Statistics from Chiang Mai University (1995) record 915,828 foreign tourists and 1,754,529 in 1995 and forecast more than a total of 4 million tourists by 2000.