

# Tourist's Perception toward Implementation of Eco-Friendly Cleansers at Campsites in Khao Yai National Park, Thailand

T. Utarasakul

**Abstract**—Khao Yai National Park is the First National Park in Thailand and approximately 800,000 tourists visited Khao Yai yearly. This study aimed to identify the perception of tourists in Khao Yai National Park according to the implementation of eco-friendly cleansers along their leisure in the campsites. Due to tourist's activities in the park were affected on quality of environment; especially on water resource. Therefore, eco-friendly cleansers were used in campsites for tourists and restaurants during high tourist season. The results indicated positive effects of environmental friendly cleansers on water quality in Lam Ta Khong River, as well as the tourist's perception on eco-friendly cleansers.

**Keywords**—Eco-friendly cleansers, Campsite, Khao Yai National Park.

## I. INTRODUCTION

**K**HAO YAI NATIONAL PARK (KYNP) was declared as the first national park in Thailand since 1962 covering an area approximately 2,168 square kilometers in Northeastern part of Thailand. In 2005, KYNP was designated as a part of Dongphrayayen - Khao Yai Forest Complex [1]. KYNP contains substantial and important tropical forest ecosystems, and created origin of Lam Ta Khong River which is situated through campsites and other recreation areas. More than 2,500 species of flora, 605 species of fauna, 112 species of mammal, 392 species of birds, and 209 species of amphibian and reptile have been recorded at KYNP [2].

According to many magnificent factors, KYNP became the popular destination for many both domestic and international tourists. In addition, the convenient transportation makes tourists easily to visit KYNP around the year for various activities such as trekking, bird watching, and camping. Therefore, some effects has been appeared in term of destruction of natural resources management and tourist numbers are over the limited of carrying capacity during high tourist season, and facilities inadequate. Especially, impact of tourist activities can lead the degradation of natural resource, loss spontaneity if without appropriate management plan.

In 2012, over 800,000 visitors visited KYNP and among this average 25% stayed overnight which was the highest number of tourists among 148 national park in Thailand [2]. The major tourist activities are focused on nature study, hiking, bird watching, and camping. At present, KYNP has 2

campsites, Lam Ta Khong and Pha Kluay Mai and both of these are located closed to Lam Ta Khong River (Fig. 1). From the study of carrying capacity of KYNP, a number of tourists limited to 600 persons per night. Whereas Pha Kluay Mai Campsite can support tourist's carrying capacity up to 800 persons per night.

Many researchers have been mentioned regarding with impact of camping activities on ecosystem which are including vegetation disturbance, composition change and loss of cover; loss of organic litter and exposure, compaction, and erosion of soil; damage and loss of shrubs and trees; pollution of water resources; and disturbance to wildlife [3]. Nowadays, the most component of cleansing products contain chemical ingredients which are difficult to degrade in natural environment. For example, LAS (Linear Alkyl Benzene Sulfonate) is dangerous to many species in water and left in the ecosystem for a long time [4]. Especially, it can be enhance destruction of biological processes and affects of organism functional in ecosystem. Thus, the implement of environmental friendly cleansers such as dish washer, detergent, liquid soap for tourist and restaurants at all campsites will be the methodology to decrease impact of chemical contamination to ecosystem especially in protected area.

In this study, one of the prominent eco-campsite procedures was applied in Lam Ta Khong and Pha Kluay Mai Campsites of KYNP by enhancing eco-friendly cleansers for tourists, restaurants and staff accommodation along Lam Ta Khong River and evaluated tourist attitude and perception according to this mitigation.

T. Utarasakul is with Environmental Science Program, Suan Sunandha Rajabhat University, Bangkok, 10300, Thailand, (phone: 66-89-205-0899; fax: 662 1601146; e-mail: tatsanawalai.ut@ssru.ac.th, pubastan@gmail.com).



Fig. 1 Map of Khao Yai National Park [2]

II. METHODOLOGY

**Study area:** Khao Yai National Park is located in the Phanom Dong Rak mountain range between latitude 14° 5' - 14° 15' N and longitude 101° 5' - 101° 50' East. It is only 180 kilometers far from Bangkok and consists of complicated mountains and various types of ecosystem. The study area focused only around Lam Ta Klong and Pha Kluay Mai Campsites (Fig. 2).



Fig. 2 Lam Ta Klong and Pha Kluay Mai Campsites

Proper Standard of eco-friendly cleansers (Fig. 3) were implemented (which ISO 14001 certified products without chemical contamination) are composed of dish washer, liquid soap. Moreover, detergent and cleanser are also applied for restaurants and staff accommodation along Lam Ta Khong River. This study focused on tourist's perceptions on implemented eco-friendly cleansers at campsites of KYNP by specific questionnaire.



Fig. 3 Example of Eco-friendly cleansers used at KYNP

III. RESULTS

Results of wastewater qualities at both campsites after implemented eco-friendly cleansers are presented in Table I.

TABLE I  
TOURIST PERCEPTIONS ON ECO-FRIENDLY CLEANSERS IN KHAO YAI NATIONAL PARK

Issues	Percentage (n= 129)
1. What's a kind of cleanser that you brought to the national park?	
- Soap	94.1
- Shampoo	85.1
- Dish washer	72.7
2. Which one of the cleansers that created the most environmental impact?	
- Soap	89.1
- Shampoo	29.8
- Dish washer	72.9
3. What kind of eco-friendly cleansers suitable to sale in the national park?	
- Soap	33.0
- Shampoo	53.7
- Dish washer	45.5
4. Do you agree if the national park prepared eco-friendly cleansers for tourists?	
- Yes	98.3
5. How much do you convenience to pay for using eco-friendly cleansers in the national park?	
- N/A	13.4
- 5 Baht	2.7
- 10 Baht	24.1
- 20 Baht	25.0
- 30 Baht	6.3
- 40 Baht	0.9
- 50 Baht	10.7
- 100 Baht	14.3
- 150 Baht	0.9
- 200 Baht	1.8

Remarks: 1 US = 30 Baht

The results presented that tourist prepared their own cleansers when they traveled to the national park such as soap, shampoo follow by dish washer. In the tourist's opinion, soap and dish washer created high environmental impact on the natural environment.

In case that the national park plan to sale or promote eco-friendly cleansers products, the suitable ones should be shampoo and dish washers. 98 percent of tourists were happy to use eco-friendly cleansers prepared by the national park.

If they have to pay some offset according to save the environment, the optimum rate should between 10-20 baht. Therefore, this issue can be proposed in future management plan for the national park and other protected area in Thailand.

#### IV. CONCLUSION

As long as wastewater from campsites, canteen and toilets are discharged directly to the environment without wastewater treatment system. To reduce the environmental impact to fragile protected area, usage of chemical cleansers should be avoided. Thus, the environmental friendly cleanser was provided to KYNP staff and tourist during high tourist season.

Eco-friendly cleansers received good attitude from staff and tourists. They used the product instead of their own cleanser during their stay in the park. Therefore, this implementation was able to reduce some severe environmental impacts to national park and nearby ecosystem during high tourist season. Moreover, the mitigation can also apply to other national parks in order to initiate tourist's environmental awareness for ecotourism development.

From entire study, enhanced eco-friendly cleanser to the park can solve some environment impacts from tourist activities. However, the other issues should be consideration such as limitation of camp site and car park, water shortage, and waste management. To solve such problems, the integration of environmental techniques should be applied and investigated in the study area. Baseline information on carrying capacity, solid waste management, water consumption, and eco-camping site were also recommended for further study [5].

The recommendations for ecotourism development in KYNP such as: avoid using toxic chemical and encourage tourist and staff to use environmental cleansers where possible. In order to increase the number of tourists at camping site, the proper wastewater treatment system should be implemented. Lastly, to achieve the long term of ecotourism development, KYNP needs to continue developing and monitoring tourism situation and its impacts as well as enhancing tourist awareness of their impacts on pristine environment.

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**Tatsanawalai Utrasakul** is a lecturer at Suan Sunandha Rajabhat University in Thailand since 2008. She hold bachelor of Environmental Science and Technology from Mahidol University and Master of Environmental Science from Chulalongkorn University, Thailand. She obtained her Ph.D. in Environmental Science from Chulalongkorn University.

She worked in Thailand Environment Institute (TEI) as a research associate in energy, industry and environment program from 2002-2003. She also worked as research assistant for center of excellence in biodiversity, Chulalongkorn University in Ecotourism Project from 2003 - 2007.

Dr. Utrasakul has also published and presented in local and international conferences. Her research papers in the area of environmental management system, ecotourism development, eco-camping, eco-resort, and natural resources conservation. Dr. Utrasakul also a coordinator of International Congress of Environmental Research and Managing Editor of *Journal of Environmental Research and Development*.