Key messages

- Increasing greenhouse gas emissions from transport threaten the growing tourism industry in Chiang Mai. To address both climate and development concerns, the city government has advocated the use of non-motorised transport (NMT).
- Climate mitigation comes with co-benefits for local development. In addition to its potential to reduce greenhouse emissions, the NMT initiative addresses other issues such as traffic congestion, air quality, income generation for the poor and the long-term viability of the tourism industry.
- Small but concrete steps toward climate mitigation can create good examples. The project on sustainable urban tourism catalysed planning for a more ambitious expansion of NMT in the city, as well as the adoption of more sustainable land-use practices and low-carbon action in other sectors.
- This very positive local story nonetheless highlights some of the tensions and trade-offs around green tourism: namely, that local initiatives may address emissions in situ, but not the emissions produced by tourists as they travel to the locality.

Catalysing sustainable tourism: The case of Chiang Mai, Thailand

Chiang Mai is one of the fastest growing cities in Thailand and serves as a regional economic and cultural hub in the northern part of the country. Its rich cultural heritage and pristine natural resources draw millions of tourists each year. However, rapid growth and expansion, exacerbated by the rising tourist influx, has put a strain on the city’s natural resources. Faced with rampant unplanned development, air and water pollution, waste management problems and traffic congestion, the city of Chiang Mai has launched the non-motorised transport (NMT) system, which aims to reduce greenhouse gas emissions and create employment opportunities for the urban poor. Because of its many co-benefits, this climate compatible strategy has gained support from policy-makers and citizens alike. This case study looks at how the NMT plan was developed, what characteristics of the planning process influenced its outcome, and what lessons the City of Chiang Mai has learned about climate compatible development planning as a result.

The need for a more sustainable approach

Supporting over 300,000 people in an area of 40,216 km², the capital of Chiang Mai Province serves as a regional economic and cultural hub in Northern Thailand. In the last 10 years, the city’s economy has grown continuously, largely driven by the commercial sector and tourism industry. In 2012, the tourism sector generated more than 35% of provincial GDP. Chiang Mai hosts millions of tourists every year – around 5 million in 2012 – and this number is increasing: tourism grew by 18% in 2012 compared to 2011. The industry generates significant greenhouse gas emissions. The Department of Tourism noted that over 35% of visitors from Bangkok – which is only 750 kilometres away from Chiang Mai – arrive by air, and most tourists use private cars and buses to navigate the city.

Chiang Mai is also becoming a regional hub for transportation, aviation, education and medical services. Yet it is rapidly outgrowing its infrastructure. The once-compact city centre is giving way to sprawling expansion. Unplanned urban development, the absence of traffic management policies and
practices, and a lack of integrated transport and land use planning have left Chiang Mai with major transport issues. Traffic congestion, air pollution, an inadequate public transport system and insufficient pedestrian walkways further encourage the use of private cars and motorbikes. As a result, personal mobility, liveability and environmental sustainability have declined, and urban transport has become a major source of greenhouse gas emissions. Yet maintaining a clean and uncongested environment is integral to the tourist experience that Chiang Mai is marketing to both domestic and foreign tourists. This issue became an important impetus for the city to look further into options to reduce greenhouse gas emissions.

The city recognised the need to identify and quantify its greenhouse gas emissions. A project called ‘Sustainable Urban Tourism through Low-carbon Initiatives: Experiences from Hue and Chiang Mai’ estimated the emissions emitted by the products and services associated with the tourism sector in Chiang Mai. This was conducted in collaboration with the Asian Institute of Technology (AIT), Chiang Mai Municipality, and the Hue City Centre for International Cooperation. Funded by the Sustainable Mekong Research Network (SUMERNET) and CDKN, the project used the Bilan Carbone® tool to estimate tourism-related greenhouse gas emissions in 2011. It also explored strategies for low-carbon emissions while simultaneously creating green job opportunities for men and women, particularly the poor.

Table 1 summarises emissions produced by the tourism sector in Chiang Mai and their respective percentage of total emissions. In total, Chiang Mai emitted around 4,233,304 tons of carbon dioxide equivalent (CO₂e) from products and services associated with the tourism sector in 2011. As seen here, the largest source of greenhouse gas emissions is the transport sector. This case study does not directly analyse the larger carbon footprint created by travel to and from the city but focuses on progress made in reducing emissions within Chiang Mai.

**Support mechanisms and city initiatives**

Programmes and strategies for low-carbon development are often technology-oriented, such as mass transit systems, and lack consideration of the impacts on local people. This is especially true for the tourism industry, where employment benefits and economic opportunities are mostly limited to the hospitality sector (e.g. large companies) and may neglect to match jobs with the skills of local people. Undertaking the Sustainable Urban Transport project was part of Chiang Mai's efforts to explore a win–win strategy to alleviate poverty and promote low-carbon development in urban tourism. The city sought a multi-stakeholder partnership among researchers, local authorities, private companies, non-governmental organisations and locals, and the project adopted a participatory approach to identify suitable options for reducing greenhouse gas emissions while also creating income-generating opportunities for the poor.

Based on consultation with stakeholders, the project assessed climate change mitigation options vis-à-vis their potential for creating local employment. To reduce greenhouse gas emissions, a greater emphasis was placed on the transportation sector. Because air travel emissions are outside the city’s purview, stakeholders identified measures to reduce emissions from ground transportation and suggested developing a non-motorised transport (NMT) system in Chiang Mai Municipality.

NMT is any form of transportation that uses human or animal power to move people or goods using methods other than the combustion engine. It includes walking, cycling, small-wheeled transport, rickshaws, carts, etc., and provides flexible options for mobility.

By reducing road congestion, NMT can enhance recreational opportunities for tourists. Walking and cycling in particular directly reduce carbon dioxide emissions that would have originated from motorised transport. These are also modes of access to public transport and, thus, their promotion may lead to increased public transport use. In terms of socioeconomic benefits, restricting motorised transport increases use of pedestrian zones, where tourists and other visitors are more likely to buy handicrafts and other goods from local vendors along the sidewalk.

Consequently, Chiang Mai prepared an NMT campaign with plans for a bicycle route and

### Table 1: Summary of greenhouse gas emissions produced by the tourism sector in Chiang Mai

<table>
<thead>
<tr>
<th>Sources</th>
<th>Emissions (tons of CO₂e)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel (travel within the city and to the city from outside)</td>
<td>4,233,304</td>
<td>95.8%</td>
</tr>
<tr>
<td>Energy (electricity and fuel used)</td>
<td>77,695</td>
<td>1.8%</td>
</tr>
<tr>
<td>Property (infrastructure and assets)</td>
<td>53,905</td>
<td>1.2%</td>
</tr>
<tr>
<td>Direct waste (food, waste and waste water)</td>
<td>29,851</td>
<td>0.7%</td>
</tr>
<tr>
<td>Inputs (material, products and services)</td>
<td>22,756</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,417,511</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Kumar et al. (2013)
sustainable urban transport approach: interest in and progress in implementing a
Three related factors stimulated the city's
Enabling factors
the 2014 Bicycle Festival in February 2014. Chiang Mai Sunday Cycling Club organised
to advocate cycling; for example, the
garnered support from other stakeholders
promote cycling. The city government has
segways, and organising exhibitions that
area, introducing car free days, promoting
limit by 20% for vehicles within the canal
activities include reduction of the speed
within the city centre. Other proposed
bicycle lane networks from 4% to 10%
The city government aims to increase its
from stakeholders in nearby communities.
made to designs, in response to comments
outer consultations
address climate change issues in general. The involvement of the media as
portance of NMT and the need to reduce greenhouse gas emissions and
ect framework resulted in a better understanding of low-carbon initiatives
Increased public awareness:

2. Previous experience in implementing low-carbon initiatives. Chiang Mai had
previously worked towards low-carbon development options through
its involvement in the 'Action Towards Resource-efficient and Low-carbon
Cities in Asia', a project funded by French Agency for Energy and
Environment Management (ADEME) in collaboration with the AIT. The
programme involved capacity building
climate change issues, greenhouse
gas emissions inventories, climate
and energy plans, and included a pilot
activity on greenhouse gas mitigation.
This laid the foundation for the city's
interest in opportunities for climate
compatible urban tourism.

3. Potential for a win–win situation. The most important impetus for the
municipality's decision to develop NMT
is its potential to reduce greenhouse
gas emissions while providing
income-generating opportunities for
the poor, including tricycle and bicycle
operators, as well as street vendors
by offering opportunities for them to
earn extra income.

Implications and lessons learned
Support by the top authority is critical.
Any venture is more likely to succeed
if it has the interest and full support of
the highest authority. Obtaining the top
authority's buy-in is essential to obtaining
institutional backing and wider support.
The Sustainable Urban Transport project
generated a greater impact because of the
city authorities' support for policy change.
The Mayor of Chiang Mai, Mr Tassani
Buranupakorn, was keen to work toward
low-carbon development options, and this
project advanced his vision.

A participatory approach pays off.
The project's inclusive nature fostered a
multi-stakeholder partnership. Almost all
partners were involved from the beginning

Enabling factors

Three related factors stimulated the city's
interest in and progress in implementing a
sustainable urban transport approach:
1. Its relevance to Chiang Mai's long-
term development plan. Decision-
makers realised that the initiative is
critical to enhancing the city's liveability
and maintaining its attractiveness as a
leading tourist destination. Particularly,
the sustainable transport approach
addresses both the problem of
increasing traffic congestion and the
rising demand for city transportation
that can serve both tourists and
residents of Chiang Mai. Sustainable
urban transport represents a
more sustainable urban tourism
characterised by shift in means of
transport towards greener options.

Key outcomes of the Sustainable Urban Tourism project

Catalytic effect on low-carbon development: Although it is too early to
pinpoint any direct impacts of the project, it has served as positive reinforce-
ment and further encouraged the city to strengthen its commitment to low-
carbon development. Since the project's completion, the city has taken rec-
ommended options for the development and extension of an NMT zone as
one of its policy statements and has committed to further action. The policy
statement was approved by the Mayor of Chiang Mai and local authorities
aim to increase the area of non-motorised zones (e.g. bicycle lanes) in the
city centre by up to 10% (currently at 4%).

Increased public awareness: Several activities organised within the proj-
ey framework resulted in a better understanding of low-carbon initiatives
by both local authorities and the general public. Public consultations and
local-language publications have increased people's awareness of the im-
portance of NMT and the need to reduce greenhouse gas emissions and
address climate change issues in general. The involvement of the media as
a key stakeholder increased the project's publicity. The public consultations
were broadcasted on a local news channel, and this may have influenced
the swiftness of local authorities' actions on the issue.
We all know the problem of air pollution, traffic jams and road safety. The Sustainable Urban Transport project is the first that tackles those threats seriously. However, it is those who love Chiang Mai that truly make the change. Let us act for our health, our city, our future!

– Mr Tassani Buranupakorn, Mayor of Chiang Mai

of the project, including tourism service providers (i.e. hotels, restaurants, travel agencies, etc.) who provided data for the calculation of greenhouse gas emissions, and stakeholders who participated during the meeting to prioritise the mitigation options (suggested by the project partners) as well as to provide policy recommendations.

A successful project can generate positive spin-off. The project bridged the gap between climate data and actual practice, and explored how this data can be effectively communicated. As a result, the Three Kings Monument area is being used as a demonstration site in a new pilot project on NMT. The pilot project is currently under construction with financial support from the Global Environment Facility (GEF), which aims to undertake integrated land use and sustainable urban transport planning in Chiang Mai through the improvement/development of a non-motorised zone. The Sustainable Urban Transportation project functioned as an initial catalyst and served as a discussion platform for the GEF-project. It is expected that the pilot project will make cycling and walking more appealing in Chiang Mai.

Good results can initiate behavioural change toward low-carbon development options. The success of the project and the level of discussion it was able to generate have paved the way forward for more low-carbon-related initiatives in the city. Chiang Mai has realised that the development of an NMT area must go hand-in-hand with a willingness in the community to adopt a low-carbon lifestyle. Chiang Mai plans to set up the Chiang Mai City Council for Climate Change to promote Low-Carbon Campuses and prepare a Low Emission Development Strategy (LEDS) for participating universities. To this end, it will launch related activities and implement LEDS for academic institutes, promoting these activities internationally to increase Chiang Mai’s reputation as a low-carbon city.

Endnotes
3 Ibid.
4 Bilan Carbone® is an Excel spreadsheet developed by the French Agency for Environment and Energy Management (ADEME) to calculate greenhouse gas emissions of organisations or territory. It provides greenhouse gas emissions in carbon or carbon dioxide equivalent in kg or ton. More information is available at http://www.terre.tv/?lang=en&id=1151 and at www.ademe.fr.
6 Ibid.

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