CHAPTER III

METHODOLOGY

3.1 Determination of indicators to indicate the potentiality of tourist site

3.1.1 The data of physical and natural resources, environmental conditions, and tourism of Sri Nan National Park was collected from secondary sources;

3.1.2 The present tourism situations were collected by interviewing officers, tourists, tour company operators, and local people with specific designed questionnaires;

3.1.3 Indicators that indicated potential of each tourist site were determined by;

3.1.3.1 Tourist sites of Sri Nan National Park were classified based on the definition of the Office of the National Environment Board, Thailand and the present tourism activities of each tourist site were surveyed.

3.1.3.2 Nature site potential for ecotourism of Sri Nan National Park was assessed and compared to the other national parks in Nan Province.

Potential of national park for ecotourism was evaluated by the following formula of the weighted score method (Forest Research, 1995):

$$EP = \frac{W_1 r_1 + W_2 r_2 + W_3 r_3 + \ldots\ldots W_n r_n}{W_1 + W_2 + W_3 + \ldots\ldots\ldots W_n}$$

Where: EP   = potential level of ecotourism

$r_{1\ldots n}$ = scores of variables, from 1 to n

$W_{1\ldots n}$ = weight scores of variables, from 1 to n

Some parameters for evaluating the potential are presented as following,

The attractiveness of each site for tourists is one of the most significant parameters. There are many factors dealing with the potential of attractiveness for tourists such as the chance for wildlife sights. These factors depend on species diversity, population abundance, rare species, endangered species, plant community diversity, plant community status, ecosystem uniqueness, physical uniqueness/characteristics, cultural uniqueness, landscape characteristics, outstanding antique, ancient remains and natural art object.

The values from the calculation range from the 0 to 3 (from non - potential to high potential)

3.1.3.3 Tourism impact assessment was analyzed in all national parks of Nan Province. In this study, risk assessment analysis was conducted in order to determine the impact level that may be occurred in the nature site by weight score method.

$$IP = \frac{W_1R_1 + W_2R_2 + W_3R_3 + \ldots\ldots WnRn}{W_1 + W_2 + W_3 + \ldots\ldots Wn}$$

Where: IP　　　= the level of environmental impacts

　　　$R_{1\ldots n}$　　= the potential score of variables, form 1 to n

　　　$W_{1\ldots n}$　　= the weight of variable, from 1 to n

Some parameters for evaluating environmental impacts are presented as following,

The possible impacts on ecosystem are considered as the first parameter. This impact include possible effects to wildlife diversity, the species abundance, the ecological diversity and size of habitat, and also the possible impact on plants or other environmental factors. The second parameter is the impact on culture and way of life of native people in those areas, and the last parameter is the impact on art objects, ancient remains and antique in those areas.

The values from the calculation range from 0 to 3 (no impact to high impact).

3.1.3.4 Indicators that involved with the potentiality of each tourist site were identified based on 4 components of ecotourism which include:

- Indicators of nature based tourism

- Indicators of sustainable management

- Indicators of environmentally educative tourism

- Indicators of people participation

3.1.4 The criteria to assess each indicator were adapted from Handbook of Ecotourism Site Standard Assessment (ERIC, 2005). The tourist site potential assessment was developed for staff and local people to evaluate by themselves using simplified methodology.

3.1.5 Systematic evaluation form was designed to assess indicators that indicate potential of tourist sites in Sri Nan National Park. The schematic diagram for ecotourism site assessment framework was presented in Figure 3-1.
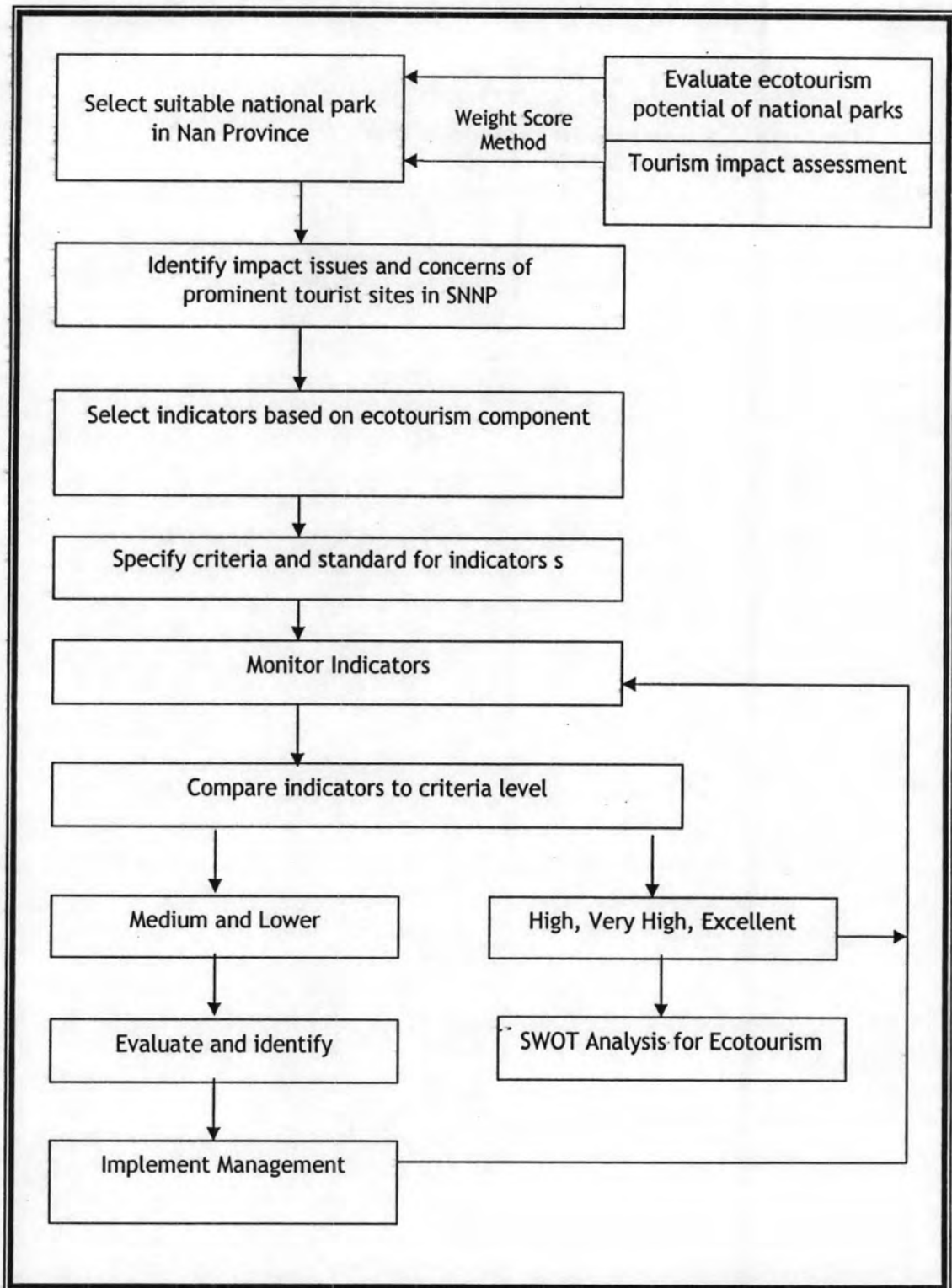
Figure 3-1 Schematic diagram for ecotourism site assessment framework (Adapted

from Farrell, 2002)

3.2. Assessment of tourist site indicators in Sri Nan National Park

3.2.1 The indicators including nature-based tourism, sustainable management, environmentally educative tourism and people participation were assessed in each tourist site.

3.2.2 The data was collected in high tourist season (December) compared with low tourist season (April) for 4 days also covering the weekend period.

3.2.3 Standard of each tourist site was determined and the results were classified into 5 levels (excellent, very high, high, medium, and low potential for ecotourism).

3.3 The development of management plan for ecotourism in Sri Nan National Park based on environmental management system

3.3.1 Prominent environmental aspects were identified in Sri Nan National Park based on the concept and methodology of the environmental management system (Chankaew, 2002).

3.3.2 Ecotourism management plan for Sri Nan National Park was developed based on the information obtained and the 4 components of ecotourism.

3.3.2.1 Nature-based Tourism

3.3.2.1.1 The data of attractive flora, faunas, and landforms at tourist sites, such as Sao Din Na Noi landform, Pha Chu cliff, and Doi Sa Mer Dao Mountain, was collected.

3.3.2.1.2 Tourist's nature appreciation was surveyed using a specifically designed questionnaire.

3.3.2.2 Sustainable Management

3.3.2.2.1 Information of tourist activities, tourist statistics and tourist behaviors in Sri Nan National Park was collected using a specifically designed questionnaire.

3.3.2.2.2 Water consumption and water quality at the selected tourist sites were evaluated.

3.3.2.2.3 The quantities and quantities of solid wastes generated at each tourist site were investigated.

3.3.2.2.4 Specifically critical parameters for evaluation of the carrying capacity of the tourist sites in Sri Nan National Park were determined.

3.3.2.2.5 The carrying capacity at each camping site was determined. The information of camping site area, tourist statistics, and tourist satisfaction was collected.

Physical Carrying Capacity (PCC) can be expressed according to the following formula (Ceballos-Lascurain, 1996):

$$PCC = A \times V/a \times Rf$$

Where   A = available area for public use

V/a = one visitor per m^2

Rf = rotation factor

Rotation factor is the number of permissible daily visits to a site, and is determined as

Rf = Opening period/ average time of one visit

3.3.2.3 Environmentally Educative Tourism

3.3.2.3.1 The data of flora, fauna and landform of Sri Nan National Park was collected.

3.3.2.3.2 A media coverage program of Sri Nan National Park was developed.

3.3.2.3.3 Ecotourism activities in Sri Nan National Park were studied and developed.

3.3.2.3.4 Nature trail at Sao Din Na Noi Landform was proposed.

3.3.2.3.5 Eco-camping sites at Doi Sa Mer Dao and Pha Chu were developed by providing eco-camping guide book and eco-friendly activities.

3.3.2.4 People Participation

3.3.2.4.1 Participatory Action Research (PAR) technique was applied in order to support people participation in Sri Nan National Park. The process begins with selected 2 target stakeholder groups including:

A: local people: tourists and park officers

B: policy makers: government, sub-district administration organization, tourist agency, NGOs, and local academic institute.

3.3.2.4.2 Relevant stakeholders were interviewed with ecotourism aspects and their needs.

3.3.2.4.3 The meeting with local people was arranged and discussed about the outcomes of the research and ecotourism management plans in Sri Nan National Park.

3.3.2.4.4 Ecotourism monitoring program for local people in Sri Nan National Park was developed.

3.3.4 Provision of appropriate environmental management plan for ecotourism in prominent tourist sites of Sri Nan National Park by SWOT Analysis.

Conceptual Framework

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┌─────────────────────────────────────────────────┐
│  Collect the physical, natural resources,        │
│  environmental and tourism data of Sri Nan       │
│  National Park                                    │
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│  Select indicators for tourist site potential    │
│  assessment                                       │
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        │           │           │           │
┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐
│ Nature-   │ │Sustainable│ │Environ-   │ │ People    │
│ based     │ │Management │ │mentally   │ │Participa- │
│ Tourism   │ │           │ │Educative  │ │tory       │
│           │ │           │ │Tourism    │ │Tourism    │
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┌─────────────────────────────────────────────────┐
│         Assess tourist site potential            │
│  (Mountain, Rapid, Landform, and Reservoir)      │
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┌─────────────────────────────────────────────────┐
│     Develop ecotourism management plan in        │
│            Sri Nan National Park                  │
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