

# **An Exploratory Study on Whitewater Rafting Rally Management for Adventure Tourism Development in Nakhon Nayok, Thailand**

**Witthaya Inpongpan\* and Tanakitta Sooksomwaja**

Faculty of Liberal Arts, Thailand National Sports University Bangkok campus

## **Abstract**

This research aims to 1) study the format of rafting rally competitions as an adventure sports tourism activity 2) practice teamwork among event organizers and participants and 3) study the satisfaction level of the rafting rally competition. There were 55 participants in the event. This research is quantitative, collecting data from participants using a structured online questionnaire regarding participation in rafting rally competitions, adventure tourism, and rafting activities in Nakhon Nayok Province. Nakhon Nayok province has potential for adventure sports tourism and is not far from the capital city. The river conditions are suitable, with moderate rapids (levels 1-3) and a stable current controlled by the Khun Dan Prakan Chon Dam. It also has natural resources, basic facilities, and management capabilities. The organizers and participants practiced teamwork as per the event's objectives, evident from the highest average scores in the "Activities and Competitions" category, particularly in the section "I learned how to work as a team".

The research results found that: The survey results showed that participants were generally satisfied with the Whitewater rafting rally competition format, with average scores at a good level across all aspects.

Conclusion: This research helped develop students' professional skills in recreation/rally management, rafting, sports tourism and sports adventure. The research findings revealed areas for improvement, and no significant differences in gender satisfaction regarding activity participation were found when each aspect was considered separately.

**Keywords:** Whitewater rafting, Rally, Recreation, Sports tourism, Sports adventure

## **Introduction**

In recent years, the adventure tourism industry has experienced continuous growth, particularly in water-based activities such as whitewater rafting, which integrates physical activity, natural environments, and experiential engagement (Adventure Travel Trade Association [ATTA], 2020). Beyond recreation, rafting has been increasingly recognized as a tool for enhancing physical health, psychological well-being, teamwork, and environmental awareness. In addition, rafting activities align with the principles of Sustainable Tourism, promoting responsible travel and environmental consciousness (UNWTO, 2018). Today, people are excited about travel, which may include short weekday trips, weekend getaways, or longer trips during holidays. Nakhon Nayok Province is a strategic destination for adventure tourism in central Thailand due to its proximity to Bangkok (approximately 122 km). The river conditions are suitable, with moderate rapids (levels 1-3) and a stable current, controlled by the Khun Dan Prakan Chon Dam. These characteristics support year-round rafting activities and highlight the province's potential to develop organized rafting competitions within the framework of sustainable adventure tourism.

The Faculty of Liberal Arts at Thailand National Sports University Bangkok campus is a higher education institution with a core mission to produce graduates in tourism, sports, and recreation. Recognizing the opportunity to integrate knowledge of adventure tourism management with adventure recreation activities and rally management courses, the faculty aims to develop a structure for rally competitions. Currently, most rally competitions focus on recreation but lack a systematic and internationally standardized competition format in terms of judging, safety, and promoting sustainable tourism. Rally competitions are human-powered and low-carbon activities, with virtually no carbon dioxide emissions throughout the competition.

The starting point for rafting on the Nakhon Nayok River is at Tha Dan Bridge, Khun Dan Prakan Chon Dam. It was created in honor of King Rama IX. The Nakhon Nayok River originates from Khao Yai National Park, flows down to form Nang Rong Waterfall, and then merges with the Nakhon Nayok River. The current is strongest during the rainy season, from July to October. The rafting route starts from Uncle Lek's Garden and ends at Keang Kutpha, covering a total distance of 3.11 kilometers. The total activity time is 1 hour and 20 minutes per raft. This event was held on Saturday, September 10, 2022, "Rafting Rally TNSU.BKK 2022". We have received excellent support from government agencies, private businesses, entrepreneurs, parents, affiliated universities, and others.

Therefore, researchers are interested in studying the patterns of organizing Whitewater rafting rally competitions, an adventure tourism activity in Nakhon Nayok province, in order to create new standards for recreational activities that combine paddling skills, teamwork, problem-solving in the style of a rafting rally, and adventure tourism. This research aims to create a model for developing tangible sports tourism and adventure sports activities that add value to Nakhon Nayok province. This project is carried out by faculty and students of the university.

## **Research objectives**

1. To study the format of rafting rally competitions as an adventure sports tourism activity.
2. To practice teamwork among event organizers and participants.
3. To study the satisfaction level of the rafting rally competition format.

## **Hypothesis**

The management of adventure activities, sports tourism, and Whitewater rafting rally still lacks sufficient basic research on competition management and should be developed to align

with the university's unique vision. Standardized testing would help improve the quality of competition management.

### Conceptual framework

This project comprises four core subjects in the curriculum: Sports adventure, Sports Tourism, Rally management, and Recreation, culminating in a whitewater rafting rally adventure activity. These topics were applied throughout the activities to develop interpersonal communication skills, teamwork in real-world situations, interaction with others through games and recreational activities, and operational planning. Knowledge sharing and individual empowerment strengthened teams through engaging team-building activities, leading to lessons learned that will benefit the future success of the sports industry. (Inpongpan, W., Sombutnimit, P. & Thongkumfoo, S., 2019)



**Figure 1** Conceptual framework Whitewater Rafting Rally Management

The project began with defining objectives aimed at integrating inflatable rafting rally competitions, adventure tourism activities, and the application of information technology in event management. Subsequently, the organizers collaboratively designed activity stations aligned with these objectives, including the study of fundamental data, rafting routes, number of participants, and safety considerations.

Entrepreneurs and organizing teams jointly developed competition rules, prepared participant manuals, and designed recreational games tailored to rafting contexts. These activities were intended to promote teamwork, unity, and collaborative decision-making in dynamic environments. Strengthening teamwork can be effectively supported through team interventions and professional facilitation (Körner et al., 2015).


The results indicated that participants gained increased confidence in their skills, particularly in communication and teamwork. Additionally, peer-assisted learning was found to be beneficial and an effective strategy for skill development among participants (Seenan et al., 2016).

Moreover, integrating multiple approaches into a structured framework enhanced trust and stakeholder participation, which translated into improved organizational strategies for activity management (Abuabara et al., 2018).

Therefore, the outcome was the development of an inflatable rafting rally competition model within the context of adventure tourism. Initial impression evaluations revealed high levels of tourist satisfaction and increased motivation to participate in such activities and revisit the destination (Ieiri et al., 2017).

**Table 1** The route for the Whitewater rafting rally competition.

Rafting competitions aren't just about speed; they also have checkpoints along the route where participants must complete activities or solve problems according to the given challenges.

Competition Frameworks	
<p><b>เส้นทางท่องเที่ยวจาก สวนลุงเล็ก-สวนกุดตกา</b></p> <ul style="list-style-type: none"> <li>- ระยะทาง 3.11 กิโลเมตร</li> <li>- ระยะเวลาทำกิจกรรมท่องเที่ยวแข่งเรือ 1 ชั่วโมง 20 นาที สลึงเรือยางได้</li> <li>- ลักษณะทางเป็นแม่น้ำ บางช่วงมีคลื่นแรงเหมาะกับการเล่นน้ำ</li> <li>- จุดเด่นเส้นทาง: ชมธรรมชาติสองฝั่งทาง</li> <li>- ข้อควรปฏิบัติ: นักท่องเที่ยวต้องสวมชูชีพและหมวกนิรภัยตลอดเส้นทางการแข่งขันและปฏิบัติตามกฎอย่างเคร่งครัด สำหรับกฎอื่น การแข่งขันจะมีเจ้าหน้าที่อำนวยความสะดวกสำหรับผู้แข่งขัน</li> </ul>  <p>สถานที่สำคัญ</p> <ul style="list-style-type: none"> <li>จุด Start</li> <li>รีสอร์ต</li> <li>จุด Finish</li> </ul>	
Description	
<p><b>Time checks (TC) and Route checks (RC) of a Whitewater rafting rally competition</b></p> <ul style="list-style-type: none"> <li>• The Whitewater rafting rally competition has 5 checkpoints TCs and 5 checkpoints RCs as follows: TC1 and RC1 are at Thannum River Resort; TC2 and RC2 are at Phumontra Resort; TC3, TC4, RC3, and RC4 are at Tharnamkhundaen Resort; and RC5 is at "Suan/Kaeng Kutpha. Competitors must return to the starting point at Suan Lung Lek to reach TC5, which is the final recreational activity point.</li> <li>• Representatives from the event will launch the boats one at a time, with a gap of approximately 10 minutes between each boat. Competitors will then have to complete assigned tasks in the rally within a time limit.</li> <li>• TC are areas used for recreational activities and games, where points are awarded based on the nature of the game. These games require teamwork and cooperation to achieve good results.</li> </ul> <p><b>Safety precautions</b></p> <ul style="list-style-type: none"> <li>• The route features a river with strong currents interspersed with rapids and rocks.</li> <li>• The highlight of the route is the lush green natural surroundings with shady forests.</li> <li>• Important precautions: Participants must wear life jackets and helmets at all times while rafting on the river.</li> <li>• During the rainy season, the river currents are stronger than usual. Extra caution should be taken while sitting on the raft, and electronic devices should be kept in waterproof bags for safety.</li> </ul>	
	

**Research Methods**

The quantitative research tool used was an online questionnaire regarding satisfaction with the Whitewater rafting rally competition management format. This questionnaire consisted of four aspects: Activity & Competition, Management & Timing, Facility & Environment and Personnel & Safety.

Scope of Content: Focuses on five aspects of the competition management process: planning, competition management, judging and rule, safety control, and participant satisfaction assessment.

Spatial scope: Nakhon Nayok River, Nakhon Nayok Province. This places such obstacles at level 3 in the classification of waterway obstacles (International Scale of River Difficulty. American Whitewater, 2015).

Target audience: The sample group used in this research consisted of 55 participants in a rubber boat rally competition, including students and teachers. The majority of these participants were interested in rapids rafting, desired a new type of water adventure experience, and had experience rafting in Nakhon Nayok province. Their participation was influenced by online promotion of the competition and word-of-mouth.

### Research instrument

The researchers developed the instrument and had three experts review the questionnaires for content validity, academic accuracy, question consistency, and language use. The content validity coefficient ranged from 0.66 - 1.00 The reliability of all questionnaires was determined using Cronbach's alpha coefficient and the reliability coefficient was calculated. (Cronbach, 1951)

### Data Analysis Method

This study involved data from questionnaires, which were analyzed using statistical software. This included mean analysis and inferential statistics used to test hypotheses by comparing the means of one or two sample groups to determine whether there were significant differences.

## Research Results

The results of the analysis were obtained from the calculation of the percentage and average score and standard deviation shown in table 2 and 3, as well as inferential statistical tests in Table 4, after surveying the competition participants.

**Table 2** Average level of satisfaction with participating in the Whitewater rafting rally competition

Topic	Level of satisfaction		Results	Rank
	$\bar{X}$	S.D.		
<b>Activity &amp; Competition</b>				
Activities TC1 - TC5 are fun and help participants build confidence and express themselves appropriately	3.89	.89	High	2
Recreation activity (TC) are suitable for players	3.85	.91	High	3
The sequence and continuity of activities	3.72	1.03	High	4
I learned how to work as a team	3.91	1.09	High	1
<b>Management &amp; Timing</b>				
The timing of the event was appropriate	3.69	1.02	High	4
Planning and publicizing participation in the event	3.72	1.04	High	3
Service speed	3.85	.97	High	1
Problem-solving skills	3.80	.99	High	2
<b>Facility &amp; Environment</b>				
The facilities are suitable	3.69	.98	High	3
Suitability of the venue	3.85	1.01	High	2
The cleanliness of the food and drinks served	3.95	.91	High	1
The prizes awarded are appropriate for the type of competition	3.95	.97	High	1
<b>Personnel &amp; Safety</b>				

Provide advice to customers	3.71	1.06	High	7
I learned how to raft	3.67	1.12	High	8
Learning skills for living together in society	3.91	.95	High	4
Develop skills in playing TC recreational game	4.09	.95	High	2
They have developed skills in self-confidence, courage, and leadership	3.78	.99	High	6
Benefits and knowledge gained from the activity	4.15	.93	High	1
Gained a new experience from rafting	3.96	1.02	High	3
We analyze the problems and solve them together	3.89	1.08	High	5

The table shows the satisfaction with participating in the Whitewater rafting rally competition. In the Activities and Competitions category, the topic with the highest satisfaction level was I learned how to work as a team, with an average score of 3.91. The topic with the lowest satisfaction was 'The sequence and continuity of activities', with an average score of 3.72. In the Management & Timing the topic receiving the highest satisfaction rating was service speed, with an average score of 3.85. The topic with the lowest satisfaction was The timing of the event was appropriate, with an average score of 3.69. In the Facility & Environment, the topic with the highest satisfaction level was The cleanliness of the food and drinks served and The prizes awarded are appropriate for the type of competition, with an average score of 3.95. The topic with the lowest satisfaction was, The facilities are suitable, with an average score of 3.69. In the Personnel & Safety, the topic with the highest satisfaction level was Benefits and knowledge gained from the activity, with an average score of 4.15. The topic with the lowest satisfaction was I learned how to raft, with an average score of 3.67.

**Table 3** Average satisfaction levels for each aspect of the rafting rally competition

Topic	Level of satisfaction		Results	Rank
	$\bar{X}$	S.D.		
Activity & Competition	3.85	.61	High	2
Management & Timing	3.77	.52	High	3
Facility & Environment	3.86	.41	High	1
Personnel & Safety	3.70	.36	High	4

The table shows the differences in satisfaction levels among competition participants across four areas. Participants were most satisfied with the Facility and environment, followed by Activities and competitions, Management and timing, and least satisfied with Personnel and safety.

**Table 4** This presentation yields hypothesis testing results regarding the level of satisfaction in participating in a Whitewater rafting rally management, categorized by gender.

Whitewater Rafting Rally Management	Gender	$\bar{X}$	S.D.	t	P-Value	Hypothesis testing results
Activity and Competition	Male	3.66	0.57	- 1.86	0.32	No difference
	Female	3.97	0.63			
Management & Timing	Male	3.90	0.42	1.53	0.19	No difference
	Female	3.68	0.57			
Facility & Environment	Male	4.01	0.50	2.35	0.27	No difference
	Female	3.76	0.29			
Personnel and safety	Male	3.94	0.37	0.70	0.92	No difference
	Female	3.87	0.36			
total	Male	3.87	0.28	0.88	0.18	No difference
	Female	3.81	0.20			

\*Statistical significant at the 0.05

The table shows that the hypothesis testing results using independent t-tests revealed no significant difference in overall satisfaction levels between genders regarding participation in the Whitewater rafting rally management activity. The P-value was 0.18, which is greater than the statistical significance level of 0.05 ( $0.18 > 0.05$ ). Therefore, the null hypothesis H<sub>0</sub> was accepted, and the secondary hypothesis H<sub>1</sub> was rejected, meaning there was no significant difference in satisfaction levels between genders regarding participation in the activity. Considering each aspect individually, no statistically significant difference in satisfaction levels at the 0.05 level was found for all aspects.

### ***Open-ended questions***

*“I really want to go on a 3-day, 2-night overnight trip. It was very well organized and I hope it will be held every year. It was excellent! Great job! Keep improving! There's a lot of rain lately, so please be careful. I would like to see a rafting rally activity every year. Please organize more events like this! The activities at each station were good, but the students lacked effective planning and wider publicity. Therefore, take this experience into consideration for your future work and further develop your group and teamwork skills. I'm rooting for you!”*

### **Budget Overview for the Competition**

This competition was held to simulate business operations. All expenses associated with the activity were calculated. The student project team contacted rafting operators and venue owners for starting points, TCs, and RCs. Income and expenses were recorded: revenue from public and private sponsors totaled 24,353 Baht. The majority of expenses, totaling 24,263 Baht, comprised boat rentals, venue rentals, and equipment. The simulated company generated a profit of 90 Baht. Although the enterprise yielded a marginal net profit of 90 Baht, the project demonstrated fiscal viability and provided the student team with significant experiential learning in bridging the gap between theoretical management and practical application.

### **Conclusion and Discussion**

Based on the results of the study, the organizers have identified areas for improvement in the management of the whitewater rafting competition, encompassing four aspects of adventure sports tourism. Each aspect has specific areas for improvement, as follows: 'The sequence' and continuity of activities', 'The timing of the event was appropriate', 'The facilities are suitable' and 'I learned how to raft', but these received the lowest average scores. The organizers and participants practiced teamwork as per the event's objectives, evident from the highest average scores in the "Activities and Competitions" category, particularly in the section "I learned how to work as a team". The empirical findings of this study highlight a dualistic nature of the event's performance. On one hand, the high scores in 'Teamwork' and 'Skill Acquisition' align with the Adventure Travel Trade Association's (ATTA, 2020) emphasis on 'Transformational Travel,' suggesting that the competition successfully delivered profound experiential value beyond mere recreation. And participants expressed overall satisfaction with the inflatable Rafting rally competition format, with average scores at a good level across all aspects. These elements are crucial for creating a 'seamless tourism experience' as outlined in the 2018 UNWTO Framework for Tourism Competitiveness.

### **Suggestions**

1. A standardized competition format has been established, which can be adapted to other aquatic sports competitions.

2. It helps promote the image of the National Sports University as a leader in recreation and sports tourism.

3. It stimulates the tourism economy in Nakhon Nayok province through this new competition.

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