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Contents

International Journal of Business and Development Research (IJBDR)
Vol. 9, No. 1, January-December, 2023-2024, pp. 1-20

Effectiveness of Natural Resource Management in Community Conservation, Sustainability, and Socio-Economic Development: An Empirical Study in Kratie and Stung Treng Provinces of Cambodia

Horm Chandet*

ABSTRACT

Natural resource management (NRM) involves the effective and sustainable use of renewable and non-renewable natural resources, engaging various stakeholders at all levels. This study aims to evaluate the effectiveness of NRM in community conservation, sustainability, and socio-economic development among community members in Kratie and Stung Treng provinces of Cambodia. The specific objectives include exploring NRM approaches and strategies in the study area and identifying the challenges faced by conservation practitioners. A systematic random sampling method was used to select 359 community members out of a total of 3,530 in the study area. Tables, figures, percentages, and Chi-square tests were used for the analysis and interpretation of data. The study found that most common NRM approaches, such as community forestry, community fisheries, community-based ecotourism, indigenous communal land titling, community protected areas, and protected area management, were moderately effective. The local communities relied on natural resources for their livelihoods, including fish, forest, and non-timber forest products. However, challenges such as illegal logging, fishing, land encroachment, and hunting threatened the sustainability of natural resources. The article recommends improving communities' living conditions through alternative livelihood development models, promoting private sector engagement in conservation activities, and strengthening sustainable financing mechanisms.

Keywords: Natural resource management; community conservation; sustainability; socio-economic development

1. Introduction

Natural Resource Management (NRM) refers to the efficient and sustainable utilization and protection of renewable and non-renewable natural resources (Freeman, Shiferaw, & Swinton, 2009). These resources, including land, water, air, minerals, forests, fisheries, and biodiversity, provide essential ecosystem services that enhance human life quality. Natural resources are a crucial source of national wealth globally and form the foundation of human survival, progress, and prosperity. Natural resources are a crucial source of national wealth globally and form the foundation of human survival, progress, and prosperity. Agricultural crop production, for example, relies on the interaction between natural resources such as soil, water, weather, and external inputs like seeds, fertilizers, energy, and management (Singh, 2016). NRM involves managing the interaction between people and natural landscapes, integrating biodiversity conservation, water management, and future industrial sustainability. It encompasses decision-making by individuals and groups about allocating natural resources over time and

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space (Williams & Patterson, 1996). NRM involves managing the interaction between people and natural landscapes, integrating biodiversity conservation, water management, and future industrial sustainability. It encompasses decision-making by individuals and groups about allocating natural resources over time and space (Williams & Patterson, 1996).

NRM aligns with the concept of sustainable development, emphasizing a scientific and technical understanding of resources, ecology, and their life-supporting capacity. It requires collaboration with various stakeholders at all levels, considering their values and interests. This collaborative approach, known as "collaborative NRM," involves partnerships, consensus groups, community-based collaboration, and alternative networks working together to protect natural resources. Examples include terrestrial and aquatic resource management, watershed management, community-based conservation, collaborative conservation, community forestry and fisheries, community-based ecosystem management, integrated environmental management, and community-based environmental protection (Conley & Moote, 2003).

Community conservation is an approach that involves the active participation and engagement of local communities in managing and protecting natural resources in their areas (Berkes, 2004). It recognizes the importance of involving communities in conservation efforts, as they are often the primary users of natural resources and have a direct stake in their management and conservation (Agrawal & Gibson, 1999). Community conservation aims to balance conservation goals with the needs and aspirations of local communities. Strategies include community-based natural resource management, co-management arrangements, and the establishment of community-based protected areas (McNeely, 1995). The success of community conservation initiatives depends on community participation, collaboration, and empowerment.

Poor farmers in Asia and the Pacific face major environmental problems such as land and water resource degradation, sedimentation of watercourses, loss of forest resources and biodiversity, and degradation of fisheries. In response to these concerns, many national and international organizations have initiated research and development programs for natural resource management. These efforts include designing low-cost technological options for the integrated management of soil and water resources, developing ecologically sound cropping systems, and conserving and managing agro-biodiversity and forestry resources (Shiferaw et al., 2005). Additionally, sustainable resource management has become popular to balance the ecosystem, sustain agricultural productivity, and ensure the availability of natural resources. However, natural resource degradation may increase the vulnerability of rural households, potentially leading to further overpressure on natural resources (Karamidehkordi, 2012).

The over-exploitation of natural resources due to population growth and economic development has led to severe problems such as land degradation, denudation, soil erosion, landslides, floods, drought, and unbalanced ecosystems. Factors like population growth, poverty, and unclear land use plans are often seen as causes of natural resource degradation (Heath & Binswanger, 1996). Agriculture and natural resources face significant challenges in food security, environmental management, and poverty alleviation. Deforestation and land degradation, primarily resulting from human activities, have adversely affected the

productivity of all agricultural and natural ecosystems, including croplands, rangelands, and forests (Lal, 2010). The loss of soil vegetative cover and topography, especially in developing countries, is a major reason for soil degradation, intensified by extensive forest removal, overgrazing rangelands, cultivation on slopes, and biomass collection from ground cover. These activities leave soil exposed to rain and wind, leading to further degradation (Karamidehkordi, 2012).

Forest conversion to other land uses is crucial for developing policies and measures to reduce forest loss and associated carbon emissions (Sandker et al., 2017). However, forest degradation poses a significant threat to biodiversity habitats. Over the past centuries, deforestation rates by climatic domain have changed dramatically. According to FAO's global assessments in 2005 and 2010, the forest area was almost four billion hectares (30 percent of total land), with another 1,376 million hectares of wooded area and 76 million hectares of land with tree cover. This forest area corresponds to 0.62 hectares per capita, unevenly distributed, with 62 countries having less than 0.1 hectares of forest per capita. Despite progress in conservation and afforestation, trends show a high rate of deforestation between 1990 and 2020, with an estimated loss of 420 million hectares of forest. However, the deforestation rate has decreased from 16 million hectares per year in the 1990s to 10 million hectares per year between 2015 and 2020. The area of primary forest worldwide has decreased by over 80 million hectares since 1990. Over 100 million hectares of forests are affected by forest fires, pests, diseases, invasive species, drought, and adverse weather events (Dangel, 2016).

Population growth and slow economic development in the developing world have led to the illegal exploitation of natural resources, such as timber, minerals, and wildlife, posing a significant threat to global biodiversity and the livelihoods of millions. Illegal tropical logging devastates forest ecosystems, economies, and societies. Sustainable natural resource management and agricultural strategies are needed at global, national, and local levels to balance ecosystems and manage challenges. Poor governance, weak law enforcement, corruption, and lack of transparency contribute to weak forest governance in the Asia-Pacific region (Tacconi, 2007).

Natural resources are an important source of national wealth worldwide and a key factor for human development and sustainability. Humans have always depended on biological resources to provide life’s necessities and amenities: food, fuel, shelter, medicine, recreation, spiritual instruction, solace, and aesthetic pleasure. People make decisions about how to use natural resources based on their values (Gylfason & Zoega, 2001). There is substantial natural resource consumption as a matter of routine, often without awareness of the depletion of these resources and the future negative impact. Over the past decades of industrial activity, countries have acted to protect their interests by investing in and securing their supplies of natural resources that support economic growth (George, Schillebeeckx, & Liak, 2018).

The role of natural resources in contributing to economic growth and development has been controversial in recent literature. Findings on the negative impact of resource abundance on development dynamics question the idea of resource-based development. As Auty points out, "since the 1960s, resource-rich developing countries have performed worse than resource-deprived economies" (Auty, 1998). There is a close relationship between the environment and poverty reduction. Since

the Rio Earth Summit in 1992, the importance of a healthy environment for sustainable livelihoods has been widely recognized, especially among the rural poor in Africa, Asia, and Latin America (United Nations, 1992).

Although the number of people directly dependent on natural resources has decreased over the past two decades, millions of rural poor remain directly dependent on them (DFID et al., 2002). For example, current estimates indicate that up to one billion people are affected by erosion and land degradation due to deforestation.

Cambodia is one of the developing countries rich in natural resources in ASEAN. It has one of the highest levels of forest cover in Southeast Asia, with about 10.7 million hectares of forest in 2006, covering 58.9 percent of Cambodia's land area (FA, MoE, FAO, & UNDP, 2010). About 40 percent of Cambodia's forests have some level of protection as Protection Areas or Protected Forests. However, there are still enormous pressures on forest resources, and the rate of deforestation is high. From the 1980s to the 1990s, the deforestation rate was around two percent annually (or 200,000 ha/year). From 2002 to 2006, it was 0.8 percent (75,000 ha/year) (Cedillo, 2011). Forest resources have been under pressure both for logging and land conversion. These issues have become highly contentious in Cambodia, particularly concerning the granting of Economic Land Concessions (ELCs). By early 2009, the Ministry of Agriculture, Forestry, and Fisheries reported that 65 economic land concessions, totaling about one million hectares, almost 10 percent of forest lands, had been granted for agro-industrial development and permanent mono-cropping of rubber plantations (WWF, 2009). Yet, granting ELCs without in-depth studies of land suitability and broad consultation with local people can create serious social and environmental impacts (WWF, 2009). This has already been identified as one of the main causes of social conflict in rural areas. As the Government observes, "The anarchy in illegal land possession, illegal claim of State land and protected areas as privately owned, and unlawful logging, are still taking place" (RGC, 2010).

Integrated Natural Resource Management (INRM) is the primary approach to ensuring the conservation and sustainable use of biodiversity, natural resources, and ecosystems in Cambodia. This intervention aims to generate multiple landscape benefits, including the effective conservation of globally threatened species and high conservation value forests, improved management of natural resources, and ensured ecosystem services. INRM specifically aims to enhance the management of conservation areas by ensuring financial stability, boosting the productivity of agricultural lands, and improving local livelihoods, all while utilizing water catchments (UNDP Cambodia).

Moreover, Community-Based Natural Resource Management (CBNRM) is one of the most common strategies executed in the provinces of Kratie and Stung Treng by local and international NGOs, the Ministry of Environment, the Ministry of Agriculture Forestry and Fisheries, and the Ministry of Rural Development. Most CBNRM approaches in Cambodia include Community Forestry (CF), Community Fisheries (CFi), Collective Land Titling (CLT), and Community Protected Area (CPA). These CBNRM approaches are incorporated into government legal frameworks (CBNRM in Cambodia, 2006). Local people are expected to participate in CBNRM projects, including CF, CFi, CPA, and CLT, as a

long-term conservation strategy to promote conservation and management outcomes of natural resources. It is accepted by NGOs and government agencies that communities need to be involved in designing and managing the PA, CF, CFi, and CLT and that protecting biodiversity resources can only occur with the provision of alternative local livelihood options to reduce threats such as land clearing for agriculture and harvesting of wild foods and animals (Cascio & Beilin, 2010).

Kratie and Stung Treng provinces in northeastern Cambodia are rich in high-value natural resources. The main conservation areas in these provinces include Dolphin Conservation and Management Zones, the Ramsar Site, the Mekong Fisheries Biodiversity Conservation and Management Area, Sambo and Prek Prasab Wildlife Sanctuaries, CPAs, CLTs, CFs, and CFi's. These areas are home to critical biodiversity values such as the Mekong river dolphin, hog deer, various bird species, and forest and fisheries biodiversity. In addition to these critical values, the landscape provides vital ecosystem services for the livelihood of local communities dependent on these aquatic and terrestrial biodiversity resources.

However, the local communities in these areas are under increasing pressure from internal and external stakeholders and their economic interests. These pressures include illegal logging, fishing, land encroachment, hunting, mining, and unplanned economic development, including the allocation of economic land concessions and other infrastructure projects. There is also significant concern about the proposed hydropower dam in Sambo District, which experts and communities believe will significantly destroy fisheries biodiversity in the Mekong River. Local communities living in these areas will be relocated, affecting people's livelihoods. These pressures result in serious environmental impacts, including declining fish stocks, water quality, forest cover, bank erosion, and decreasing biodiversity values in the landscape, which in turn affect the livelihoods of local communities.

To address these threats, government ministries, including the Ministry of Agriculture Forestry and Fisheries (MAFF), the Ministry of Environment, the Ministry of Rural Development, and local and international NGOs such as the World Wide Fund for Nature (WWF), World Fish, Wildlife Conservation Society (WCS), BirdLife International, Forest and Livelihood Organization (FLO), Cambodia Environment Preservation Association (CEPA), Northeastern Rural Development (NRD), My Village, Save Cambodia's Wildlife (SCW), Development and Partnership in Action (DPA), RECOFTC, and Kampuchea Women Welfare Action (KWWA), operate various approaches including CBNRM, Protected Area (PA) management, and community development. The CBNRM approach is primarily linked with alternative livelihood development. Moreover, government ministries and NGOs also undertake concrete actions to manage the PAs, such as establishing the PAs, zoning, demarcating the PAs, community awareness and education, law enforcement, and patrolling.

2. Objectives of the Study

The objectives of the present study are as below:

i. To examine the effectiveness of natural resource management in community-based conservation and sustainability in the study area.
ii. To examine the effectiveness of natural resource management in socio-economic development of the

local people in the study area.

iii. To identify the challenges faced in natural resource management in the study area.

3. Data and Methodology

The study employs both quantitative and qualitative approaches and relies on primary data collected through individual interviews with members of Community-Based Organizations (CBOs). From a total of 3,530 community members in the study area, a sample size of 359 was calculated using the Yamane (1967) formula. A systematic random sampling method was used to select members from villages where natural resource management activities have been undertaken. SPSS was used for data analysis. The research focused on the Upper Mekong River region of Kratie and Stung Treng provinces in Cambodia. Tables, figures, and percentages were utilized to analyze and interpret the data. To know the significance of change in the income level of the comminuty members in the study area, Chi-sqaure test was done.

4. Results and Discussion

4.1 Community Members' Roles in Natural Resource Management

Table 1 demonstrates the distribution of the selected members according to their roles in the communities. Among the 359 surveyed respondents, 36.5 percent were only members. The percentages of respondents in the Community Patrolling Member (CPM) Committee, Community Forestry Management Committee (CFMC), Community Fisheries Management Committee (CFiMC), and Indigenous Collective Land Management Committee (ICLMC) were 17.3, 16.4, 13.4, and 10.6, respectively. Additionally, 1.4 percent were in the Community Protected Area Management Committee, and 4.5 percent were in the Community-Based Eco-Tourism Management Committee.

Table 1: Distribution of Community Members as per their Roles in Community-Based Natural Resource Management

Sl. No.	Roles	Number	Percent
1	Community Forestry Management Committee (CFMC)	59	16.4
2	Community Fisheries Management Committee (CFiMC)	48	13.4
3	Community Protected Area MC (CPAMC)	5	1.4
4	Community Patrolling Member (CPM)	62	17.3
5	Community-Based Eco-Tourism MC (CBETMC)	16	4.5
6	Indigenous Collective Land MC (ICLMC)	38	10.6
7	Only Members	131	36.5
Total		**359**	**100.0**

Source: Own Survey.

4.2 Knowledge of Community Members on Natural Resource Management

Table 2 indicates the distribution of the Community Members' knowledge on NRM. Overall, 37.9 percent respondents had a basic understanding on the importance of fisheries and dolphin conservation, forestry and wildlife conservation, and relevant laws on NRM. In addition, 29.8 percent of the respondents had a basic knowledge on the importance of fisheries and dolphin conservation, 27.6 percent on the importance of forest and wildlife conservation, and 4.7 percent had a fundamental understanding on relevant NRM laws.

Table 2: Distribution of Community Members as per their Knowledge on Natural Resource Management

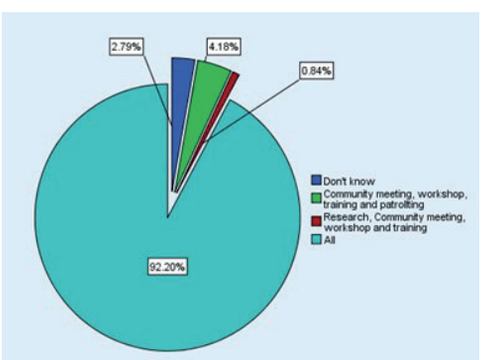
Sl. No.	Roles	Number	Percent
1	Importance of Fisheries and Dolphin Conservation	107	29.8
2	Importance of Forest and Wildlife Conservation	99	27.6
3	Basic Understanding of Relevant Laws on NRM	17	4.7
4	All the Above	136	37.9
Total		**359**	**100.00**

Source: Own Survey.

4.3 Community Participation in Natural Resource Management

Figure 1 demonstrates the NRM activities in which community members participated. Most members were involved in community meetings, workshops, training, research, and patrolling. A majority, 92.2 percent of the interviewees, indicated their participation in NRM activities through community meetings, workshops, training, research, and patrolling. They were members of Community-Based Organizations (CBOs) and understood that these NRM activities were part of their roles.

Figure 1: Percentage of Community Members as per the Views on their Participation in Natural Resource Management



4.4 Effectiveness of NRM in Community Conservation and Sustainability

4.4.1 Community Forestry Management

Table 3 presents the perspectives of community members regarding the impact of Community Forestry (CF) management in the study area. In general, the effectiveness of CF management was assessed as moderately effective. The majority of respondents (66.3 percent) expressed moderate effectiveness, indicating that CF had received legal recognition from the government, the Community Forest Management Committee (CFMC) was functioning, and illegal logging

had decreased compared to the previous decade, but forest loss continued to occur. A smaller proportion (10.5 percent) perceived CF management to be less effective, citing poor performance of the CFMC, ongoing illegal logging activities within the CF area, and an increase in forest loss. A further 2.3 percent considered CF management to be ineffective, highlighting issues such as the ineffectiveness of the CFMC, and widespread illegal logging in the CF area, resulting in significant loss of forest resources and land.

On the other hand, 20.9 percent of respondents regarded CF management as effective. They noted that CF had obtained legal recognition from the government, had a management plan in place, witnessed a reduction in illegal logging activities, and experienced tangible benefits from forest resources, while also actively participating in forest conservation efforts. However, it is worth mentioning that 273 respondents (76.0 percent) were unable to provide an opinion on CF management effectiveness because they were not directly involved in CF management but engaged in other NRM activities.

Table 3: Distribution of Community Members as per their View on the Effectiveness of Community Forestry Management

Sl. No.	Extent of Effectiveness	Number	Percent
1	Not Effective	2	2.3
2	Less Effective	9	10.5
3	Moderately Effective	57	66.3
4	Effective	18	20.9
	Total	86	100.0
	Not Involved	273	(76.0)
Total		**359**	**(100.0)**

Source: Own Survey.

4.4.2 Community Fishery Management

Table 4 shows the community members' views on the effectiveness of CFi management in the study area. More than 56 percent respondents involved in CFi management indicated that CFi management was moderately effective, meaning that the CFi had legal recognition from the government and the CFi management committee was functioning. However, illegal fishing still happens in the CFi area. Nevertheless, 23.9 percent of the officials illustrated that the CFi management was effective because the CFi had legal recognition from the government with their management plan, and the CFi management committees actively participated in fisheries conservation. In contrast, 8.5 percent of the respondents understood that CFi management was not effective, and 11.3 percent was less effective. This means that the CFiMC did not work and was not functioning, and there were many illegal fishing activities in the CFi area and lost fisheries resources. However, 288 (80.2 percent) respondents were not interviewed on CFi management because

they were not involved but engaged with other NRM activities.

Table 4: Distribution of Community Members as per their Views on the Effectiveness of Community Fishery Management

Sl. No.	Extent of Effectiveness	Number	Percent
1	Not Effective	6	8.5
2	Less Effective	8	11.3
3	Moderately Effective	40	56.3
4	Effective	17	23.9
	Total	71	100.0
	Not Involved	288	(80.2)
Total		**359**	**(100.0)**

Source: Own Survey.

4.4.3 Indigenous Collective Land Titling

Table 5 illustrates the effectiveness of Indigenous Collective Land Titling (ICLT). A majority of surveyed community members (59 percent) involved in ICLT expressed their views of ICLT as moderately effective. They attributed this to the Indigenous People (IP) community being legally registered with the Ministry of Interior (MoI), which resulted in decreased illegal logging and land encroachment activities, along with some IP tradition and culture preservation activities. Additionally, 35.9 percent of respondents viewed ICLT as effective because the IP community was legally registered at the MoI, received legal collective land titles from the Ministry of Land Management, Urban Planning and Cadastre (MoLMUPC), and successfully preserved IP tradition and culture. These communities benefited from the communal land on their livelihoods. However, 5.1 percent of respondents viewed Indigenous People Collective Land Title (IPCLT) as less effective due to the poor functioning of the IP community, which led to continued illegal logging and land encroachment activities on IP communal land. It is important to note that 320 respondents (89.1 percent) were not interviewed because they were not involved in IP collective land management, although they engaged in other Natural Resource Management (NRM) activities.

Table 5: Distribution of Community Members as per their Views on the Effectiveness of Indigenous People Collective Land Titling

Sl. No.	Extent of Effectiveness	Number	Percent
1	Less Effective	2	5.1
2	Moderately Effective	23	59.0
3	Effective	14	35.9

	Total	39	100.0
	Not Involved	320	(89.1)
	Total	**359**	**(100.0)**

Source: Own Survey.

4.4.4 Dolphin Conservation

Table 6 provides insights into the effectiveness of dolphin conservation efforts based on the perspectives of the respondents. A majority, comprising 64.44 percent of respondents, perceived dolphin conservation as moderately effective. This perception suggests the presence of river guards conducting patrolling activities, albeit with limited effectiveness in deterring illegal fishing incidents in dolphin pools and the continued occurrence of dolphin deaths. In contrast, 31.11 percent of respondents considered dolphin conservation to be less effective. This view is associated with the presence of some river guards conducting patrolling activities, a high frequency of illegal fishing incidents in dolphin pools, and a significant rate of dolphin mortality. However, a small proportion of respondents, accounting for 4.44 percent, indicated that dolphin conservation was effective. This perspective aligns with the presence of guards conducting patrolling activities, a decrease in illegal fishing incidents in dolphin pools, a stabilized dolphin population, and an increase in community income through ecotourism. It is important to note that 314 (89.1 percent of the total) respondents did not provide input on the effect of dolphin conservation due to their involvement in other natural resource management (NRM) activities. This underscores the need to consider a diverse range of perspectives and engage a broader set of stakeholders to obtain a comprehensive understanding of the effectiveness of dolphin conservation initiatives.

Table 6: Distribution of Community Members as per their Views on the Effectiveness of Dolphin Conservation

Sl. No.	Extent of Effectiveness	Frequency	Percent
1	Less Effective	14	31.1
2	Moderately Effective	29	64.4
3	Effective	2	4.4
	Total	45	100.0
	Not Involved	314	(87.5)
	Total	**359**	**(100.0)**

Source: Own Survey.

4.4.5 Community-Based Ecotourism

Table 7 presents the perspectives of the community members regarding the impact of Community-Based Ecotourism (CBET).

Overall, the majority of respondents (86.2 percent) involved in CBET expressed that it had a moderate level of effectiveness. This perception is attributed to CBET's official registration within the CBET management structure, its well-defined service provider groups, and its ability to generate income through its services. In contrast, 13.8 percent of the community members regarded CBET as effective due to its official registration with a functional management structure, clear marketing strategy, and a diverse range of services. Additionally, CBET was observed to have increased incomes, utilized a portion of the profits for Natural Resource Management (NRM) and development initiatives, and generated income for the respondents. It is important to note that, among the 359 surveyed respondents, 314 respondents (87.5 percent) did not discuss CBET as they were not involved in CBET activities but were instead engaged in other NRM-related endeavors.

Table 7: Distribution of Community Members as per their Views on the Effectiveness of Community-Based Ecotourism

Sl. No.	Extent of Effectiveness	Frequency	Percent
1	Moderately Effective	25	86.2
2	Effective	4	13.8
	Total	29	100.0
	Note Involved	314	(87.5)
	Total	**359**	**(100.0)**

Source: Own Survey.

4.4.6 Wildlife Sanctuary Management

Table 8 demonstrates the community members' views on the effectiveness of wildlife sanctuary (WS) management. Most respondents (78.7 percent) involved in WS management viewed wildlife sanctuary management as moderately effective. This high percentage is attributed to the increase in conservation activities, including patrolling, awareness outreach, and community participation in conservation efforts. However, poaching activities in WS still occurred. Effective WS management was noted by 16.9 percent of respondents, who credited the establishment of more conservation activities, strong community participation, and a clear patrolling plan for the decrease in poaching activities. Fewer respondents mentioned that WS management was ineffective, citing concerns about ongoing poaching activities in the protected area (PA) and significant biodiversity loss. It is also noted that 270 respondents (75.2 percent of 359) did not discuss the effect of wildlife sanctuary management because they were not involved in this activity but were engaged in other NRM-related activities.

Table 8: Distribution of Community Members as per their Views on the Effectiveness of Wildlife Sanctuary Management

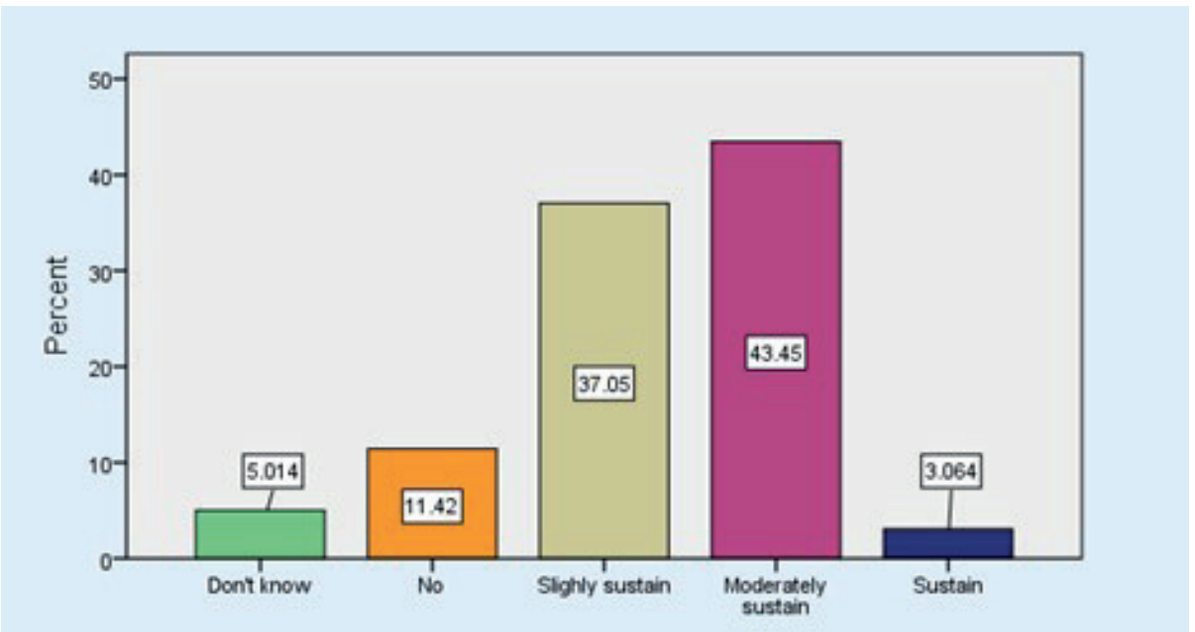
Sl. No.	Extent of Effectiveness	Frequency	Percent
1	Moderately Effective	25	86.2
2	Effective	4	13.8
	Total	29	100.0
	Note Involved	314	(87.5)
	Total	**359**	**(100.0)**

Source: Own Survey.

4.4.7 Sustainability of Natural Resource Management

Figure 2 shows the community members' views on the sustainability of natural resource management (NRM) without the support of NGOs and the Government. A large number of respondents (43.5 percent) stated that they could moderately sustain NRM activities after the project. Additionally, 37 percent mentioned they could slightly sustain, 11.4 percent responded they could not sustain, and five percent replied they did not know. Although only 3.1 percent of the interviewees answered that they could sustain NRM activities without support from the government and NGOs, this was attributed to the community functioning with clear roles and responsibilities, as well as having a strong capacity to lead NRM activities. Moreover, the community had financial schemes such as community forestry (CF) credit and members' fees, which could be utilized for community NRM activities.

Figure 2: Percentage of Community Members as per their Views on the Sustainability of Natural Resource Management



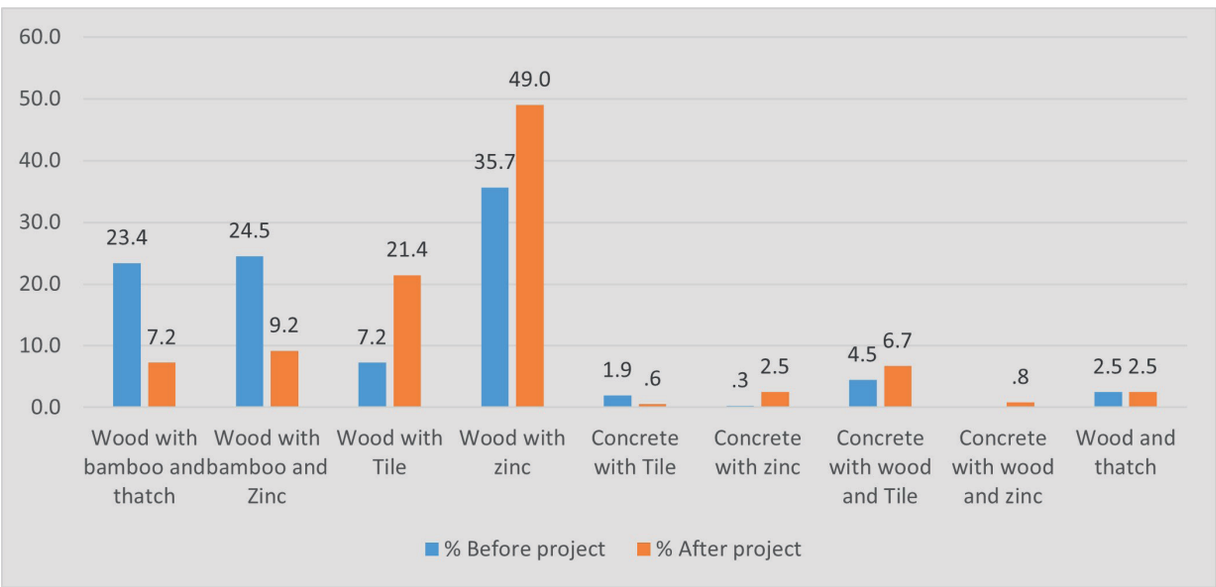
4.5 Effectiveness of Natural Resource Management on Socioeconomic Development

4.5.1 House

Figure 3 provides information on the community members' house conditions before and after the project. Overall, most people had houses made of wood and zinc (with zinc for the roof) both before and after the project implementation. According to the respondents, after the project, there was a remarkable improvement in their houses, transitioning from wood-bamboo to thatch, wood-bamboo to zinc, and wood, tile, or zinc.

Before the project, about 35.7 percent of respondents had houses made of wood and zinc, and 24.5 percent had houses made of wood with bamboo and zinc. In addition, 23.4 percent of the respondents had houses made of wood with bamboo and thatch, and 7.2 percent had houses made of wood and tile. Lastly, less than five percent of the respondents had houses made of concrete with tile, concrete with zinc, and concrete with wood and tile. After the project, almost 49 percent of respondents had houses made of wood and zinc, followed by 21.4 percent with houses made of wood and tile, 9.2 percent with houses made of wood-bamboo and zinc, 7.2 percent with houses made of wood-bamboo and thatch, and 6.7 percent with houses made of concrete and zinc. Lastly, less than three percent of the community members had houses made of concrete with tile, concrete with zinc, concrete with wood and zinc, and wood with thatch.

Figure 3: Percentage of Community Members on their House Type Before and After the Natural Resource Management Project



4.5.2 Household Equipment

Table 9 illustrates the percentages of the respondents' household equipment for consumption before and after the project. Before the project, most people had simple equipment such as bicycles, phones, radios, and TVs. In contrast, after the project, most respondents had additional motorbikes and agricultural machines. Consequently, this finding shows that respondents improved from basic equipment to a combination of basic equipment, motorbikes, and agricultural machines (tractors, water pumps, and rice mills).

Before the project, 45.1 percent of the respondents had simple equipment for

household consumption, 18.9 percent had simple equipment and a motorbike, and 16.7 percent had simple equipment plus a motorbike and an agricultural machine. Additionally, 8.9 percent had simple equipment plus a boat with an engine. Less than five percent of the respondents had simple equipment plus a motorbike and a boat with an engine, simple equipment plus a motorbike and a car, or simple equipment plus a motorbike, a car, and an agricultural machine. After the project, most respondents (32.9 percent) had simple equipment and motorbikes, and 32 percent had simple equipment, motorbikes, and agricultural machines. Moreover, 18.1 percent had simple equipment, motorbikes, and engine-boats, and 9.2 percent had simple equipment, motorbikes, cars, and agricultural machines. In contrast, less than four percent had simple equipment with motorbikes and cars, simple equipment with engine-boats, and simple equipment.

Table 9: Distribution of Community Members as per their Views on the Type of Household Equipment they Possessed Before and After the Natural Resource Management Project

Sl. No.	Type of Household Equipment	Before the Project		After the Project	
		Number	Percent	Number	Percent
1	Do not have	6	1.7	0	0
2	Simple Equipment (Bicycle, Phone, Radio, and TV)	162	45.1	6	1.7
3	Simple Equipment and Motorbike	68	18.9	118	32.9
4	Simple Equipment and Engine-Boat	32	8.9	5	1.4
5	Simple Equipment, Motorbike, and Engine-Boat	11	3.1	65	18.1
6	Simple Equipment, Motorbike, and Car	5	1.4	14	3.9
7	Simple Equipment, Motorbike, Engine-Boat, and Car	0	0	3	.8
8	Simple Equipment, Motorbike, and agriculture Machine (Tractor, Water Pump, and Rice Mill)	60	16.7	115	32.0
9	Simple Equipment, Motorbikes, Car, and Agriculture Machine	15	4.2	33	9.2
Total		**359**	**100.0**	**359**	**100.0**

Source: Own Survey.

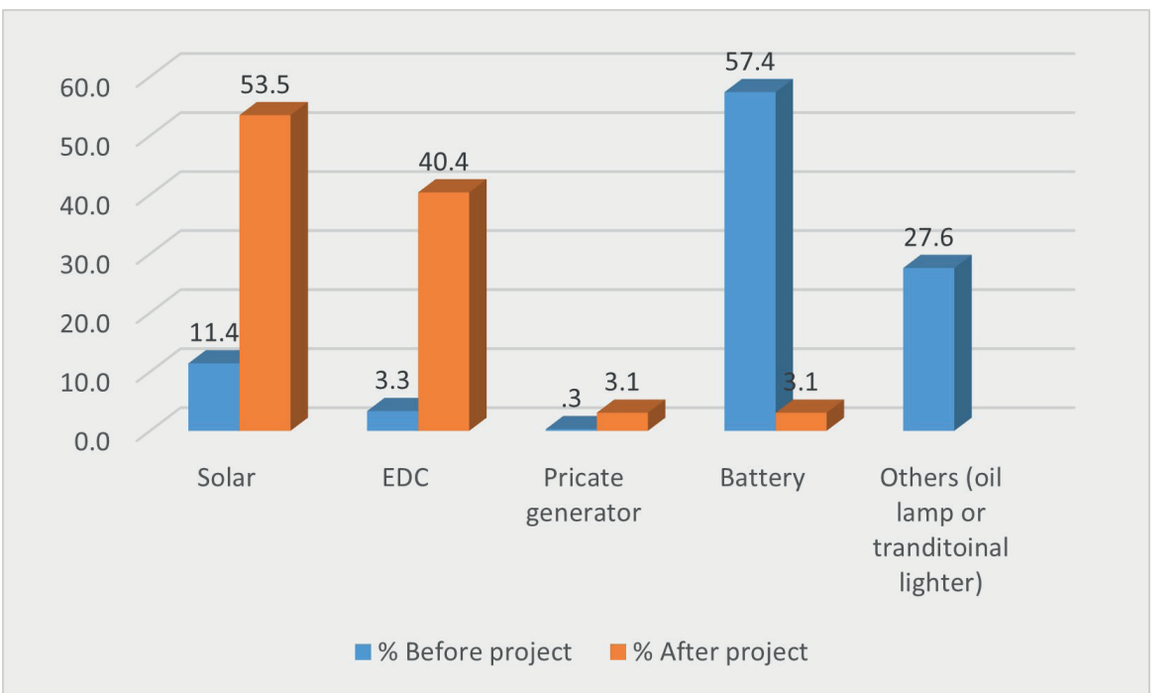
4.5.3 Electricity Supply

Figure 4 provides information about the percentages of respondents who used electricity as per their source of energy supply before and after the project implementation. Overall, the community members had improved their sources of electricity supply from using batteries (before the project) to consuming solar energy and state electricity (EDC) after the project. In addition, after

the project, most people used solar as their primary source of electricity supply.

Before the project, 57.4 percent of the people used batteries, and 27.6 percent of respondents used oil lamps and other traditional sources for lighting in their houses. Additionally, 11.4 percent of community members used solar as their electricity supply, and less than three percent of people used state electricity or private generators. In comparison, after the project, most people (53.5 percent) used solar, 40.4 percent used state electricity (EDC), and 3.1 percent used private generators and batteries.

Figure 4: Percentage of Community Members as per their Views on the Electricity Supply Before and After the Natural Resource Management Project



4.5.4 Income Source

Table 10 shows the community members' income sources before and after the project implementation. Overall, before the project, the majority of respondents' sources of income were farming (rice and other farming) and fishing. After the project, most respondents' sources of income were farming, livestock, and fishing.

Before the project, approximately 27.6 percent of respondents' sources of income were from farming and fishing, 20.9 percent from farming and livestock, 12.8 percent from farming and labor work, 10.6 percent from farming, livestock, and fishing, 6.7 percent from farming and other supplementary incomes, and 5.6 percent from fishing and labor work. Less than five percent of the respondents depended on single sources such as farming, farming with logging and hunting, farming with livestock and fishing and salary, and farming with livestock and grocery and logging. After the project, approximately 26.7 percent of the respondents generated their incomes from farming with livestock and fishing, 19.2 percent from farming and other supplementary incomes, and 16.2 percent from farming and livestock. Less than nine percent of the community members

depended on farming and fishing, farming with livestock and fishing and salary, farming and labor work, farming-livestock plus fishing and salary, farming-fishing-livestock plus labor work with grocery and others, fuel farming, and farming-fishing.

Table 10: Distribution of Community Members as per their Views on the Sources of Income Before and After the Natural Resource Management Project

Sl. No.	Sources of Income	Before the Project		After the Project	
		Number	Percent	Number	Percent
1	Farming (Rice and Others)	4	1.1	2	0.6
2	Farming, Logging, and Hunting	17	4.7	0	0
3	Farming and Other Supplementary Incomes	24	6.7	69	19.2
4	Farming, Fishing, and Salary	8	2.2	7	1.9
5	Farming, Livestock, Fishing, and Salary	3	.8	28	7.8
6	Farming, Livestock, Fishing, Grocery, and Others	-	-	15	4.2
7	Farming and Fishing	99	27.6	29	8.1
8	Farming, Livestock, Grocery, and Logging	5	1.4	-	-
9	Farming and Livestock	75	20.9	58	16.2
10	Farming, Livestock, Fishing, and Labor Work	20	5.6	21	5.8
11	Farming and Labor Worker	46	12.8	27	7.5
12	Farming, Livestock, and Fishing	38	10.6	96	26.7
13	Livestock and Fishing	20	5.6	1	0.3
14	Livestock, Fishing, and Salary	-	-	6	1.7
Total		**359**	**100**	**359**	**100**

Source: Own Survey.

4.5.5 Income Level

Table 11 demonstrates the information on the different annual income groups of the community members before and after the project. Overall, before the project, most respondents generated income between USD 1,500-2,000 per year compared to USD 2,000-5,500 after the project. This indicates an increase in respondents' annual incomes after the project.

Before the Natural Resource Management (NRM) project, 27.9 percent of the respondents generated an annual income between USD 1,500-2,000, 18.4 percent earned between USD 2,500-3,000, and 18.9 percent earned between USD 2,000-2,500 per

year. In addition, 10 percent of the community members generated their annual income between USD 1,000-1,500, 9.2 percent earned between USD 3,000-3,500, six percent earned between USD 500-1,000, and 4.7 percent earned between USD 3,500-4,000. Nevertheless, fewer respondents earned between USD 4,000-4,500, 4,500-5,000, and 5,000-2,500. After the project, 22.8 percent of the local people made their annual income between USD 4,000-4,500, followed by 18.7 percent earning between USD 3,000-3,500, 15.3 percent earning between USD 2,500-3,000, and 10.3 percent earning between USD 2,500-3,000. Additionally, 9.7 percent earned between USD 1,500-2,000. In contrast, no respondents earned an annual income between USD 500-1,000 after the project, compared to 6.4 percent before the project. The percentage of respondents generating incomes of USD 4,000-4,500, 4,500-5,000, and 5,000-5,500 increased from less than one percent before the project to 17 percent and 23 percent, respectively, after the project.

The above analysis indicates that many community members moved to higher income groups after the NRM project activities. The Chi-square (χ^2) results in the table show a significant improvement in the income level of the community members after the implementation of the natural resource management project activities in the study area. The Chi-square value is estimated at 690.577 with 90 degrees of freedom and a 0.000 significance level.

Table 11: Distribution of Community Members as per their Views on the Annual Income Level Before and After the Natural Resource Management Project

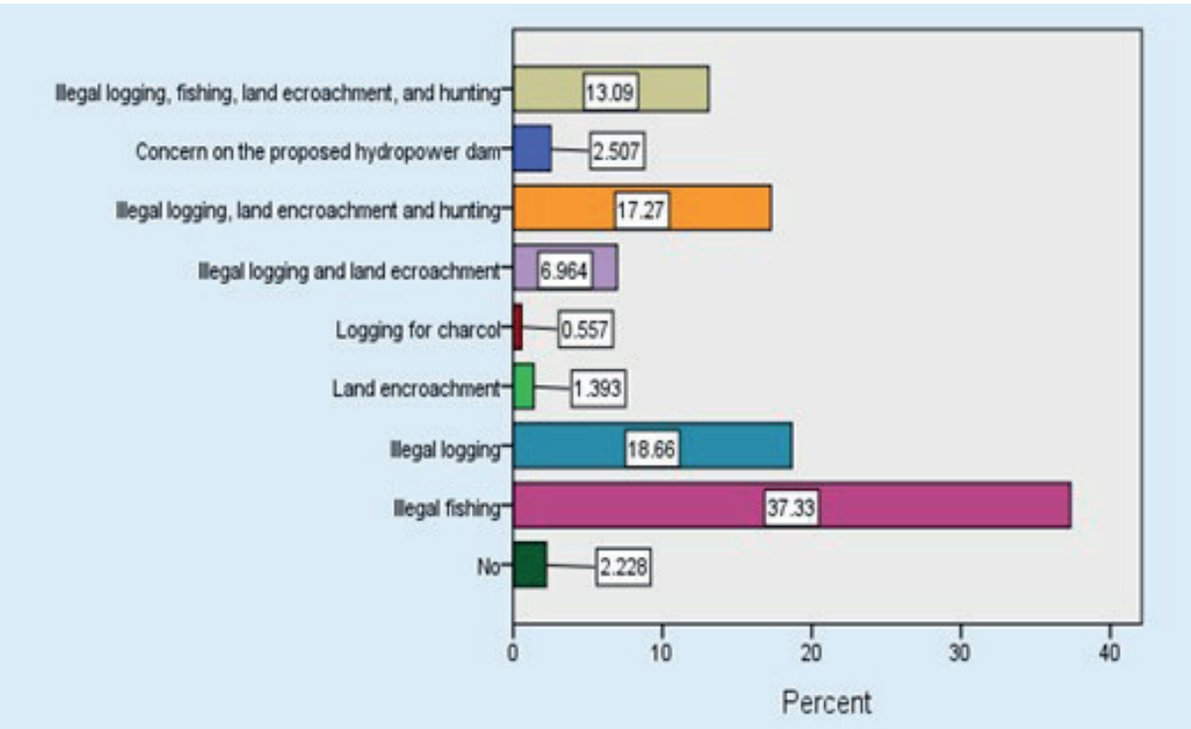
Sl. No.	Annual Income Level (In USD)	Before the Project		After the Project	
		Number	Percent	Number	Percent
1	500 - 1,000	23	6.4	-	-
2	1,000 - 1,500	36	10.0	6	1.7
3	1,500 - 2,000	100	27.9	35	9.7
4	2,000 - 2,500	66	18.4	82	22.8
5	2,500 - 3,000	68	18.9	55	15.3
6	3,000 - 3,500	33	9.2	67	18.7
7	3,500 - 4,000	17	4.7	37	10.3
8	4,000 - 4,500	2	.6	23	6.4
9	4,500 - 5,000	1	.3	23	6.4
10	5,000 - 5,500	1	.3	17	4.7
11	More than 5,500	12	3.3	14	3.9
Total		**359**	**100**	**359**	**100**
χ^2 Value = 690.577		df = 90		Sig. Level = 0.000	

Source: Own Survey.

5. Challenges Faced in Natural Resource Management

Figure 5 provides information on the distribution of community members as per their views on the challenges of Natural Resources Management. Overall, illegal fishing activity was perceived as a significant challenge to natural resource management, followed by illegal logging, land encroachment, and hunting. The figure shows that 37.3 percent of the respondents indicated illegal fishing as a threat to natural resources, while around 18 percent pointed to illegal logging, land encroachment, and hunting. Additionally, 13.1 percent of the respondents identified illegal logging, fishing, land encroachment, and hunting as challenges to natural resource management. Seven percent mentioned illegal logging and land encroachment, and 2.5 percent were concerned about the proposed hydropower dam.

Figure 5: Percentage of Community Members as per Their Views on the Challenges They Observed in Different Natural Resource Management Activities



6. Conclusion

Thus, the study found that community-based natural resource management approaches, including community forestry, community fisheries, community-based ecotourism, indigenous communal land titling, community protected areas, and protected area management, were common approaches implemented and supported by the government, civil society organizations, and development partners in the study area of Kratie and Stung Treng Provinces. The study revealed that the implementation and management of these approaches were moderately effective due to several challenges, such as illegal logging, fishing, land encroachment, and hunting in conservation areas, resulting from poor law enforcement. While most community-based organizations, such as CF, CFi, CBET, and ICLT, were

legally registered and operated with their management plans, limited law enforcement led to the degradation of natural resources. The findings indicate that community-based natural resource management approaches are effective in promoting sustainable natural resource management. The study found that natural resource management had a significant impact on community conservation and sustainability as well as the socio-economic development of the community members. However, the success of these natural resource management approaches depends on the level of community participation, collaboration, and empowerment.

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Assessing the Impact of the KMRP Strategies on Tour Guide Performance in Riem Reap, Cambodia

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ABSTRACT

This paper examines the pivotal roles played by tour guide professionals (TGPs) in the success of tourism and their contribution to the socio-economic development of host countries. Despite varying tourist satisfaction levels due to cultural differences and diverse purposes, effective tour guide strategy (TGS) is essential for the success of TGPs. The study defines the types of TGPs and the competencies required for effective TGS, identifying five distinct types: Community, Provincial, Regional, National, and Specialized TGPs. Each type requires specific qualifications and competencies. The research focuses on the impact of KMRP strategies, Knowledge (K), Methodology (M), Relationships and Networks (R), and Professional Ethics (P), on Tour Guide Performance (TGP). Using a multiple regression model and Likert Scale measurements, the study found that these strategies significantly influence TGP, with each independent variable having a notable individual impact. These findings highlight the critical role of KMRP strategies in enhancing tour guide performance. In the context of a globalized and competitive environment, the paper emphasizes the need for TGPs to be strategically oriented and professionally competent. The study concludes with recommendations for TGPs to analyze their current situation, critically study key KMRP strategies, and develop individualized professional strategies to ensure success.

Keywords: Tour guide professionals (TGPs); tour guide strategy (TGS); KMRP strategies; tour guide performance (TGP)

1. Introduction

The tour guide (TG) profession has been recognized as a key component within the tourism industry, particularly in the realm of tour operations (ASEAN, 2018). Scholars have established that tourists are generally satisfied with guided tours (Schmidt, 1979; Holloway, 1981; Hughes, 1991; Bowie & Chang, 2005; Chang, 2014; Huang, 2011; Ballantyne & Packer, 2011; Wolf et al., 2013; Weiler & Black, 2015). Tour guide professionals (TGPs) perform multiple roles within the tourism system (Cohen, 1985; Pond, 1993). Tour guide profession is one of the oldest professions in the world. The evolution of the tour guide profession has developed in tandem with other tourism professionals, indicating a process of continuous development rather than a sudden change.

The diversity of functions undertaken by the TGPs makes it difficult to utilize solely a single definition (Cruz, 1999). There is no single definition of the TGPs (Chilembwe & Mweiwa, 2014). The WFTGA (2021) has defined the TGP as a person who guides visitors in the language of their choice and interprets the cultural and natural heritage of an area. This person normally possesses an area-specific qualification, usually

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issued and/or recognized by the appropriate authority. The TGP is defined as the person who interprets archaeology, history, natural environment, and cultural knowledge to tourists (IFTTA, 2019). The tradition of TGP interpretation has faced many challenges with the rise of the information era (Lu & Zhao, 2019). Due to the criteria for interpreting tourism sources, the TGP is defined by their knowledge of foreign languages (WFTGA, 2019). FEG (2019) focused on TGPs' services and experiences for tourists as per the TGP's definition. TGPs are also defined by their professional competencies, roles, and types of activities they perform.

The roles of TGPs have been the subject of extensive scholarly attention. Studies have gradually defined the significance of this profession within tourism (Cohen, 1972, 1979, 1982, 1985; Schmidt, 1979; Holloway, 1981; Pearce, 1984; Fine & Speer, 1985; Katz, 1985; Weiler & Devis, 1993; Pond, 1993; Jensen, 2000; McDonnell, 2001; Dahles, 2002; Dioko & Unakul, 2005; Salzar, 2006; Prakash & Chowdhary, 2009; Tanaka, 2010; Poudel & Nyaupane, 2011; ASEAN, 2018; Ninpradith, 2019). Cohen (1985) largely pioneered the exploration of the dynamic roles of TGPs. He identified that the original roles of TGPs evolved from those of pathfinders and mentors. Cohen's study found two main roles for TGPs: leadership and mediation. However, the role of cultural broker has also been documented in several studies as significant for TGPs (Holloway, 1981; Pearce, 1984; Katz, 1985; Cohen, 1985; Pond, 1993; Gurung et al., 1996; Ap & Wong, 2001; Weiler & Ham, 2002; Dahles, 2002). Maintaining a balanced relationship between visitors, tour operators, travel agencies, service suppliers, regulatory bodies, and locals is a challenging aspect of the TGPs' role (Weiler & Ham, 2002).

TGPs can bridge conflicted relations and foster understanding across communities (Causevic & Lynch, 2011; Skinner, 2016). Alternatively, TGPs may reinforce power dynamics inherent in colonialism and orientalist perspectives of natives (Bruner, 2004; Bunten, 2008; Crick, 1989). TG profession is a crucial element in the tourism value chain (Foster, 1985; Prakash & Chowdhary, 2009), and its importance has been increasingly consolidated within tourism (ASEAN, 2018). Tourism is defined as a social, cultural, and economic phenomenon involving the movement of people to locations outside their usual environment for personal or professional purposes (UNWTO, 2019). According to the UNWTO (2019), tourism is a vital economic development tool for many countries (Foster, 1985; ASEAN, 2018; WTTC, 2019).

TGPs have significantly contributed to the success of tourism and the socio-economic development of host countries. TG profession is a labor-intensive component of the tourism industry (Kim et al., 2013; ASEAN, 2018; WTTC, 2019) and is among the top ten occupations globally. The tourism industry is a major global economic driver (ASEAN, 2018), contributing substantially to global Gross Domestic Product (GDP) (WTTC, 2019). ASEAN (2018) has facilitated the mobility of tourism professionals across the region under the ASEAN Mutual Recognition Arrangement on Tourism Professionals (MRA-TP). To be a successful TGP, professional recognition and competence are required. TGPs must develop and implement strategies for professional success, positioning themselves as strategists within their professions. The need for tour guide strategy (TGS) is both urgent and essential.

Recently, the competencies of TGPs have been studied by various scholars (Tanaka, 2010; Supriadi & Aniroh, 2014; Lin et al.,

2017; Ninpradith et al., 2019), who have tried to map the required competencies for TGPs and align them with TGs' performance in the working context. Based on McClelland (1973), Ninpradith et al. (2019) confirmed the competence of TGPs' attribution from knowledge, skills, ethics, and attributes. TGPs mainly require competence to perform professional services (Mao & Wang, 2010; Tanaka, 2010; Chen et al., 2012; Hoarau, 2014; Lin et al., 2017; ASEAN, 2018; Napradith et al., 2019), successfully accomplishing their jobs. As Batman et al. (2000) point out, the reality of the TGPs' challenges involves many difficulties and problems. To face these challenges, TGPs require significant competence to perform professionally, effectively, and flexibly to satisfy tourists. Professional competencies are mainly associated with individuals' jobs. As tourism professionals, TGPs must acquire the knowledge, skills, and attitudes to perform their roles effectively at work (Lin et al., 2017; ASEAN, 2018).

In line with ASEAN policy, ASEAN (2018) seeks to enhance the international establishment of the Mutual Recognition Arrangement on Tourism Professionals (MRA-TP) to mobilize tourism labor across the ASEAN region. Each ASEAN nation has its own standards, certification, and regulations for recognizing the competency of workers in the tourism sector. Governments should also be aware of competency standards, specifying the knowledge and skills required for successful workplace performance and the required performance standards, as tourists come from different cultural backgrounds and have different service quality preferences.

Von Neumann and Morgenstern (1947) defined strategy as a series of actions decided according to the situation. Strategy involves formulating basic long-term goals and objectives, adopting actions, and allocating necessary resources to achieve these goals (Chandler, 1962). Strategy and structure are considered managerial choices and actions rather than results, with structure following strategy. If structure is insufficient, strategy compensates (Waterman et al., 1980). As such, professionals must perform competently and act flexibly to achieve their objectives.

Having a good strategy is not just about achieving strategic success. It must involve the right people doing the right things in the right way (Johnson et al., 2008). The perspective of strategy as practice (SAP) is conceptualized as a situated, socially accomplished activity. Strategizing involves actions, interactions, and negotiations among multiple actors and situated practices in achieving that activity (Jarzabkowski, 2005). SAP reveals that the strategist is a strategic actor (Regner, 2003; Whittington, 2006; Jarzabkowski et al., 2007; Balogun & Johson, 2004; Best, 2011), particularly a strategy practitioner. As potential strategic actors, strategists develop strategizing activities and methodologies (Johnson et al., 2008) and organize strategy, which involves the intersection between praxis, practice, and practitioners (Jarzabkowski et al., 2007).

To overcome challenges and achieve success, the tour guide strategy (TGS) needs to be strategized for the tour guide professionals (TGPs). Best (2011) categorized the TGP as a strategist, while various authors have also studied the TGS. However, these TGS studies focused more on interpretation and communication strategy, emphasizing the TGPs' role as intercultural mediators.

For the smooth operation and well-being of clients, the TGP takes significant responsibility (Cohen, 1985; Pond, 1993; Larsen & Meged, 2013). The TGS needs to

be defined differently through actual time and context, reflecting the evolution of both concept and practice in the profession. Huang (2011) noted that TGs faced conflicts with tourists or between tourists and adopted various strategies according to the roles, identities, and relationships they deemed most appropriate in particular situations. Best (2011) described strategy in two significant ways: acting to reflect and reiterate the strategy of audience engagement. The TGP divides the audience into subsets, a fundamental way in which TGs operate. Usually, audiences are treated as a homogeneous mass in tour guiding literature (Ham & Weiler, 2002; Pond, 1993; Schmidt, 1979) and in performance studies literature (Heritage & Greatbatch, 1986; Schechner, 2002; Turner, 1986).

Authors have related strategy to positioning the TGP to overcome professional challenges (Best, 2011; Magablih et al., 2010; Brito, 2012; Braga et al., 2013; Purnomo, 2017; Ababneh, 2018; Lu & Zhao, 2019). Different tourists need specific strategies (Braga et al., 2013). According to intercultural interpretation strategies, the interpretive strategies used by TGPs engage tourists through questions, humor, storytelling, and connections with tourists' reality and fantasy. Appropriate intercultural communication skills and effective use of intercultural interpretation strategies facilitate changing tourists' worldviews (Brito, 2012). There are five communication strategies: achievement or compensatory strategies, interactional strategies, avoidance or reduction strategies, self-monitoring strategies, and stalling or time-gaining strategies (Ekayati & Saniaty, 2018). According to Lu & Zhao (2019), improved language art strategies for the TGP include: preparing for the journey, increasing accuracy and focus on detail, continuously improving professionalism, cultivating both oral and body language, and focusing on service experience. The language art for the TGP is comprehensively practical, skillfully using the language art of the TG. The TGPs should focus on self-development, strengthening self-cultivation, improving moral quality, and using the language of tour guides to provide quality services to make tourists feel valued.

Interpretation strategies vary according to tourists' nationalities and the TGPs' personal characteristics (Brito, 2012). The TGS of interpretation strategies includes transliteration, paraphrasing, expansion, providing cultural equivalents, neutralization, literal translation, reduction, and recognized translation (Magablih et al., 2010). Purnomo (2017) found that Indonesian tour guides used five interpretive strategies to interpret cultural terms, from most to least frequent: addition strategy, borrowing strategy, synonymy strategy, descriptive equivalent strategy, and componential analysis strategy. Ababneh (2018) developed interpretive strategies on five potential themes: cultural history, natural resources, recent history, association of place, events, and people, and stewardship. Purnomo (2017) emphasized that TGPs' interpretation skills make guiding services more meaningful, especially in overcoming cultural obstacles.

Henderson (1989) emphasized that effective strategy depends on understanding the environment, market, and competitors, analyzing these dynamics, and creatively selecting alternatives. The strategy involves activities such as strategic planning and strategic thinking (Mintzberg & Quinn, 1996). It is about making choices and trade-offs; it is not about deliberately choosing to be different. The essence of strategy is choosing what not to do (Porter, 1996). With a strategy, tour guides can effectively perform their roles and

enhance their effectiveness for success. Tour guides have a substantial impact on tourists' satisfaction. Tour guide strategies were employed to enhance tourists' satisfaction (Goeldner & Ritchie, 2012), manage group dynamics (Urry & Larsen, 2011), shape perceptions (Geertz, 1973; Khoo-Lattimore et al., 2016), provide cultural interpretation and preservation (McKercher et al., 2014), and ensure safety and well-being (Cooper et al., 2008). An effective strategy is necessary for tour guides to optimize tourists' memorable experiences and satisfaction. There remains a persistent need for systematic evaluation of the effectiveness of tour guide strategies.

Informed tour guides employ knowledge strategies that contribute significantly to tourists' learning experiences, fostering an in-depth appreciation for the visited site. In this strategy, tour guides act as educators by providing historical, cultural, and socio-economic insights that enrich tourists' understanding of the destination. Knowledge serves as a foundational tour guide strategy by enriching the educational value of tours (Mason & Miorandi, 2011), enhancing interpretation (Cohen, 1985), building credibility (Ap & Wong, 2001), fostering engagement (Holloway, 1981), promoting marketing and repeat business (Pond, 1993), and managing unexpected situations (Zhang & Chow, 2004). Knowledgeable tour guides create meaningful connections between tourists and destinations. They excel in interpreting the significance of landmarks and historical sites. This interpretation not only informs but also inspires tourists visiting sites (Poria et al., 2001). It enhances tourists' trust and confidence in the tour experience, leading to higher levels of satisfaction (McKercher et al., 2014). Several studies have assumed knowledge as a strategy for tour guides (Dabi, 2003; Wai, 2003; Jiayi & Ha, 2006; Zibra, 2010). These studies have rated tour guides' knowledge and shown the significance of knowledge for tourists' engagement.

Methodology as a tour guide strategy involves using systematic and structured approaches to planning, delivering, and evaluating tours. A well-defined methodology enhances the efficiency, effectiveness, and professionalism of tour guiding. Developing a clear methodology for planning tours includes researching destinations, understanding the audience, and designing itineraries that maximize visitor engagement and satisfaction. Tour guiding methodology ensures that tours are well-organized and run smoothly (Weiler & Ham, 2001). Methodological approaches to time management ensure that tours stay on schedule, covering all planned sites without rushing or dragging. Using methodology as a strategy allows tour guides to balance tours, which is crucial for maintaining visitor satisfaction and managing logistic aspects effectively (Geva & Goldman, 1991).

A strategic methodology includes employing various engagement techniques such as storytelling, interactive activities, and multimedia aids. These methods make the tour more dynamic and engaging, catering to different learning styles and keeping the audience interested (Moscardo, 1996). Methodology as a tour guide strategy also addresses cultural sensitivity and interpretation (McGrath, 2007), safety and risk management (Wong & Lee, 2012), evaluation, and feedback (Black & Weiler, 2005). Staying updated with the latest knowledge, techniques, and industry standards ensures tour guides provide high-quality services (Cohen, 1985). Engaged tourists are likely to have more memorable experiences and positive perceptions of the destination. Engaging tourists through compelling narratives and interactive sessions

can maintain tourists' interest and emotional connection to the destination (Govers & Go, 2009).

Moreover, tour guides use ethics as their strategy to ensure tours are conducted in a responsible, respectful, and sustainable manner. This approach not only enriches the tourist experience but also contributes positively to the local community, environment, and cultural heritage. An ethical tour guide strategy involves respecting local culture and heritage, environmental responsibility and wildlife tourism, community engagement, safety and well-being (WTTC, 2019), and honesty (UNWTO, 2019). Furthermore, tour guides' ethics are observed as a strategy for successful action (Pyle, 2000; Harky, 2001; Wynni, 2003; Aneza, 2005). Bedi and Nec (2005) found that tour guides' ethics and relations were strategies in action.

Utilizing relationships as a tour guide strategy is remarkable; successful tour guides perform their work effectively (Wiet, 2000; Fedi, 2002; Hauri, 2005; Zinika, 2009). Tour guides' relationships significantly enhance the experience for tourists by fostering a sense of connection, engagement, and personalization. Building rapport with tourists by learning and using their names, understanding their interests, and making personal connections makes the tour more interactive and engaging (Wynn, 2011). Tour guides need to be aware of cultural norms and sensitivities in their relationships with tourists (Reisinger & Lindsay, 2011).

Tailoring tours to meet the preferences of diverse tourists is essential for satisfaction. According to McKercher et al. (2014), personalized strategies that consider individual needs and expectations contribute significantly to tourists' overall enjoyment and likelihood of recommending the tour. Strategies employed by tour guides can influence tourists' perception of the destination and its cultural heritage. The effectiveness of tour guide strategies contributes to a positive destination image by fostering memorable experiences that align with tourists' expectations and motivations for travel. Effective strategies help tour guides engage tourists actively throughout the tour (Govers & Go, 2009).

For Cambodia's economy, tourism is one of the most important sectors, alongside agriculture, industry, and service. In 2013, tourist arrivals increased by 17.5 percent, with business travelers increasing by 47 percent (Calderon, 2013). This primarily reflects the economic activities generated by industries such as hotels, travel agents, airlines, and other passenger transportation services (excluding commuter services). It also includes the activities of the restaurant and leisure industries directly supported by tourists. The direct contribution of travel and tourism to GDP was KHR 9,888.6 billion (USD 2.4 billion), 12.2 percent of total GDP in 2016, and was forecasted to reach KHR 20,491.7 billion (USD 5.0 billion), 11.7 percent of total GDP in 2017. According to the tourism statistics report of 2018, tourism arrivals increased by 10.7 percent to 6,201,077 (MOT, 2018). Tourism in Cambodia is recognized as "Cultural and Natural Tourism," and the four regions for tourist attraction in the country are Siem Reap and the surrounding area, Phnom Penh Capital and the surrounding area, the Coastal area, and the northeastern area. The main marketing slogan for promoting Cambodia internationally is "The Kingdom of Wonder, Feel the Warmth"!

The Ministry of Tourism, along with other tourist service providers such as tour operators, travel agencies, and professional tour guides,

play crucial roles in enhancing tourist satisfaction and fostering the development of the tourism sector in Cambodia. The criteria for a tour guide license are: (a) the tour guide must be of Khmer nationality and over 18 years of age, and (b) the tour guide must hold a tour guide certificate and be trained and recognized by the Ministry of Tourism. Other criteria for tour guide licensing shall be determined by sub-decree (Law on Tourism, 2009). Based on the study of various types of TGPs in Cambodia, there are five categories: community TGP, provincial TGP, regional TGP, national TGP, and specialized TGP.

Tour guides act as ambassadors of the country. They are the representatives who first meet and welcome tourists, accompany them throughout the tour, and often bid farewell when tourists depart from the country. A tour guide refers to an individual who is a professional in the reception, guiding, and caring for domestic and international tourists, providing explanations on geography, nature, tradition, history, culture, civilization, art, and socio-economy at the attraction site (MoT, 2018). Tour guide strategy is essential for professional tour guides and the socio-economic development of Cambodia.

Tour guide professionals (TGPs) play pivotal role in tourism and socio-economic development of an economy. They employ a comprehensive KMRP model, incorporating: (1) knowledge (K) encompassing local history and culture, information about local wildlife, plant species, natural landscapes, current affairs, and tourist information, (2) methodology (M) referring to the approaches and techniques used to deliver information and ensure a smooth tour experience, (3) relations and network (R) involving the building and maintaining of connections that enhance the tour experience, and (4) professional ethics (P) encompassing the moral principles and standards guiding tour guides' behavior to satisfy tourists. By utilizing this KMRP model, TGPs aim to deliver high-quality, engaging, and responsible tour experiences. Integrating comprehensive knowledge, effective methodologies, strong networks, and ethical practices allows TGPs to enhance the overall satisfaction and safety of their tours while fostering positive relationships with local communities and environments. Given the significant role of tour guide strategies in the success of the profession and their contribution to promoting tourism and socio-economic development in Cambodia, this research examines the influence of the KMRP model on tour guide performance in Siem Reap, Cambodia.

2. Objectives of the Study

The objectives of the study are as follows:

i. To review the related literatures of the study.

ii. To know the effectiveness of the KMRP strategies of the tour guide professionals in the study area.

iii. To know the performance of the tour guide professionals in the study area.

iv. To study the influence of the KMRP strategies on the performance of the tour guide professionals in the study area.

3. Methodology

The research study has been conducted through qualitative and quantitative analysis as per the objectives of the study. The qualitative analysis was undertaken to understand the tour guide strategy, while the quantitative analysis was conducted to evaluate the working KMRP model of the TGS. The study utilized both primary and secondary sources of data. Primary data were collected through a field survey among selected tour

guide professionals in Siem Reap Province, Cambodia. Relevant secondary data were gathered from the Ministry of Tourism, United Nations World Tourism Organization (UNWTO), World Travel & Tourism Council (WTTC), and related international journals, articles, publications, and organizations.

Among the 1,706 existing TGPs having licenses in 2018, 182 TGPs were selected as respondents. For the purpose of the study, Yamane's (1967) formula was used to determine the sample size. The formula and calculated sample size are shown below:

$$n = \frac{N}{1 + Ne^2} = \frac{1706}{1 + 1706 * (0.07)^2} = 182$$

Where, N = Total number of tour guides

e = Margin of error which is assumed as 7 percent (0.07)

n = Sample size = Number of tour guides surveyed

In order to assess the impact of the KMRP model on tour guide performance, the following multiple regression model has been used:

$$G = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + U$$

Where, G = Dependent Variable, i.e., Tour Guide Performance

X_1 = Knowledge

X_2 = Methodology

X_3 = Relation and Network

X_4 = Professional Ethics

α = Intercept Term

β_1, β_2, β_3, and β_4 are regression coefficients

U = Error term

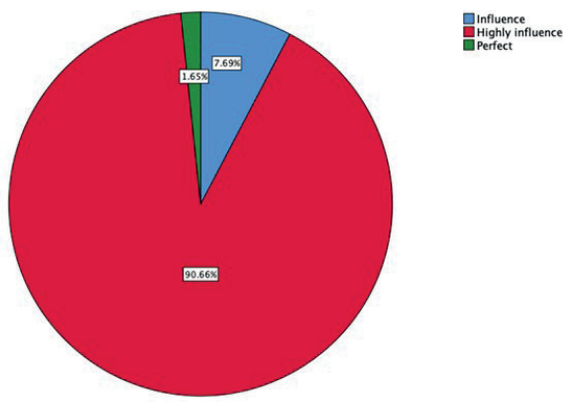
4. Discussion of the Results

4.1 Effectiveness of KMRP Strategies

Knowledge (K)

The research study revealed that knowledge significantly influences the effectiveness of TGS. TGPs rated this influence as follows: 90.66 percent reported a high influence, 7.69 percent reported an influence, and 1.65 percent reported a perfect influence. None of the respondents rated their knowledge as having no influence or maybe influence on the effectiveness of TGS (Figure 1).

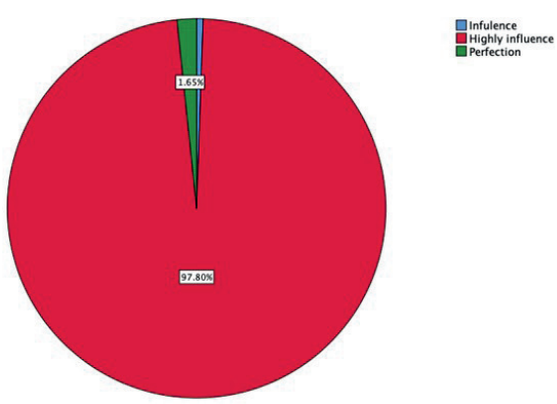
Figure 1: Percentage of TGPs as per their Views on the Effectiveness of Knowledge as TGS



Methodology (M)

It was found that 179 out of 182 TGPs, equivalent to 97.80 percent, rated methodology as having a highly significant influence. This was followed by 1.65 percent who rated it as having a perfect influence, and 0.55 percent who rated it as influential on the effectiveness of the TGS (Figure 2).

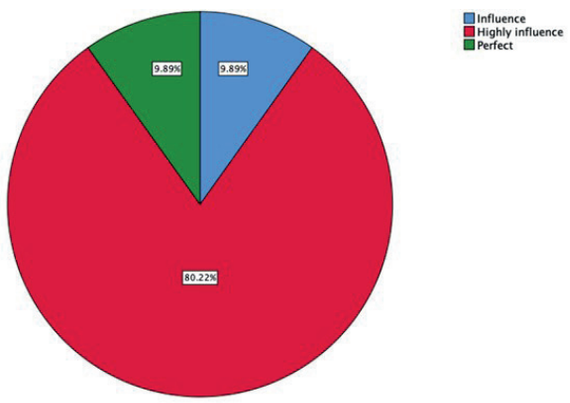
Figure 2: Percentage of TGPs as per their Views on the Effectiveness of Methodology as TGS



Relation and Network (R)

The study results show that relation and network was rated by TGPs as follows: 80.22 percent as highly influential, 9.89 percent as influential, and 9.89 percent as perfectly influential on the effectiveness of the TGS (Figure 3).

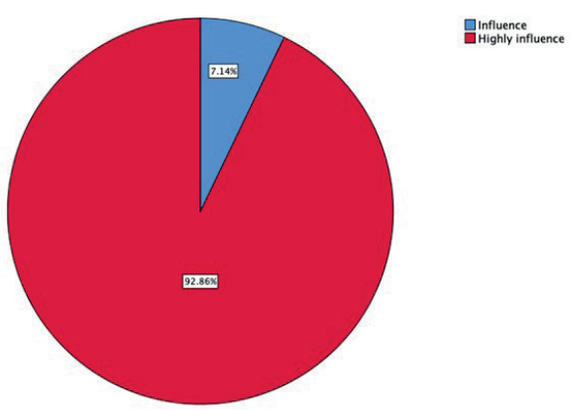
Figure 3: Percentage of TGPs as per their Views on the Effectiveness of Relation and Network as TGS



Professional Ethics (P)

The research showed that professional ethics ha a significant influence on the effectiveness of TGS. Specifically, 169 out of 182 TGPs, equivalent to 92.86 percent, rated it as highly influential, and 13 out of 182 TGPs, equivalent to 7.14 percent, rated it as influential (Figure 4).

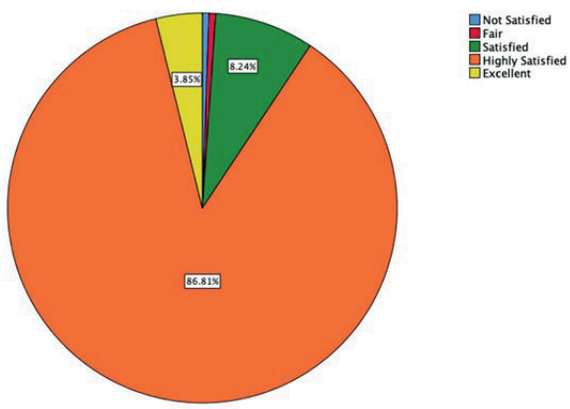
Figure 4: Percentage of TGPs as per Their Views on the Effectiveness of Professional Ethics as TGS



4.2 Tour Guide Performance

The study revealed that 158 out of 182 TGPs, equivalent to 86.81 percent, were highly satisfied with their performance. Additionally, 8.24 percent were satisfied, 3.85 percent rated their performance as excellent, 0.55 percent rated it as fair, and 0.55 percent were not satisfied with the performance (Figure 5).

Figure 5: Percentage of TGPs Based on Their Views on the Level of Satisfaction with Their Performance



4.3 Impact of KMRP Model on Tour Guide Performance

To assess the key strategies influencing the overall performance of TGPs, Tour Guide Performance is considered the dependent variable, while key strategies such as Knowledge (K), Methodology (M), Relationships and Network (R), and Professional Ethics (P) are considered independent variables. The multiple regression model, as outlined in the research methods section, was employed. The Likert Scale was used to measure these variables. The dependent variable, Tour Guide Performance, was scored as follows: 1 for not satisfied, 2 for fair, 3 for satisfied, 4 for highly satisfied, and 5 for excellent. The independent variables - Knowledge, Methodology, Relationships and Networks, and Professional Ethics - were measured using the Likert Scale with 1 =

no influence, 2 = maybe, 3 = influence, 4 = highly influential, and 5 = perfect influence.

Based on the data collected from 182 sample tour guide professionals in Siem Reap, Cambodia, the following regression results were obtained, as presented in Table 1. The results indicate that the KMRP strategies employed by the TGPs in the study area had a significant overall impact on tour guide performance, as evidenced by the ANOVA result of the regression model (F = 242.557) with a significance level of 0.000. Tour guide strategy, as measured by Knowledge (X_1), Methodology (X_2), Relationships and Networks (X_4), and Professional Ethics (X_3), had significant impacts on the dependent variable - Tour Guide Performance. The respective regression coefficients were 1.915, -0.940, 0.367, and 0.691. The 't' values and significance levels of the regression coefficients were as follows: Knowledge (t = 9.977, sig = 0.000), Methodology (t = -0.439, sig = 0.000), Relationships and Networks (t = 8.911, sig = 0.000), and Professional Ethics (t = 9.942, sig = 0.000).

Thus, the regression results revealed that Knowledge, Methodology, Relationships and Networks, and Professional Ethics significantly impacted the dependent variable, Tour Guide Performance, at a one percent level of significance.

Table 1: Regression Results – Impact of KMRP Strategies on the Performance of Tour Guide Professionals

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.920[a]	.846	.842	.184	.764

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.918	4	8.229	242.557	.000[b]
	Residual	6.005	177	.034		
	Total	38.923	181			

a. Dépendent Variable : Tour Guide Performance

b. Predictors: (Constant), Knowledge, Methodology, Relations and Network, and Professional Ethics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.156	.419		-9.929	.000
	Knowledge	1.915	.192	.686	9.977	.000
	Methodology	-.940	.212	-.301	-.439	.000
	Relations and Network	.691	.041	.353	8.911	.000
	Professional Ethics	.367	.069	.385	9.942	.000

Source: Own Estimate.

5. Conclusion and Recommendations

The analysis in this paper reveals that tour guide professionals (TGPs) play both direct and indirect critical roles in making tourism successful and contributing to the socio-economic development of the host country. However, tourist satisfaction levels vary due to differing cultural backgrounds and purposes. To ensure the success of TGPs, tour guide strategy (TGS) must exert a significant influence. It is essential to define the types of TGPs and the required competencies to realize TGS.

A TGP is defined as a professional responsible for the reception, guidance, and care of domestic and international tourists, providing explanations about geography, nature, traditions, history, culture, civilization, art, and socio-economic aspects of the attraction site. The criteria for obtaining a TGP license in Cambodia are as follows: the individual must be of Khmer nationality, over 18 years of age, and must hold a TGP certification recognized and sanctioned by the Ministry of Tourism. There are five different types of TGPs: Community, Provincial, Regional, National, and Specialized TGPs. Each type requires specific qualifications, training, and competence levels for their profession. The KMRP competencies are considered key strategies to address challenges and achieve success for TGPs.

TGS is designed to emerge as a proactive strategy to help tour guide professionals successfully face challenges. The study aimed to assess the influence of KMRP strategies, namely Knowledge (K), Methodology (M), Relationships and Networks (R), and Professional Ethics (P), on Tour Guide Performance (TGP). Using a multiple regression model and Likert Scale measurements, the research found that these strategies as a whole significantly impact TGP. Furthermore, the regression analysis revealed that each of these four independent variables had a significant individual impact on the dependent variable, TGP, with a high level of statistical significance. These findings underscore the critical role of these strategies in enhancing tour guide performance.

In a globalized and digitalized world characterized by competitiveness, TGPs need to be competent and strategically oriented for professional success. Based on the research

findings, the following recommendations are made: (1) TGPs should analyze the current situation, including intended and emergent actions, to address challenges and achieve success; (2) TGPs should critically study the key strategies of KMRP within TGS for their professional success; and (3) TGPs should develop and organize key professional strategies individually, positioning themselves as strategists to ensure success.

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The Impact of Human Resource Management Practices on Employee Job Satisfaction and Retention: A Case Study of J Trust Royal Bank, Cambodia

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ABSTRACT

This study investigates the impact of Human Resource Management (HRM) practices on employee job satisfaction and retention at J Trust Royal Bank in Cambodia. It specifically examines the influence of recruitment and selection, compensation and benefits, training and development, and performance appraisal systems on these two key employee outcomes. The findings reveal that recruitment and selection, compensation, and training have a significant positive effect on both job satisfaction and retention, while performance appraisal systems significantly impact retention but not job satisfaction. Additionally, the study confirms that job satisfaction is closely linked to employee retention, emphasizing the importance of fostering a positive work environment and implementing effective HRM strategies to enhance employee engagement and organizational sustainability. Based on these results, recommendations for improving HRM practices, including revising the performance appraisal system and enhancing training opportunities, are provided to further strengthen job satisfaction and retention in the banking sector.

Keywords: Human resource management; job satisfaction; employee retention; recruitment and selection; compensation and benefits; training and development; performance appraisal; banking sector

1. Introduction

Human resource management (HRM) practices encompass a system that recruits, selects, compensates, trains, develops, evaluates, and retains employees to enhance job satisfaction and employee retention within an organization, ultimately sustaining its competitive operations. HRM is conceptualized as a set of internally consistent policies and practices designed to ensure that a firm's human capital contributes to achieving its business objectives through improved employee satisfaction and retention.

Effective implementation of HRM practices such as recruitment, compensation and benefits, training and development, performance appraisals, and employee retention has a direct positive impact on employee satisfaction and retention, contributing to the bank's growth. Failure to effectively implement these practices could negatively affect business operations. There has been broad debate on whether HRM practices add value to organizations, with research supporting that through a "bundle" of HRM practices, firms can build a strong human capital base, offering a sustainable competitive advantage. This view suggests that HRM practices directly influence organizational performance (Alnajdawi, Emeagwali, & Elrehail, 2017).

However, some argue that while HRM can influence performance, it does so indirectly through intermediate outcomes such as

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employee satisfaction, retention, and behavior, leading to improved organizational performance (Becker & Gerhart, 1996). Researchers suggest that well-designed HRM practices can create motivated and committed employees, leading to improved individual and organizational outcomes (Taamneh, Alsaad, & Elrehail, 2018). These effects extend beyond regular job responsibilities to discretionary behaviors like self-improvement, teamwork, and building a positive organizational image.

HRM practices also affect staff attitudes and behaviors, leading to higher productivity, service quality, and enhanced organizational performance (Abubakar, Elrehail, Alatailat, & Elçi, 2019). Becker, Huselid, Pickus, and Spratt (1997) argue that HRM practices and leadership have a direct impact on employee skills, motivation, and behavior, driving innovation, commitment, and discretionary effort, which ultimately improves an organization's financial and market standing (Elrehail, Emeagwali, Alsaad, & Alzghoul, 2018). It is, therefore, essential to recognize the direct effects of HRM practices on employee satisfaction and organizational performance (Latorre, Guest, Ramos, & Gracia, 2016; Veth, Korzilius, Van der Heijden, Emans, & De Lange, 2019).

Delery and Shaw (2001) argue that HRM research focuses on enhancing organizational effectiveness through human resources and analyzing HRM's impact at the individual employee level. Research in this area examines how HRM affects task performance, absenteeism, and turnover (Griffeth, Hom, & Gaertner, 2000). It is more suitable to understand how HRM practices enhance outcomes such as employee performance, job satisfaction, and organizational success (Lepak, Liao, Chung, & Harden, 2006). Tharenou, Saks, and Moore (2007) also provide evidence for the universal perspective, asserting that training independently influences organizational outcomes. In support of the configurational view, studies show that bundles of HRM practices have a stronger impact than individual practices (Subramony, 2009; Jiang, Lepak, Hu, & Baer, 2012). The study also asserts that HRM practices significantly improve employee satisfaction and organizational performance, especially in service sectors like banking (Subramony, 2009).

HRM practices, including recruitment, compensation, benefits, training, performance appraisal, and employee retention, play a vital role in enhancing employee satisfaction and retention, supporting sustainable business operations. HRM is viewed as a set of policies designed to align human capital with the firm's objectives. Traditionally, HRM practices were not seen as economically valuable, as economic value was tied to equipment, technology, and facilities (Cascio, 1991). However, investments in staffing, training, and development significantly influence employees' ability to deliver valuable products and services. As HRM evolves, managers are increasingly tasked with empowering employees to make decisions related to product development and customer service (Atchison, 1991).

The Cambodian banking sector operates within a two-tier system, with the public sector represented by the National Bank of Cambodia (NBC) and the private sector comprising commercial banks, specialized banks, microfinance institutions, leasing companies, and NGOs involved in rural credit activities. The NBC regulates and supervises all licensed banks under the Law on Banking and Financial Institutions. Historically, poor management led to the failure of many banks, causing public distrust in the

banking system in the country. However, through the NBC's re-licensing program and reforms, Cambodia's financial system has stabilized. As of June 2022, Cambodia had 58 commercial banks, 10 specialized banks, 79 microfinance institutions, six microfinance deposit-taking institutions, six representative offices, and 17 financial leasing companies (National Bank of Cambodia, 2022). J Trust Royal Bank, formerly known as ANZ Royal Bank, was Cambodia's first international bank, a joint venture between Australian and New Zealand Banking Group (55 percent ownership) and Cambodia's Royal Group (45 percent), established in 2005. In 2019, ANZ's share was acquired by J Trust.

The Cambodian banking sector operates under a two-tier system, with the public sector represented by the National Bank of Cambodia (NBC) and the private sector comprising commercial banks, specialized banks, microfinance institutions, leasing companies, and NGOs involved in rural credit activities. The NBC oversees and regulates all licensed banks under the Law on Banking and Financial Institutions. Historically, poor management led to the collapse of several banks, fostering public distrust in the country's banking system. However, the NBC's re-licensing program and reforms have since stabilized Cambodia's financial system. As of June 2022, Cambodia had 58 commercial banks, 10 specialized banks, 79 microfinance institutions, six microfinance deposit-taking institutions, six representative offices, and 17 financial leasing companies (National Bank of Cambodia, 2022). J Trust Royal Bank, formerly known as ANZ Royal Bank, was Cambodia's first international bank, established in 2005 as a joint venture between the Australian and New Zealand Banking Group (55 percent ownership) and Cambodia's Royal Group (45 percent). In 2019, J Trust acquired ANZ's share. In Cambodia, particularly within the banking sector, which has seen rapid growth over the past three decades, HRM practices play a critical role in supporting the industry's development. This research seeks to contribute to this field by focusing on the HRM practices of J Trust Royal Bank.

2. Research Objectives

The study has been undertaken with the following objectives:

i. To assess how J Trust Royal Bank's recruitment and selection policy influences job satisfaction and employee retention.
ii. To measure the impact of J Trust Royal Bank's compensation policy on employee job satisfaction and retention.
iii. To evaluate how J Trust Royal Bank's training and development policy influences employee job satisfaction and retention.
iv. To examine how J Trust Royal Bank's performance appraisal system influences employee job satisfaction and retention.
v. To determine the impact of job satisfaction on the retention of employees at J Trust Royal Bank.

3. Hypotheses of the Study

H0 1: HRM practices do not positively impact employee job satisfaction.

H0 2: HRM practices do not positively influence employee retention.

H0 3: Employee job satisfaction does not positively affect employee retention.

4. Methodology

The primary data were collected for this

study, with a small percentage of secondary data drawn from both internal and external sources. Internal sources included in-house publications, databases, websites, existing policies, and personal profiles from J Trust Royal Bank in Cambodia. External secondary data were gathered from scholarly journals, books, articles, and websites relevant to the study. Additionally, primary data were obtained through a structured questionnaire targeting 200 respondents, all of whom are employees at J Trust Royal Bank. These respondents were selected from five locations, including the Head Office in Phnom Penh and four other branches in Siem Reap, Battambang, Kompongcham, and Sihanoukville provinces.

As of May 31, 2021, J Trust Royal Bank had a total staff population of 586 employees working in two main divisions: the Frontline (customer-facing roles known as Business Lines) and the Back-Office (support roles referred to as Enablement). The survey began in May 2021 and was completed in June 2021. Given the total population of 586 employees, the study used Yamane's formula to determine the appropriate sample size. With a confidence level of 94 percent (1-α) and a margin of error of 6 percent, the sample size was calculated to be 195 respondents (n=195). Yamane's (1973) formula used for this calculation is as follows:

$$n = \frac{N}{1 + Ne^2} = \frac{586}{1 + 586\ x\ (0.06)^2} = \frac{586}{1 + 2} = 195$$

Where:

- n = Sample size
- N = Population size = 586
- e = Margin of error at 6 percent
- However, for this study, 200 respondents were selected instead of the 195 calculated using the formula.

A stratified random sampling method was used to select 200 respondents from five locations of J Trust Royal Bank in Cambodia. These five locations are: (1) Phnom Penh Headquarters (HQ), (2) Siem Reap Branch, (3) Battambang Branch, (4) Sihanoukville Branch, and (5) Kompongcham Branch. The details of the selected respondents based on the stratified random sampling method are presented in Table 1 below:

Table 1: Total and Sample Number of Employees of J Trust Royal Bank

Sl. No.	Name of Location	Total Number of Employees	Percentage (%) to Total	Sample Size
1	Head Quarters (HQ)	546	93 percent	180
2	Battambang Branch	10	1.8 percent	5
3	Siem Reap Branch	14	2.5 percent	7
4	Kompongcham Branch	8	1.37 percent	4
5	Sihanoukville Branch	8	1.37 percent	4
Total		**N=586**	**100%**	**n=200**

Source: J Trust Royal Bank's Annual Report, 2021.

Simple random sampling, specifically the lottery method, was utilized to select staff from each stratum (branch and headquarters) at J Trust Royal Bank. For this method, staff names from each location were collected, placed into individual boxes corresponding to each location, and then randomly drawn to meet the predefined sample size for each stratum. Following the selection process, a structured questionnaire was administered to these respondents to gather primary data.

The data collection involved a two-section questionnaire. The first section gathered demographic and employment-related data from the respondents, including gender, age, years of work experience, type of employment contract, educational background, and current position. The second section focused on the respondents' perceptions of four key HR practices: (1) recruitment and selection, (2) compensation and benefits, (3) training and development, and (4) staff performance appraisal. Additional data were collected on employee retention and job satisfaction. Likert scale based on five options, ranging from strongly agree (5) to strongly disagree (1) was used in the questionnaire in order to gauge the perceptions of the selected respondents on the four human resource practices of J Trust Royal Bank. The collected data were then cleaned, coded, and analyzed using SPSS.

The factor analysis discussed in this research includes Factor Loading, KMO, Cumulative Percentage, Eigenvalues, Item-to-Total Correlation, and Cronbach's Alpha. Item-to-Total Correlation and Cronbach's Alpha were used to assess the internal consistency and reliability of the construct, while latent roots (Eigenvalues), the scree test, and other criteria were applied to determine the number of dimensions to extract from the principal components factor analysis. The criteria include: Factor Loading ≥ 0.60, KMO and Bartlett's Test > 0.50, Cumulative Percentage > 60%, Eigenvalue > 1, Item-to-Total Correlation > 0.50, and Coefficient Alpha (α) ≥ 0.60 (Hair, Black, Babin, & Anderson, 2014).

Table 2: The Rule of Thumbs of Factor Analysis and Reliability Test

Description	Factor Analysis	Reliability Test	Sources
Factor Loading	≥ 0.60		(Hair et al., 2014)
KMO and Bartlet's Test	> 0.50		
Cumulative Percentage	> 60%		
Eigenvalue	> 1		
Item-to-total correlation		> 0.50	
Coefficient Alpha		≥ 0.60	

The rules of thumb for regression analysis as recommended by Hair et al. (2014) was adopted to evaluate the research findings of the study. The thresholds of regression criterion are stated below:

1. R^2 (R-square): must be greater or equal 0.1 (or 10 percent)
2. Adjusted-R^2: must be greater or equal 0.1 (or 10 percent)
3. F-value: must be greater or equal 4 with

the significant of p-value at p<0.05

4. t-value: must be greater or equal 1.96 with the significant of p-value at p<0.05.

Therefore, if any results of regression met the above thresholds, then the research hypothesis would be accepted. In contrast, if any results of regression did not meet anyone of those above thresholds, then the research hypothesis would be rejected.

5. Results and Discussion

5.1 Impact of Recruitment and Selection

In Table 3, the independent variable is Recruitment and Selection, while the dependent variable is Employee Job Satisfaction. The table presents the regression analysis results, which test the relationship between HRM practices related to employee recruitment and selection and employee job satisfaction. The results indicate that recruitment and selection have a positive impact on employee job satisfaction, with a Beta coefficient of 0.426, a t-value of 6.634 (≥ 1.96), and a significant p-value of 0.000 (<0.05). Thus, the null hypothesis "H0 1: HRM practices related to the recruitment and selection do not positively impact employee job satisfaction" is rejected.

Table 3: Recruitment and Selection as Independent Variable and Employee Job Satisfaction as Dependent Variable

Independent Variable	Dependent Variable
	Employee Job Satisfaction
	Model 1(Beta)
Recruitment and Selection	0.426***
R-square (≥0.10)	0.182
Adjusted-R square (≥0.10)	0.178
F-value (≥ 4) and p-value (<0.05)	44.011
t-value (≥ 1.96)	6.634
p-value (<0.05)	0.000

*Note:***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represent the rule of thumb.
Source: Own Estimate.

In Table 4, the independent variable is Recruitment and Selection, while the dependent variable is Employee Retention. The table presents the regression analysis results, which test the relationship between HRM practices related to employee recruitment and selection and employee retention. The results indicate that recruitment and selection positively impact employee retention, with a Beta coefficient of 0.624, a t-value of 11.246 (≥ 1.96), and a significant p-value of 0.000 (<0.05). Thus, the null hypothesis "H0 2: HRM practices related to the recruitment and selection do not positively impact employee retention" is rejected.

Table 4: Recruitment and Selection as Independent Variable and Retention of Employees as Dependent Variable

Independent Variable	Dependent Variable
	Retention of Employees
	Model 1(Beta)
Recruitment and Selection	0.624***
R-square (≥0.10)	0.390
Adjusted-R square (≥0.10)	0.387
F-value (≥ 4) and p-value (<0.05)	126.478
t-value (≥ 1.96)	11.246
p-value (<0.05)	0.000

*Note: ***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represent the rule of thumb.
Source: Own Estimate.

5.2 Impact of Compenation and Benefits

In Table 5, the independent variable is Compensation and Benefits, while the dependent variable is Employee Job Satisfaction. The table presents the regression analysis results, which test the relationship between HRM practices related to employee compensation and benefits and employee job satisfaction. The results indicate that compensation and benefits positively impact employee job satisfaction, with a Beta coefficient of 0.211, a t-value of 2.263 (≥ 1.96), and a significant p-value of 0.025 (<0.05). Thus, the null hypothesis "H0 1: HRM practices related to the compensation and benefits do not positively impact employee job satisfaction" is rejected.

Table 5: Compensation and Benefits as Independent Variable and Employee Job Satisfaction as Dependent Variable

Independent Variable	Dependent Variable
	Employee Job Satisfaction
	Model 1(Beta)
Compensation and Benefits	0.211**
R-square (≥0.10)	0.203
Adjusted-R square (≥0.10)	0.194
F-value (≥ 4) and p-value (<0.05)	25.025
t-value (≥ 1.96)	2.263
p-value (<0.05)	0.025

Note:***p<0.001, **<p<0.05, *p<0.10

The values in parentheses represents the rule of thumb.
Source: Own Estimate.

In Table 6, the independent variable is Compensation and Benefits, while the dependent variable is Employee Retention. The table presents the regression analysis results, which test the relationship between HRM practices related to employee compensation and benefits and employee retention. The results indicate that compensation and benefits positively impact employee retention, with a Beta coefficient of 0.422, a t-value of 5.571 (≥ 1.96), and a significant p-value of 0.000 (<0.05). Thus, the null hypothesis "H0 2: HRM practices related to the consumption and benefits do not positively impact employee retention" is rejected.

Table 6: Compensation and Benefits as Independent Variable and Retention of Employees as Dependent Variable

Independent Variable	Dependent Variable
	Retention of Employees
	Model 1(Beta)
Compensation and Benefits	0.422***
R-square (≥0.10)	0.473
Adjusted-R square (≥0.10)	0.467
F-value (≥ 4) and p-value (<0.05)	88.352
t-value (≥ 1.96)	5.571
p-value (<0.05)	0.000

*Note:***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represents the rule of thumb.
Source: Own Estimate.

5.3 Impact of Training and Development

In Table 7, the independent variable is Training and Development, while the dependent variable is Employee Job Satisfaction. The table presents the regression analysis results, which test the relationship between HRM practices related to training and development and employee job satisfaction. The results illustrate that training and development positively impact employee job satisfaction, with a Beta coefficient of 0.293, a t-value of 2.955 (≥ 1.96), and a significant p-value of 0.004 (<0.05). Thus, the null hypothesis "H0 1: HRM practices related to the training and development do not positively impact employee job satisfaction" is rejected.

Table 7: Training and Development as Independent Variable and Employee Job Satisfaction as Dependent Variable

Independent Variable	Dependent Variable
	Employee Job Satisfaction
	Model 1(Beta)
Training and Development	0.293**
R-square (≥0.10)	0.237
Adjusted-R square (≥0.10)	0.225
F-value (≥ 4) and p-value (<0.05)	20.250
t-value (≥ 1.96)	2.955
p-value (<0.05)	0.004

*Note:***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represents the rule of thumb.
Source: Own Estimate.

In Table 8, the independent variable is Training and Development, while the dependent variable is Employee Retention. The table presents the regression analysis results, which test the relationship between HRM practices related to training and development and employee retention. The results indicate that training and development positively impact employee retention, with a Beta coefficient of 0.170, a t-value of 2.085 (≥ 1.96), and a significant p-value of 0.038 (<0.05). Thus, the null hypothesis "H0 2: HRM practices related to the training and development do not positively impact employee retention" is rejected.

Table 8: Training and Development as Independent Variable and Retention of Employees as Dependent Variable

Independent Variable	Dependent Variable
	Retention of Employees
	Model 1(Beta)
Training and Development	0.170**
R-square (≥0.10)	0.484
Adjusted-R square (≥0.10)	0.476
F-value (≥ 4) and p-value (<0.05)	61.352
t-value (≥ 1.96)	2.085
p-value (<0.05)	0.038

*Note:***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represents the rule of thumb.

Source: Own Estimate.

5.4 Impact of Performance Appraisal System

In Table 9, the independent variable is the Performance Appraisal System, while the dependent variable is Employee Job Satisfaction. The table presents the regression analysis results, which test the relationship between HRM practices related to the performance appraisal system and employee job satisfaction. The results indicate that the performance appraisal system does not significantly impact employee job satisfaction, with a Beta coefficient of 0.118, a t-value of 1.091 (<1.96), and a non-significant p-value of 0.277 (>0.05). This study suggests that the "Performance Appraisal System" does not play a significant role in enhancing "Employee Job Satisfaction." Thus, the null hypothesis "H0 1: HRM practices related to the performance appraisal system do not positively impact employee job satisfaction" is not rejected.

Table 9: Performance Appraisal System for Employees as Independent Variable and Employee Job Satisfaction as Dependent Variable

Independent Variable	Dependent Variable
	Employee Job Satisfaction
	Model 1(Beta)
Performance Appraisal System for Employees	0.118
R-square (≥0.10)	0.241
Adjusted-R square (≥0.10)	0.226
F-value (≥ 4) and p-value (<0.05)	15.500
t-value (≥ 1.96)	1.091
p-value (<0.05)	0.277

*Note:***p<0.001, **<p<0.05, *p<0.10*

The values in parentheses represents the rule of thumb.

Source: Own Estimate.

In Table 10, the independent variable is the Performance Appraisal System, and the dependent variable is Employee Retention. The table presents the regression analysis results, which test the relationship between HRM practices related to performance appraisal and employee retention. The results indicate that one sub-dimension of HRM practices, the "Performance Appraisal System," has the highest Beta value of 0.695 (69 percent), a t-value of 9.433 (≥ 1.96), and a significant p-value of 0.000 (<0.05). This study suggests that the performance appraisal system for employees plays a crucial role in enhancing the employee retention strategy at J Trust Royal Bank. Therefore, the research hypothesis "H0 2: HRM practices related to the performance appraisal system do not positively impact employee retention" is rejected.

Table 10: Performance Appraisal System for Employees as Independent Variable and Retention of Employees as Dependent Variable

Independent Variable	Dependent Variable
	Retention of Employees
	Model 1(Beta)
Performance Appraisal System for Employees	0.695***
R-square (≥0.10)	0.646
Adjusted-R square (≥0.10)	0.639
F-value (≥ 4) and p-value (<0.05)	88.912
t-value (≥ 1.96)	9.433
p-value (<0.05)	0.000

*Note:***p<0.001, **<p<0.05, *p<0.10*

The values in parentheses represents the rule of thumb.

Source: Own Estimate.

In summary, the tables (3, 5, 7, and 9) present the regression analysis results testing the relationship between HRM practices and employee job satisfaction. The results illustrate that three sub-dimensions of HRM practices (i.e., Recruitment and Selection, Compensation and Benefits, and Training and Development) positively impact employee job satisfaction. However, one sub-dimension of HRM practices (i.e., Performance Appraisal System) does not significantly impact employee job satisfaction, with a Beta coefficient of 0.118, a t-value of 1.091 (<1.96), and a non-significant p-value of 0.277 (>0.05). This study suggests that the "Performance Appraisal System" does not play a significant role in enhancing "Employee Job Satisfaction." Thus, the hypothesis "H0 1: HRM practices (i.e., Recruitment and Selection, Compensation and Benefits, and Training and Development) do not positively impact employee job satisfaction" is rejected.

On the other hand, the tables (4, 6, 8, and 10) present the regression analysis results testing the relationship between HRM practices and employee retention. The results indicate that all sub-dimensions of HRM practices (i.e., Recruitment and Selection, Compensation and Benefits, Training and Development, and Performance Appraisal System) positively impact employee retention at J Trust Royal Bank. Notably, the relationship between the variables "Recruitment and Selection" and "Employee Retention" has the second highest Beta value of 0.624 (62.4 percent), while "Performance Appraisal System" has the highest Beta value of 0.695 (69.5 percent). This study suggests that these two variables play the most critical roles in enhancing the employee retention strategy at J Trust Royal Bank. Therefore, the research hypothesis "H0 2: HRM Practices, i.e., Recruitment and Selection, Compensation and Benefits, Training and Development, and Performance

Appraisal System do not positively influence employee retention" is firmly rejected.

5.5 Impact of Job Satisfaction on Retention of Employees

Table 11 presents the regression analysis results testing the relationship between "Employee Retention" and "Employee Job Satisfaction." The results indicate that employee retention positively impacts job satisfaction, with a Beta coefficient of 0.501 (50.1%), a t-value of 8.145 (>1.96), and a p-value of 0.000 (<0.05) at J Trust Royal Bank. Thus, the research hypothesis "H0 3: Employee job satisfaction does not positively affect employee retention" is rejected.

Table 11: Employee Job Satisfaction as Independent Variable and Retention of Employees as Dependent Variable

Independent Variable	Dependent Variable
	Retention of Employees
	Model 1(Beta)
Employee Job Satisfaction	0.501***
R-square (≥0.10)	0.251
Adjusted-R square (≥0.10)	0.247
F-value (≥ 4) and p-value (<0.05)	66.345
t-value (≥ 1.96)	8.145
p-value (<0.05)	0.000

*Note: ***p<0.001, **<p<0.05, *p<0.10*
The values in parentheses represents the rule of thumb.
Source: Own Estimate.

5.6 Univariate Analysis of Variance (ANOVA)

This study utilizes one-way ANOVA to examine differences in a scale-dependent variable between two or more groups formed by the levels of a single independent variable or factor. These designs, in which only one independent variable is used (a discrete or categorical variable), are called single-factor designs. In this case, groups are compared based on two independent variables. The assumptions for factorial ANOVA are that the observations are independent, the variances of the groups are equal (homogeneity of variances), and the dependent variable is normally distributed for each group (Leech et al., 2015). This study employs one-way (or single-factor) ANOVA to compare four levels of Position (1 = Officers, 2 = Team Leaders, 3 = Managers, and 4 = Head of BU and above) and Job Contracts (1 = Less than 1 year, 2 = 2–3 years, 3 = 4–5 years, and 4 = More than five years) on several dependent variables, including HRM practices, employee job satisfaction, and employee retention.

If the ANOVA is statistically significant, there is a difference somewhere, but it does not immediately reveal which specific pairs of means differ significantly (Morgan et al.,

2019). Group comparisons are made when ANOVA yields significant results (Hair Jr, Black, Babin, & Anderson, 2019). The rule of thumb for ANOVA is that the F-value should be ≥ 3 or 4 to indicate overall model fit, and a p-value of less than 0.05 is used to evaluate the significance of the results.

When more than one independent variable is involved, a factorial ANOVA should be performed (Cronk, 2020). In this study, one-way ANOVA is used to compare employee job contract and position levels with HRM practices, employee retention, and job satisfaction. The results of the ANOVA analysis are shown in the tables and figures below.

The study finds that the level of job contracts plays a significant role in HRM practices and employee retention. The ANOVA results (Table 12) indicate significant differences in HRM practices (i.e., Recruitment and Selection—F = 4.263, p = 0.006; Compensation and Benefits—F = 4.483, p = 0.05; Training and Development—F = 6.028, p = 0.001) and Employee Retention—F = 3.710, p = 0.013 across different levels of job contracts. However, the level of job contracts does not contribute significantly to enhancing the performance appraisal system or employee job satisfaction.

Table 12: The Results of ANOVA - Job Contract

ANOVA						
Descriptions		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Recruitment and Selection	Between Groups	3.793	3	1.264	**4.263**	**.006**
	Within Groups	58.131	196	.297		
	Total	61.923	199			
Compensations and Benefits	Between Groups	4.879	3	1.626	**4.483**	**.005**
	Within Groups	71.095	196	.363		
	Total	75.974	199			
Training and Development	Between Groups	4.813	3	1.604	**6.028**	**.001**
	Within Groups	52.166	196	.266		
	Total	56.979	199			
Performance Appraisal System for Employees	Between Groups	1.653	3	.551	**1.783**	**.152**
	Within Groups	60.575	196	.309		
	Total	62.228	199			

Retention of Employees	Between Groups	3.358	3	1.119	**3.710**	**.013**
	Within Groups	59.136	196	.302		
	Total	62.494	199			
Employee Job Satisfaction	Between Groups	4.393	3	1.464	**2.337**	**.075**
	Within Groups	122.826	196	.627		
	Total	127.219	199			

Note: Bold numbers are significant level at p-value < 0.05.
Source: Own Estimate.

Figure 1 indicates that the perception of recruitment and selection is relatively low among employees who have worked for less than one year. However, the perception of recruitment and selection improves significantly among employees who have worked for more than four to five years, showing a higher level of satisfaction with the recruitment and selection process over time.

Figure 1: The Result of Job Contract and Recruitment and Selection

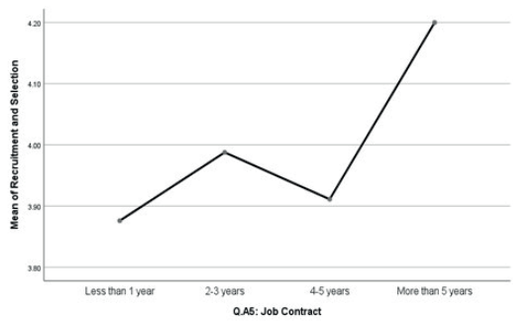


Figure 2 shows that the level of job contracts has low perceptions of employees who worked for less than one year with compensations and benefits. Employees who work for 2-3 years and more than five years have perceived a high level of compensation and benefits, respectively.

Figure 2: The Result of Job Contract and Compensations and Benefits

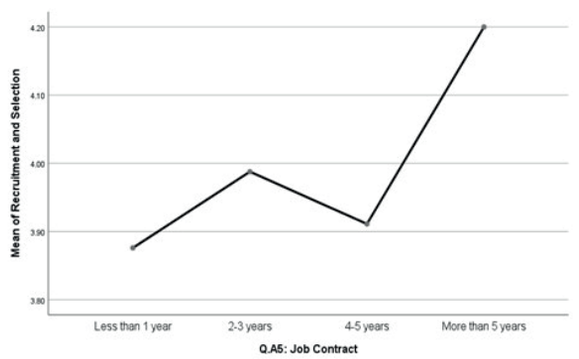


Figure 3 indicates that employees who worked for 2-3 years have a high-level perception of training and development. However, employees who worked for 4-5 years have a low-level perception of training and development at J Trust Royal Bank, with a slight increase in perception for those who worked for more than five years.

Figure 3: The Result of Job Contract and Training and Development

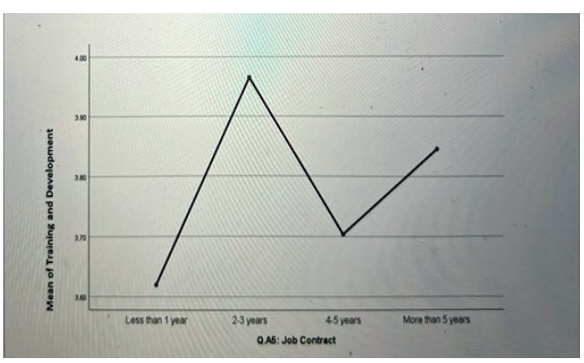


Figure 4 shows that employees who have worked for more than two years have a higher-level perception of the employee performance appraisal system.

Figure 4: The Result of Job Contract and Performance Appraisal System of Employees

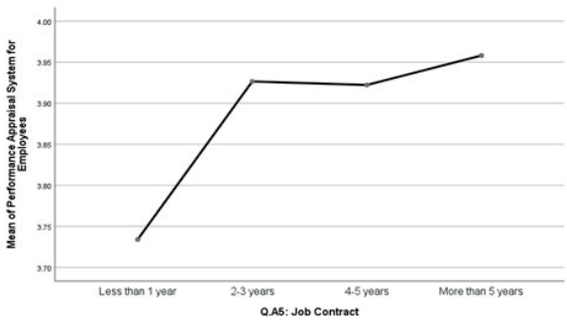


Figure 5 shows that employees who have worked for 2–3 years have a high-level perception of employee retention.

Figure 5: The Result of Job Contract and Retention of Employees

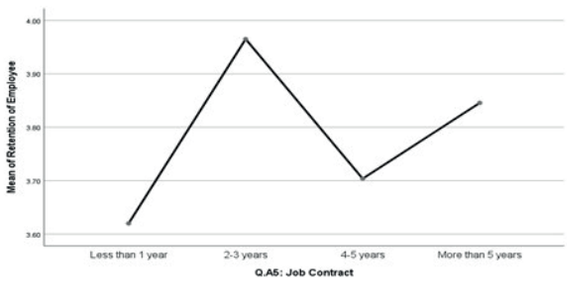
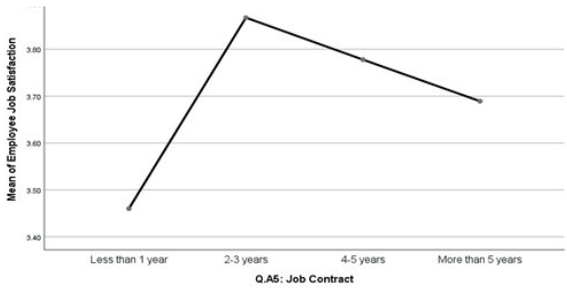


Figure 6 shows that employees who have worked for 2–3 years have a high-level perception of employee job satisfaction.

Figure 6: The Result of Job Contract and Employee Job Satisfaction



The results of Table 13 reveal that among the research variables tested in the ANOVA, HRM practices (i.e., Recruitment and Selection—F = 4.872, p = 0.009; Compensation and Benefits—F = 3.342, p = 0.037; Training and Development—F = 3.270, p = 0.040; and Performance Appraisal System—F = 4.335, p = 0.014) and Employee Retention—F = 4.335, p = 0.014 show significant differences across employee position levels. This study suggests that the position levels of employees play a crucial role in HRM practices and employee retention. However, the position levels of employees do not significantly enhance employee job satisfaction.

Table 13: The Results of ANOVA - Position Level

ANOVA						
Descriptions		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Recruitment and Selection	Between Groups	2.888	2	1.444	**4.872**	**.009**
	Within Groups	58.086	196	.296		
	Total	60.974	198			
Compensations and Benefits	Between Groups	2.483	2	1.241	**3.342**	**.037**
	Within Groups	72.804	196	.371		
	Total	75.287	198			

Training and Development	Between Groups	1.826	2	.913	**3.270**	**.040**
	Within Groups	54.726	196	.279		
	Total	56.552	198			
Performance Appraisal System for Employees	Between Groups	2.503	2	1.251	**4.125**	**.018**
	Within Groups	59.463	196	.303		
	Total	61.966	198			
Retention of Employees	Between Groups	2.642	2	1.321	**4.335**	**.014**
	Within Groups	59.733	196	.305		
	Total	62.375	198			
Employee Job Satisfaction	Between Groups	2.464	2	1.232	1.946	.146
	Within Groups	124.091	196	.633		
	Total	126.555	198			

Note: Bold numbers are significant level at p-value < 0.0.
Source: Own Estimate.

Figure 7 indicates that employees in positions such as officers have low-level perceptions of recruitment and selection. However, as the level of position increases, employees in roles such as team leaders and managers show higher-level perceptions of the recruitment and selection process.

Figure 7: The Result of Position Level and Recruitment and Selection

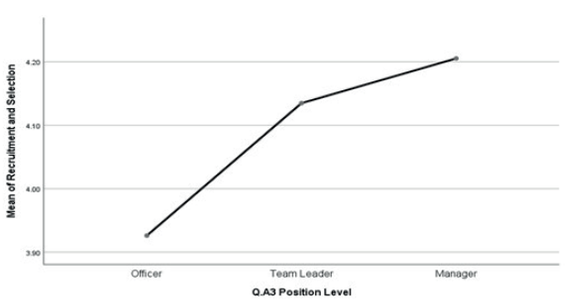


Figure 8 shows that employees in officer positions have low perceptions of compensation and benefits. However, employees in positions such as team leaders and managers perceive compensation and benefits more favorably.

Figure 8: The Result of Position Level and Compensation and Benefits

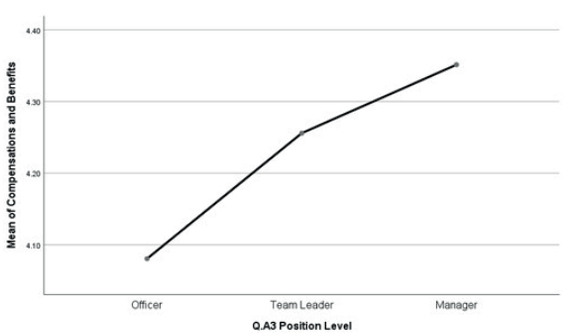


Figure 9 shows that employees in positions such as team leaders and managers have a high-level perception of training and development.

Figure 9: The Result of Position Level and Training and Development

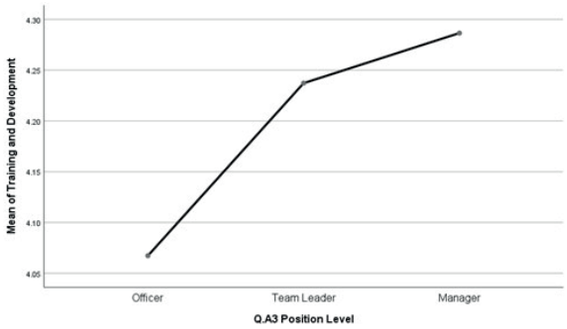


Figure 10 indicates that employees in positions such as team leaders and managers have a high-level perception of the performance appraisal system.

Figure 10: The result of position level and performance appraisal system for employees

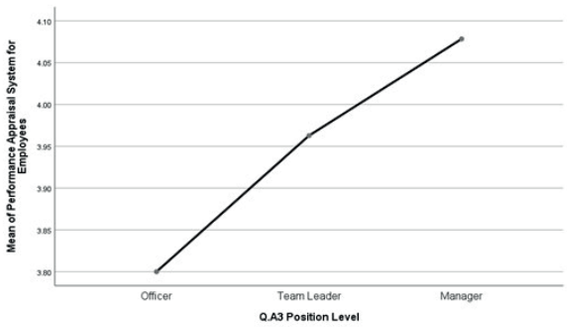


Figure 11 shows that employees in officer and team leader positions have a low-level perception of employee retention. But the findings indicate that managers have a high-level perception of employee retention.

Figure 11: The Result of Position Level and Retention of Employees

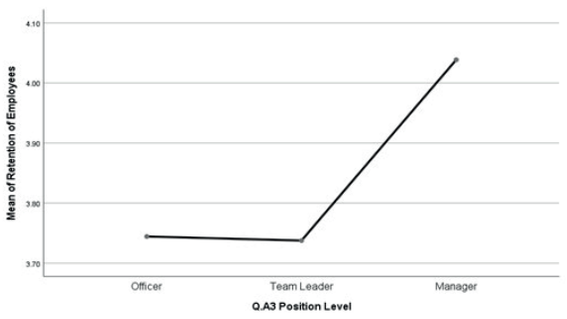
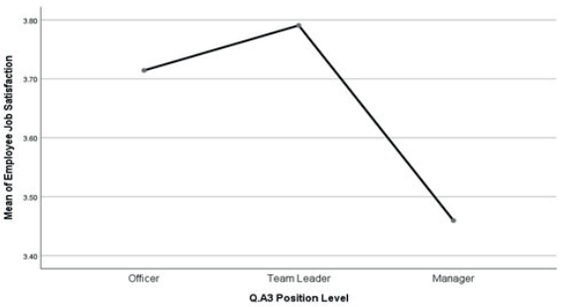


Figure 12 shows that employees in officer and team leader positions have a high-level perception of employee job satisfaction. However, the findings also indicate that managers have a low-level perception of employee job satisfaction.

Figure 12: The Result of Position Level and Employee Job Satisfaction



In summary, Figures 7–12 indicate that employees in officer (staff) positions have a low-level perception of HRM practices, job satisfaction, and employee retention compared to employees in higher position levels.

5.7 Results of Correlation Matrix

Table 14 shows that the relationship between HRM practices and employee job satisfaction has significant correlations at J Trust Royal Bank. HRM practices (i.e., Recruitment and Selection, Training and Development, Compensation and Benefits, and the Performance Appraisal System) positively contribute to job satisfaction in service industries. The findings of this study align with previous research examining the relationship between HRM practices and employee job satisfaction in banking services. This study concludes that three sub-dimensions of HRM practices (i.e., Recruitment and Selection, Training and Development, and Compensation and Benefits) play a crucial role in increasing employee perceptions of job satisfaction at J Trust Royal Bank. However,

one sub-dimension (i.e., Performance Appraisal System) does not significantly enhance employee job satisfaction. Overall, HRM practices are instrumental in boosting and motivating employee job satisfaction in any organization that applies these sub-dimensions. Thus, the results support the rejection of hypothesis H0 1.

Table 14: The Results of Correlation Matrix (n=200)

Research Variables	Mean	Std. Deviation	1	2	3	4	5	6
Recruitment and Selection	4.028	0.558	1.00	.731**	.754**	.763**	.624**	.426**
Compensation and Benefits	4.173	0.618		1.00	.678**	.729**	.653**	.410**
Training and Development	4.148	0.535		1.00	.678**	.729**	.653**	.410**
Performance Appraisal System of Employees	3.890	0.559				1.00	.796**	.428**
Retention of Employee	3.799	0.560					1.00	.501**
Employee Job Satisfaction	3.688	0.800						1.00

Source: Own Estimate.

The table also indicates that the relationship between HRM practices and employee retention has significant correlations, as confirmed by this study at J Trust Royal Bank. HRM practices (i.e., Recruitment and Selection, Training and Development, Compensation and Benefits, and the Performance Appraisal System) positively contribute to employee retention in service industries. The findings of this study align with previous research examining the relationship between HRM practices and employee retention in banking services (e.g., Ahmad, Tariq, & Hussain, 2015; Imna & Hassan, 2015; Kakar, Raziq, & Khan, 2015; Nasir & Mahmood, 2016; Noor, 2020; Nyaema & Wambua, 2019; Presbitero, Roxas, & Chadee, 2016). Therefore, HRM practices play a critical role in fostering a strong connection with employee retention strategies at J Trust Royal Bank. These results further support the rejection of hypothesis H0 2.

Moreover, as shown in Table 14, the relationship between employee job satisfaction and employee retention has significant correlations at J Trust Royal Bank, Cambodia. Employee job satisfaction positively contributes to employee retention in service industries. The findings of this study align with previous research that explored the relationship between job satisfaction and employee retention in banking services (e.g., Abouraia & Othman, 2017; Al Jamil, Setiawan, & Juwita, 2022; De Sousa Sabbagha, Ledimo, & Martins, 2018; Remijus, Chinedu, Maduka, & Ngige, 2019; Sija, 2021; Yousuf & Saqib, 2021; Yukongdi & Shrestha, 2020). Therefore, employee job

satisfaction plays a critical role in motivating a strong connection with employee retention strategies at J Trust Royal Bank. These results further validate the rejection of hypothesis H0 3.

6. Conclusion and Recommendations

6.1 Conclusion

This study explored the impact of Human Resource Management (HRM) practices on employee job satisfaction and retention at J Trust Royal Bank in Cambodia. The results confirmed that several HRM practices, such as recruitment and selection, compensation and benefits, and training and development, have a significant positive effect on both employee job satisfaction and retention. However, the performance appraisal system was found to have no significant impact on employee job satisfaction, though it did positively influence employee retention.

The study validated that employees who are satisfied with their job are more likely to stay with the organization. Thus, enhancing HRM practices, especially in recruitment, compensation, and training, is critical for maintaining employee satisfaction and retention. Overall, effective HRM practices are essential for fostering a positive working environment that enhances both employee performance and organizational sustainability.

6.2 Recommendations

i. Improve Recruitment and Selection Processes: Given that recruitment and selection play a crucial role in both job satisfaction and retention, the bank should continue to refine these processes. Tailoring recruitment strategies to attract the right talent and ensuring fairness in selection will further enhance employee satisfaction.
ii. Enhance Compensation and Benefits: Competitive compensation packages and comprehensive benefits should be continuously assessed and updated to reflect the market standards. The bank should ensure transparency in how compensation is tied to performance, which will increase employee motivation and retention.
iii. Expand Training and Development Opportunities: Ongoing employee development is key to job satisfaction. The bank should invest in structured training programs, especially for middle and senior-level employees, to foster growth and engagement.
iv. Revise the Performance Appraisal System: Since the performance appraisal system did not significantly affect job satisfaction, it is recommended to redesign this system. Aligning appraisals more closely with employee goals and providing constructive feedback will improve both satisfaction and productivity.
v. Focus on Job Satisfaction as a Retention Strategy: Employee job satisfaction was shown to directly influence retention. Therefore, the bank should focus on initiatives that promote job satisfaction, such as creating a positive work environment, encouraging work-life balance, and offering opportunities for career advancement.

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Budget System Reform Strategy of Public Financial Management Reform-Program in Cambodia: Achievements, Challenges, and Future Directions

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ABSTRACT

The Public Financial Management Reform Program (PFMRP) in Cambodia is a transformative initiative aimed at improving the nation's budget system by transitioning from traditional input-based methods to a performance-based budget system. This study focuses on the evolution and implementation of Cambodia's Budget System Reform Strategy (BSRS) within the PFMRP framework. Data is drawn from Cambodia's Ministry of Economy and Finance, international development organizations, and a range of academic literature. Through a comprehensive analysis of the four phases - budget credibility, financial accountability, budget-policy linkage, and performance accountability - the research identifies key successes and challenges encountered over the 18-year reform journey. The study also explores future opportunities for sustaining and enhancing reform efforts, emphasizing the need for continuous improvements in fiscal transparency, financial management, and governance in line with international best practices.

Keywords: Budget system reform; public financial management; fiscal accountability; performance-based budgeting; governance reform Keywords: Financing; HIV/AIDS; impact on beneficiaries

1. Introduction

The Public Financial Management Reform Program (PFMRP) was launched by the Royal Government of Cambodia (RGC) in 2004 as part of a comprehensive strategy to enhance the country's fiscal governance, accountability, and transparency. After decades of conflict and economic instability, the Cambodian government recognized the need for robust public financial management to support sustainable economic development and poverty reduction. The PFMRP was designed as a long-term reform strategy, with four distinct phases aimed at improving different aspects of public financial management (PFM). These phases are: (1) Budget Credibility (2005-2008), which focused on ensuring that government expenditures were aligned with approved budgets and revenue targets; (2) Financial Accountability (2009-2014), which aimed to enhance internal controls, financial reporting, and oversight mechanisms; (3) Budget-Policy Linkage (2015-2020), which introduced program budgeting to ensure that public spending was linked to government policies and development goals; and (4) Performance Accountability (2021-2025), which seeks to further institutionalize performance-based budgeting and improve the accountability of public expenditures.

One of the central pillars of the PFMRP is the Budget System Reform Strategy (BSRS), which serves as a key mechanism

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for transitioning from an input-based budget system to a performance-oriented system. The BSRS aims to modernize Cambodia's budget processes by introducing tools such as the Medium-Term Expenditure Framework (MTEF) and the Financial Management Information System (FMIS) to enhance transparency, resource allocation, and expenditure efficiency. The BSRS is thus critical to achieving the broader objectives of the PFMRP, ensuring that government resources are managed effectively to support economic growth and poverty reduction.

The PFMRP and its Budget System Reform Strategy are of paramount importance for improving governance, transparency, and fiscal accountability in Cambodia. As the government increasingly shifts from traditional budgeting approaches toward performance-based budgeting, the BSRS becomes a critical tool in ensuring that public expenditures are aligned with national development goals. The introduction of program budgeting through the BSRS enables a more strategic allocation of resources, allowing the government to prioritize key sectors such as infrastructure, education, and healthcare.

In addition to improving governance and transparency, the BSRS plays a crucial role in fostering public trust in the management of state resources. By institutionalizing mechanisms that enhance fiscal discipline and accountability, the BSRS strengthens the overall credibility of Cambodia's public financial management system. This is particularly important in the context of Cambodia's aspirations to achieve middle-income country status and align its fiscal policies with international best practices.

Studying the Budget System Reform Strategy in Cambodia is highly relevant, given the country's unique post-conflict development trajectory and its ambitious plans for economic growth and fiscal sustainability. Following decades of conflict and instability, Cambodia has made remarkable strides in rebuilding its economy, achieving steady growth, and reducing poverty. However, challenges remain, particularly in ensuring that public resources are managed efficiently and equitably to support long-term development goals.

The BSRS is a crucial component of Cambodia's broader governance reforms, as it aims to address the inefficiencies and capacity constraints that have historically hindered the effectiveness of public financial management. By studying the implementation and impact of the BSRS, this research provides valuable insights into how Cambodia's budget reforms can be further strengthened to enhance fiscal accountability and support sustainable development. Moreover, as Cambodia continues its transition toward middle-income status, the findings of this study can inform future policy decisions aimed at improving resource allocation, financial management, and governance across the public sector. This study is therefore essential for understanding how Cambodia's ongoing reforms in public financial management can contribute to the country's broader economic and social development objectives.

2. Literature Review

Public financial management (PFM) is rooted in the broader theories of governance, fiscal accountability, and public administration, focusing on the effective management of government revenues, expenditures, and resources to achieve socio-economic development goals. According to Allen, Schiavo-Campo, and Garrity (2004), public financial management is crucial in ensuring that public resources are utilized efficiently

and that fiscal discipline is maintained. This aligns with performance-based budgeting (PBB), a budget reform approach that links the allocation of public resources to measurable outputs and outcomes, ensuring that government spending is directed toward achieving specific policy goals (Moynihan, 2006).

Fiscal decentralization, another critical aspect of PFM, involves the transfer of expenditure and revenue-raising powers from central to sub-national governments. As discussed by Shah (2007), fiscal decentralization is intended to bring governance closer to the people, enhance accountability, and improve the efficiency of public services. However, its success depends on the institutional capacity of local governments and the establishment of clear intergovernmental fiscal relations.

In recent years, many developing countries have embraced PBB as part of broader PFM reforms aimed at improving transparency and accountability in the use of public funds. For instance, countries like South Africa and Brazil have implemented PBB systems to enhance the linkage between national development plans and budgetary allocations (Andrews & Hill, 2003). Similarly, the Philippines has made significant progress in implementing performance-based budgeting through the introduction of the Medium-Term Expenditure Framework (MTEF) to align resource allocation with policy priorities (Caiden, 2010). These international examples provide useful insights into the ongoing budget system reform strategy in Cambodia.

A growing body of empirical research highlights the successes and challenges associated with PFM reforms, particularly in developing countries. A study by Dorotinsky and Matsuda (2001) highlights that one of the key challenges in PFM reform is ensuring the credibility of the budget, which is often undermined by revenue shortfalls, expenditure overruns, and weak cash management systems. This challenge was also observed during the first phase of Cambodia's Public Financial Management Reform Program (PFMRP), which focused on improving budget credibility by strengthening revenue collection and addressing cash management issues (Ministry of Economy and Finance (MEF, 2008).

Research by Allen and Tommasi (2001) further emphasizes that financial accountability and internal controls are critical to the success of PFM reforms. The authors argue that implementing a Financial Management Information System (FMIS) can significantly improve financial reporting and oversight, which was a major objective of the second phase of Cambodia's PFMRP (2009-2014). Cambodia's adoption of the FMIS has been a key milestone in improving the efficiency of financial reporting and enhancing internal control systems in the public sector (World Bank, 2018).

In a study of performance-based budgeting in South Africa, Cameron (2009) argues that linking the budget to policy outcomes can be challenging due to the difficulty of measuring performance and the lack of reliable data. This challenge is also relevant to Cambodia, where the third phase of PFMRP (2015-2020) aimed to strengthen the link between budget allocations and government policies. According to the Ministry of Economy and Finance (2021), the introduction of program budgeting and the development of the Medium-Term Expenditure Framework (MTEF) have been crucial in aligning public expenditure with national priorities.

The final phase of Cambodia's PFMRP (2021-2025) focuses on performance accountability,

which involves institutionalizing performance-based budgeting across all government ministries and agencies. Studies by Schick (1998) and Moynihan (2006) suggest that while performance-based budgeting can improve transparency and accountability, its success depends on the capacity of government institutions to collect and analyze performance data. In Cambodia, capacity constraints remain a significant challenge, particularly at the sub-national level, where institutional reforms are still ongoing (OECD, 2020).

3. Research Objectives

The research has been conducted with the following objectives:

i. To examine the key concepts and phases of the Budget System Reform Strategy within the PFMRP framework.
ii. To assess the implementation process of the BSRS and identify the main challenges.
iii. To evaluate the impact of BSRS on fiscal accountability and policy effectiveness in Cambodia.
iv. To offer recommendations for the future stages of BSRS.

4. Research Methodology

Mixed-method approach is used to provide a comprehensive understanding of the challenges, achievements, and future directions of the reform efforts. Secondary data are collected from a wide range of sources, including government reports, official publications, academic research, and policy briefs related to Cambodia's PFMRP. Key documents from the Ministry of Economy and Finance (MEF), including annual reports on the PFMRP, financial audit reports, and fiscal performance reviews, provide essential data on the outcomes of the BSRS. Reports from the World Bank, International Monetary Fund (IMF), and Asian Development Bank (ADB) on public financial management in Cambodia are analyzed to understand external perspectives on the reforms. Peer-reviewed articles, working papers, and research studies on public financial management, budget reform, and fiscal policy in developing countries provide the theoretical foundation for the research.

The research sample includes key stakeholders involved in the implementation and oversight of the Budget System Reform Strategy. The sample population is drawn from the Ministry of Economy and Finance (MEF), other government ministries, international organizations, and financial institutions involved in the PFMRP. Specifically, the following groups are sampled:

Government Ministries: These include officials from the Ministry of Economy and Finance, Ministry of Planning, and other relevant ministries responsible for the execution of the national budget.

International Advisors: Representatives from international organizations such as the World Bank, International Monetary Fund (IMF), and Asian Development Bank (ADB), which have supported Cambodia's PFMRP, are included.

Financial Institutions: Officials from state-owned financial institutions and private banks that collaborate with the government on budget reforms and fiscal planning.

Local Governance Institutions: Representatives from provincial and municipal financial management offices involved in implementing sub-national fiscal reforms are also included to understand the decentralization aspect of the BSRS.

The study uses purposive sampling, which allows for the selection of specific individuals or groups who have direct knowledge and involvement in Cambodia's PFMRP. Purposive sampling is chosen because the research focuses on understanding the experiences and insights of key stakeholders involved in the reform process. A total of 50 respondents are selected, comprising government officials, international advisors, and other key informants who have been closely engaged with the BSRS implementation over the years.

The combination of primary and secondary data collection methods allows for triangulation, ensuring the reliability and validity of the research findings. The qualitative data collected from interviews are analyzed using thematic coding to identify recurring themes and insights. These themes are then linked to the objectives of the PFMRP and the BSRS, offering a narrative on the strengths and challenges of the reforms.

5. Discussions

The Public Financial Management Reform Program (PFMRP) launched by the Royal Government of Cambodia has been implemented in several phases, each targeting specific aspects of public financial management to improve governance, transparency, and fiscal accountability. The discussion section of this article delves into the key phases of the reform, examining their objectives, implementation, and outcomes.

The first phase (2005-2008) focused on budget credibility, addressing critical issues such as improving revenue collection and streamlining cash management. The second phase (2009-2014) was centered around financial accountability, introducing systems like the Financial Management Information System (FMIS) and enhancing internal audit processes. The third phase (2015-2020) worked towards linking the budget to policy objectives through the introduction of program budgeting and the development of a Medium-Term Expenditure Framework (MTEF). Lastly, the current phase (2021-2025) emphasizes performance accountability, aiming to institutionalize performance-based budgeting and enhance governance in the public financial management system.

This section provides an in-depth analysis of these phases, discussing how each one contributed to strengthening public financial management in Cambodia. By examining the successes and challenges of each phase, the discussion highlights Cambodia's progress toward achieving effective, transparent, and accountable financial governance.

5.1 Budget Credibility (2005-2008)

The first phase of Cambodia's Public Financial Management Reform Program (PFMRP), from 2005 to 2008, concentrated on improving budget credibility, a critical foundation for any public financial management system. Budget credibility refers to the government's ability to plan and execute its budget in line with approved policies, without significant deviations between planned and actual expenditures and revenues. During this period, Cambodia faced challenges such as low revenue collection, weak expenditure control, and unreliable financial reporting systems, which undermined the credibility of the national budget.

5.1.1 Key Objectives of Budget Credibility

The first phase of PFMRP is focused on:

- Improving revenue mobilization to finance the government's growing fiscal needs.
- Enhancing cash management through centralized treasury systems to avoid liquidity shortages.

- Reducing budget deviations to ensure that spending was aligned with national priorities.
- Building a credible budget framework that accurately reflects both revenue projections and expenditure needs.

5.1.2 Initiatives and Reforms

Revenue Mobilization and Tax Administration: The Royal Government of Cambodia (RGC) recognized the need to enhance domestic revenue mobilization to meet increasing budgetary demands. The focus was on strengthening tax administration and compliance, which led to the introduction of modern revenue collection methods, such as the Value-Added Tax (VAT). The VAT system significantly broadened the tax base and improved tax collection efficiency. Additionally, efforts were made to streamline customs duties and reduce informal practices that eroded public revenues.

The introduction of VAT was a major step in the government's attempt to modernize its revenue collection, making the tax system more progressive and responsive to economic activities. These initiatives not only improved the overall tax-to-GDP ratio but also reduced the fiscal deficit and increased the government's ability to invest in public infrastructure and services.

Establishment of the Treasury Single Account (TSA): A critical element of the first phase was the establishment of the Treasury Single Account (TSA) at the National Bank of Cambodia. The TSA consolidated all government accounts into a single account, replacing the previous system where ministries held multiple accounts, leading to inefficiencies and fragmented cash management. With the TSA in place, the government was able to monitor and manage its cash flows more effectively, ensuring that adequate liquidity was available for budget execution.

The introduction of TSA eliminated the fragmentation of public funds and reduced the risk of cash shortages that previously delayed public service delivery. This reform improved the timeliness of payments, particularly for essential services and public-sector salaries, thereby enhancing the efficiency of government operations.

Expenditure Control and Budget Discipline: The RGC also introduced reforms aimed at improving expenditure control and ensuring that ministries adhered to budget allocations. These reforms included strengthening the legal and institutional framework for public financial management. A key component was the introduction of expenditure ceilings that set limits on how much ministries could spend, reducing the incidence of overspending and unauthorized expenditures.

Additionally, the Ministry of Economy and Finance (MEF) implemented a more rigorous process for tracking and reporting on expenditures, making it easier to detect and address deviations from the budget. Ministries were required to submit regular financial reports, which were reviewed by the MEF to ensure compliance with budgetary provisions.

Predictability of Revenues and Expenditures: The government took significant steps to improve the predictability of both revenues and expenditures by enhancing the macroeconomic framework used to develop budget projections. This included more accurate forecasting of key macroeconomic indicators such as GDP growth, inflation, and trade balances, which are critical for revenue estimation. Improved forecasting techniques reduced the gap between projected and actual revenues, allowing for more realistic budget

formulation.

On the expenditure side, reforms in procurement and payment processes improved the predictability of expenditures, reducing delays in project implementation and enhancing the delivery of public services. These efforts contributed to a more stable and predictable fiscal environment, which was critical for maintaining budget credibility.

Public Transparency and Donor Engagement: The RGC recognized the importance of transparency in public financial management to gain the confidence of both domestic stakeholders and international development partners. During this phase, the government made significant strides in making budgetary information more accessible. Regular publication of budget execution reports, audits, and public expenditure reviews increased the transparency of government finances.

This transparency was instrumental in strengthening relationships with development partners, who were keen to see improvements in the governance of public finances. Donor confidence in Cambodia's public financial management increased, leading to continued financial and technical support for the reform program.

5.1.3 Outcomes of the Budget Credibility Phase

Increased Revenue Mobilization: The introduction of VAT and improvements in tax administration contributed to a significant increase in domestic revenues. The government's tax-to-GDP ratio improved, giving the RGC greater fiscal space to fund public services and infrastructure projects.

Improved Cash Management: The establishment of the TSA improved the management of government cash flows, reducing liquidity constraints and ensuring that funds were available when needed. This improved the government's ability to execute the budget as planned, particularly in critical areas such as health, education, and infrastructure.

Enhanced Expenditure Control: The introduction of expenditure ceilings and improved monitoring mechanisms led to a reduction in unauthorized expenditures and enhanced budget discipline. Ministries were held accountable for adhering to their budget allocations, resulting in more efficient use of public resources.

Greater Budget Predictability: Improved revenue forecasting and expenditure control reduced the variance between budgeted and actual figures. This increased the predictability of government finances, enhancing the overall credibility of the budget and reducing the need for in-year budget adjustments.

Strengthened Donor Relations: The increased transparency in public financial management and the successful implementation of reforms improved relations with international development partners. This led to continued financial and technical support for Cambodia's public financial management reforms, which was critical for sustaining momentum in the later phases of the PFMRP.

Thus, the budget credibility phase (2005-2008) of the PFMRP successfully addressed the fundamental challenges in Cambodia's public financial management system. By improving revenue mobilization, cash management, and expenditure control, the government was able to enhance the credibility of its budget. These reforms laid the foundation for the subsequent phases of the PFMRP, which focused on deepening financial accountability and linking the budget to government policies. The successes of this

phase demonstrated Cambodia's commitment to improving fiscal governance and laid the groundwork for more comprehensive reforms in public financial management.

5.2 Financial Accountability (2009-2014)

The second phase of Cambodia's Public Financial Management Reform Program (PFMRP), which ran from 2009 to 2014, focused on enhancing financial accountability. This phase aimed to improve the internal controls of public finances, increase transparency, and ensure that public funds were used efficiently and effectively.

5.2.1 Key Objectives of Financial Accountability

The main objectives during this phase were:

- Strengthening internal financial controls: Ensuring that the financial operations of ministries and public institutions adhered to established laws and procedures.
- Enhancing transparency and reporting: Improving the accuracy and timeliness of financial reporting to provide a clearer picture of how public funds were spent.
- Increasing public sector accountability: Holding ministries and public institutions accountable for their financial management practices.
- Improving the linkage between planning and budgeting: Ensuring that public spending was closely aligned with national development priorities.

5.2.2 Reforms and Initiatives

Introduction of the Financial Management Information System (FMIS): A critical reform during this phase was the introduction of the Financial Management Information System (FMIS). This system was designed to centralize and automate the management of public finances, replacing the manual and fragmented processes that had previously made it difficult to track and control government spending. FMIS enhanced transparency by providing real-time data on government transactions, making it easier to monitor financial activities and detect irregularities.

Internal Audit Systems: The RGC also introduced internal audit systems in government ministries and agencies. The aim was to ensure that these entities complied with financial regulations and to identify and address weaknesses in internal controls. The establishment of internal audit units helped improve oversight and reduce the risk of financial mismanagement and corruption.

Strengthening Legal Frameworks: During this phase, Cambodia also worked to strengthen the legal frameworks governing public financial management. New laws and regulations were introduced to ensure that financial operations within the government complied with international standards and best practices. These legal reforms were essential in building the institutional foundation for better financial management across ministries and agencies.

Capacity Building: Significant efforts were made to build the capacity of government officials involved in financial management. Training programs were conducted to improve their knowledge of budgeting, financial reporting, and auditing practices. These capacity-building initiatives were critical in ensuring that government personnel were equipped to handle the increasingly complex requirements of modern financial management systems.

5.2.3 Outcomes of Financial Accountability

Improved Transparency: The implementation of FMIS and other accountability mechanisms significantly improved the transparency of

public financial management in Cambodia. Ministries and agencies were able to track their spending in real-time, reducing the risk of mismanagement and increasing the public's confidence in how the government managed its finances.

Strengthened Internal Controls: The introduction of internal audit systems and the establishment of clear legal frameworks helped to improve internal controls in government ministries. These measures reduced the risk of unauthorized expenditures and helped ensure that public funds were spent in accordance with national priorities.

Greater Alignment with National Policies: By improving the link between planning and budgeting, the RGC was able to ensure that public spending was more closely aligned with national development goals. This helped to increase the efficiency of public investments and improve the delivery of public services.

Capacity Building and Professionalization: The training programs conducted during this phase helped build the skills and competencies of government officials, contributing to the professionalization of Cambodia's public financial management system. These capacity-building initiatives were critical in ensuring the long-term sustainability of the reforms.

The FMIS, introduced in 2012, was a central component of the financial accountability reforms. As FMIS is a computerized system designed to improve the efficiency, transparency, and accuracy of government financial transactions, it allowed for real-time monitoring of revenue collection, expenditure management, and cash balances, thereby enhancing the government's ability to manage public finances more effectively. The World Bank (2018) notes that the implementation of FMIS led to significant improvements in the accuracy of financial reporting, reduced delays in payments, and minimized opportunities for corruption.

In addition to FMIS, the government strengthened its internal audit systems to improve oversight of public financial management. The Ministry of Economy and Finance (MEF, 2014) established internal audit units within key ministries to conduct regular audits of government transactions, identify areas of inefficiency, and ensure compliance with financial regulations. This contributed to greater transparency and accountability in the use of public funds. However, the effectiveness of internal audit was hindered by capacity constraints and limited enforcement of audit recommendations.

Thus, the financial accountability phase (2009-2014) of the PFMRP played a crucial role in strengthening Cambodia's public financial management system. By improving transparency, strengthening internal controls, and building the capacity of government officials, the RGC was able to enhance accountability and ensure that public funds were used more efficiently. The reforms implemented during this phase laid the groundwork for further improvements in the management of public finances and helped to position Cambodia for continued economic growth and development.

5.3 Budget-Policy Linkage (2015-2020)

The third phase of Cambodia's Public Financial Management Reform Program (PFMRP), covering the years from 2015 to 2020, emphasized improving the linkage between budgeting and government policies. This phase sought to align public expenditures more closely with the country's development priorities, ensuring that financial resources were allocated effectively to achieve the government's strategic objectives.

5.3.1 Key Objectives of Budget-Policy Linkage

Strengthening Program Budgeting: Moving away from input-based budgeting to a program-based approach, which focuses on outcomes and results rather than just expenditures. The goal was to create a more strategic, results-oriented budget that supported the achievement of national development goals.

Developing the Medium-Term Expenditure Framework (MTEF): The RGC aimed to institutionalize the Medium-Term Expenditure Framework (MTEF) to provide a multi-year perspective on budgeting. The MTEF was designed to improve fiscal discipline by ensuring that future spending plans were consistent with revenue projections and policy priorities.

Enhancing Policy and Budget Integration: Ensuring that government policies were reflected in budgetary allocations. This involved improving the collaboration between policymakers and budget planners, so that the budgeting process became a tool for achieving policy goals.

Improving the Efficiency of Public Spending: The government focused on maximizing the impact of public funds by prioritizing spending that had the greatest potential to drive economic growth and social development. This required better planning and monitoring of how resources were being used.

5.3.2 Reforms and Initiatives

Introduction of Program-Based Budgeting (PBB): One of the most important reforms during this phase was the introduction of Program-Based Budgeting (PBB). Under this system, each ministry and government agency were required to develop budget proposals that were aligned with specific programs and outcomes. This approach allowed the government to allocate resources more efficiently, ensuring that public funds were directed towards programs that contributed to the achievement of national development goals.

Development of the MTEF: The Medium-Term Expenditure Framework (MTEF) was introduced to provide a longer-term perspective on budget planning. The MTEF allowed the government to better align its spending with revenue forecasts and policy priorities, helping to improve fiscal discipline. The framework enabled ministries to plan their expenditures over a multi-year horizon, reducing the need for frequent budget adjustments and increasing the predictability of government spending.

Sectoral and Regional Integration: The RGC also worked to improve the integration of national policies into sectoral and regional budgets. This involved ensuring that ministries and sub-national governments aligned their budgets with the national development plan. This alignment helped to ensure that public funds were used more effectively to achieve the government's strategic goals, particularly in critical areas such as education, healthcare, and infrastructure development.

Performance Monitoring and Evaluation: As part of the shift towards a results-oriented budgeting process, the government introduced new systems for monitoring and evaluating the performance of public programs. Ministries were required to report on the outcomes of their programs, allowing the government to assess whether public funds were being used effectively. This information was then used to inform future budget allocations, ensuring that resources were directed towards programs that delivered the best results.

5.3.3 Outcomes of Budget-Policy Linkage

Better Alignment of Budget with National

Priorities: The introduction of program-based budgeting and the MTEF helped to ensure that government spending was more closely aligned with national policy priorities. This increased the efficiency of public expenditures and ensured that resources were allocated to programs that had the greatest potential to drive economic growth and social development.

Improved Fiscal Discipline: The MTEF provided a more stable and predictable framework for budgeting, helping the government to better manage its fiscal resources. By planning over a multi-year horizon, the government was able to avoid the need for frequent budget adjustments and improve the predictability of public spending.

Greater Accountability and Transparency: The shift towards program-based budgeting, along with the introduction of performance monitoring and evaluation systems, increased the accountability and transparency of government spending. Ministries were required to report on the outcomes of their programs, making it easier for the government to assess whether public funds were being used effectively.

Enhanced Efficiency of Public Spending: The emphasis on results-oriented budgeting and performance evaluation helped to improve the efficiency of public spending. The government was able to allocate resources more strategically, focusing on programs that delivered the best outcomes and provided the greatest value for money.

In Cambodia, the introduction of program budgeting represented a significant shift from traditional input-based budgeting, which focused primarily on controlling costs rather than achieving results. According to the Ministry of Economy and Finance (2020), program budgeting was gradually implemented across all government ministries, allowing for a more outcome-oriented approach to budget management. Similarly, the Medium-Term Expenditure Framework (MTEF) provided a framework for balancing short-term fiscal constraints with long-term policy priorities, such as poverty reduction, infrastructure development, and human capital investment (IMF, 2019). By enhancing the predictability of public expenditure, the MTEF contributed to more effective fiscal planning and policy implementation.

The discussion shows that the Budget-Policy Linkage (2015-2020) phase of Cambodia's PFMRP successfully improved the alignment between government policies and public spending. By introducing program-based budgeting and the MTEF, the RGC was able to ensure that public funds were allocated in a way that supported the achievement of national development goals. These reforms contributed to greater fiscal discipline, enhanced efficiency in public spending, and increased accountability and transparency in the use of public funds. The success of this phase laid the foundation for the next stage of the PFMRP, which focused on performance accountability and governance improvements.

5.4 Performance Accountability (2021-2025)

The final phase of Cambodia's Public Financial Management Reform Program (PFMRP), covering the period from 2021 to 2025, focuses on performance accountability. This phase aims to further improve the efficiency and effectiveness of public financial management by linking budgeting with measurable outcomes. The goal is to ensure that public expenditures deliver tangible results and enhance the overall governance and transparency of the public sector.

5.4.1 Key Objectives of Performance Accountability

Institutionalizing Performance-Based Budgeting (PBB): The central aim of this phase is to fully institutionalize Performance-Based Budgeting (PBB) across all government ministries and agencies. This system links budget allocations directly to the performance of government programs, ensuring that public funds are used effectively to achieve pre-defined goals and outcomes.

Enhancing Accountability Mechanisms: The RGC has focused on strengthening the accountability of public institutions by requiring them to report on the outcomes of their programs. Ministries are expected to provide evidence of how effectively they are using public resources, and they are held accountable for meeting performance targets.

Improving Monitoring and Evaluation: To support the shift towards performance accountability, the government is expanding its monitoring and evaluation (M&E) systems. These systems are designed to track the progress of public programs and ensure that they are delivering the expected results. The information gathered through M&E is used to make informed decisions about future budget allocations.

Strengthening the Role of Internal Audit: As part of the broader effort to improve governance, the government is strengthening the role of internal audit systems to ensure that public funds are being used efficiently and transparently. Internal audits help identify areas where improvements can be made, and they play a critical role in safeguarding public resources from mismanagement and corruption.

Fostering a Results-Oriented Culture: The RGC is working to foster a culture of results-oriented management within the public sector. This involves training government officials to focus on achieving measurable outcomes and ensuring that all levels of government are committed to delivering high-quality public services.

5.4.2 Reforms and Initiatives

Full Implementation of PBB: The RGC is committed to the full implementation of Performance-Based Budgeting (PBB) across all ministries. PBB requires government agencies to develop detailed program plans that include specific performance targets and indicators. The government's budgetary allocations are based on these performance plans, with ministries receiving funds based on their ability to achieve the desired outcomes.

Strengthening the M&E Framework: A key element of this phase is the strengthening of the Monitoring and Evaluation (M&E) Framework. The government has introduced new tools and processes to track the performance of public programs. This data is used to evaluate the effectiveness of government spending and to identify areas where improvements are needed.

Building Capacity for Performance Management: To support the shift towards performance accountability, the RGC is investing in capacity-building initiatives. These programs are designed to train government officials in performance management techniques, such as setting targets, measuring outcomes, and reporting on results. The government is also providing technical assistance to ministries to help them implement PBB effectively.

Enhancing Transparency and Public Reporting: The government is also focusing on increasing the transparency of public financial management by publishing detailed reports on the outcomes of public programs.

This transparency is intended to increase public confidence in the government's ability to manage public resources effectively.

5.4.3 Outcomes of Performance Accountability

Improved Efficiency in Public Spending: The shift towards Performance-Based Budgeting (PBB) has improved the efficiency of public spending by ensuring that resources are allocated to programs that deliver tangible results. This has helped the government to use its limited resources more effectively, leading to improvements in public service delivery.

Greater Accountability in Public Institutions: The focus on performance accountability has increased the accountability of public institutions. Ministries and agencies are now required to report on the outcomes of their programs, making it easier for the government to assess the effectiveness of public spending. This has also increased transparency in the use of public funds.

Enhanced Monitoring and Evaluation: The expansion of the M&E Framework has improved the government's ability to track the progress of public programs. This has allowed the government to identify areas where improvements are needed and to make adjustments to ensure that public resources are being used effectively.

Stronger Internal Audit Systems: The strengthening of internal audit systems has improved the oversight of public financial management. Internal audits have helped to identify areas of inefficiency and have played a critical role in preventing the misuse of public funds. This has contributed to a more transparent and accountable public sector.

Increased Focus on Results-Oriented Management: The shift towards a results-oriented culture within the public sector has improved the overall governance of public financial management. Government officials are now more focused on achieving measurable outcomes, which has led to improvements in the quality of public services.

In Cambodia, the introduction of Performance-based budgeting (PBB) is intended to enhance the transparency and accountability of public spending, ensuring that government ministries are held accountable for delivering results (OECD, 2020). In addition to PBB, the final phase of the PFMRP focuses on enhancing overall governance in public financial management. This includes further strengthening internal audit systems, improving public access to financial information, and enhancing the capacity of public servants to manage public funds effectively. The introduction of e-governance initiatives, such as online platforms for budget monitoring and public participation in the budget process, is also a key feature of the final phase (World Bank, 2021).

Thus, the Performance Accountability (2021-2025) phase of Cambodia's PFMRP marks a significant shift towards a more results-oriented approach to public financial management. By institutionalizing Performance-Based Budgeting (PBB), strengthening accountability mechanisms, and improving monitoring and evaluation, the RGC has made significant progress in improving the efficiency and effectiveness of public spending. These reforms have helped to increase the transparency of public financial management and have contributed to the overall improvement of governance in Cambodia. The success of this phase will be critical to ensuring that public funds are used effectively to achieve the country's long-term development goals.

6. Key Findings

The Public Financial Management Reform Program (PFMRP) in Cambodia has been instrumental in transforming the country's fiscal governance and improving public sector accountability. Over the course of its phased implementation, the reform program has achieved notable successes in areas such as revenue mobilization, budget credibility, and financial transparency. However, the path to full implementation has not been without challenges. This section outlines the key findings of the PFMRP, highlighting both the successes and the ongoing obstacles. While significant improvements have been made in enhancing the efficiency and effectiveness of public financial management, challenges such as capacity constraints, alignment between national and sub-national budget systems, and slow institutional reforms continue to limit the program's full potential. By analyzing these key aspects, this section provides a balanced perspective on the achievements and hurdles of Cambodia's budget system reform strategy.

6.1 Successes

The Public Financial Management Reform Program (PFMRP) in Cambodia has yielded several notable successes across different phases of its implementation, significantly improving the country's public financial management system. The key achievements include:

i. Revenue Mobilization: One of the most significant successes of the PFMRP has been the improvement in revenue mobilization. According to the Ministry of Economy and Finance (MEF, 2008), the government introduced tax reforms, including new laws on value-added tax (VAT), customs duties, and corporate taxes, which significantly boosted government revenues. By the end of the first phase (2008), government revenues as a percentage of GDP had risen from approximately nine percent to 11 percent, reflecting enhanced revenue collection and a broadened tax base (World Bank, 2018).

ii. Cash Management: The establishment of the Treasury Single Account (TSA) at the National Bank of Cambodia played a crucial role in addressing the cash management challenges faced by the government. Prior to the reform, there were significant delays in the disbursement of funds to ministries and agencies, leading to inefficient budget execution. But the TSA improved the management of public funds by consolidating government cash balances and streamlining the payment process, thereby reducing delays in fund disbursement and minimizing idle cash reserves (World Bank, 2018).

iii. Transparency and Accountability: The introduction of the Financial Management Information System (FMIS) in the second phase (2009-2014) significantly enhanced the transparency of government financial transactions. FMIS enabled real-time monitoring of revenues, expenditures, and cash balances, thereby improving the accuracy and timeliness of financial reporting. Moreover, the establishment of internal audit units within key ministries improved oversight and compliance, ensuring better financial governance.

iv. Budget-Policy Linkage: The introduction of program budgeting and the Medium-Term Expenditure Framework (MTEF) in the third phase (2015-2020) marked a significant shift

from traditional input-based budgeting to a more strategic, outcome-oriented approach. These reforms allowed the government to align its expenditure more effectively with national development priorities, ensuring that public funds were allocated to areas that could deliver measurable policy outcomes.

v. Performance Accountability: The ongoing fourth phase (2021-2025) has focused on institutionalizing performance-based budgeting (PBB) across all government ministries. PBB links government spending to specific performance indicators, holding ministries accountable for delivering results. This reform is expected to further enhance the efficiency and effectiveness of public spending in Cambodia.

6.2 Challenges

Despite the significant successes, the PFMRP has faced several challenges that have slowed its progress and limited its impact. These challenges include:

i. Capacity Constraints: One of the most persistent challenges has been the limited capacity of public servants at both the national and sub-national levels. The successful implementation of the reforms, particularly complex systems like FMIS and program budgeting, requires a workforce with strong technical skills. However, capacity constraints have led to inconsistent adoption of the reforms across ministries and agencies, with many lacking the expertise to fully utilize the new systems and practices.

ii. Alignment Between National and Sub-National Budget Systems: While significant progress has been made at the national level, aligning national and sub-national budget systems remains a challenge. Sub-national authorities often lack the capacity and resources to implement reforms effectively, leading to disparities in financial management practices across different levels of government. This misalignment has hindered the full integration of public financial management reforms at the sub-national level, particularly in provinces and municipalities with weaker institutional capacities.

iii. Slow Institutional Reforms: Although the PFMRP has introduced several important reforms, institutional change has been slow, particularly in terms of building a performance-oriented culture within government ministries. Resistance to change, combined with the slow pace of civil service reform, has limited the effectiveness of performance-based budgeting and internal audit systems. Furthermore, some ministries have been slow to adopt the new systems and practices, reducing the overall impact of the reforms.

iv. Limited Enforcement of Audit Recommendations: While internal audit units have been established in key ministries, the enforcement of audit recommendations has been inconsistent. In many cases, ministries and agencies have failed to act on audit findings, limiting the effectiveness of internal audit as a tool for improving financial governance. Strengthening the enforcement of audit recommendations will be essential to ensuring that the reforms achieve their full potential.

In summary, while the PFMRP has made significant progress in improving public financial management in Cambodia, particularly in areas such as revenue mobilization, cash management, and transparency, challenges such as capacity constraints and slow institutional reforms remain. Addressing these challenges will be critical to the continued success of the reform program in achieving its long-term objectives.

7. Conclusion

The Public Financial Management Reform Program (PFMRP) has made significant strides in strengthening Cambodia's fiscal governance and laying the groundwork for sustained economic growth. Since its launch in 2004, the program has introduced essential reforms aimed at enhancing budget credibility, improving cash management, increasing revenue collection, and promoting transparency. Each phase of the reform has addressed critical areas of public financial management, culminating in the ongoing efforts to institutionalize performance-based budgeting and align the budget with national development priorities.

The success of the PFMRP is particularly evident in the improvements in revenue mobilization, enhanced financial accountability, and the implementation of modern budgeting systems such as the Financial Management Information System (FMIS) and Medium-Term Expenditure Framework (MTEF). These systems have significantly contributed to better fiscal planning, more effective use of public resources, and greater transparency across government ministries.

However, challenges remain, particularly in terms of capacity building, alignment between national and sub-national systems, and slow progress in institutional reforms. Strengthening institutional capacities and ensuring that reforms are uniformly adopted at all levels of government will be critical for the continued success of the PFMRP.

Looking forward, there is great potential for further improvement, particularly in performance accountability. The ongoing fourth phase of the PFMRP (2021-2025) focuses on linking public spending to measurable outcomes through performance-based budgeting. This shift towards results-oriented financial management holds the promise of improving the efficiency of public services and ensuring that government spending translates into tangible benefits for Cambodia's citizens.

Thus, while the PFMRP has delivered significant improvements to Cambodia's financial governance, the next steps should involve consolidating these gains, addressing remaining challenges, and continuing to refine performance-based budgeting to ensure the long-term fiscal sustainability of the country. With continued political commitment and international support, Cambodia is well-positioned to achieve further success in its public financial management reform journey.

8. Recommendations

The following recommendations are suggested to improve Cambodia's public financial management system:

i. Strengthening Institutional Capacity for Performance-Based Budgeting: To fully realize the benefits of performance-based budgeting, it is essential to enhance the institutional capacity of government ministries and departments. This includes investing in human resource development to equip public servants with the skills necessary to implement and monitor performance-based budgeting effectively. Capacity-

building programs should focus on technical skills such as data analysis, performance evaluation, and financial management to ensure consistent and effective application of these practices.

ii. Enhancing Collaboration Between National and Sub-National Governments: Strengthening the collaboration between national and sub-national governments is crucial for the success of the Public Financial Management Reform Program (PFMRP). A unified approach will ensure the alignment of budget systems and financial management practices across different levels of government. Establishing communication platforms and providing capacity-building support to sub-national governments can enhance their ability to adopt national-level reforms and maintain consistency in public financial management practices.

iii. Investing in Technological Infrastructure, Such as FMIS, to Improve Financial Monitoring and Evaluation: Further investment in technological infrastructure, particularly the Financial Management Information System (FMIS), is vital for improving the monitoring and evaluation of financial transactions across government institutions. Expanding the use of FMIS and integrating it into more government departments will enhance real-time monitoring, facilitate data-driven decision-making, and improve transparency. Additionally, continuous upgrades and technical support for FMIS will ensure that it remains an effective tool for public financial management.

iv. Fostering a Culture of Fiscal Transparency and Public Accountability: Fiscal transparency and accountability are critical components of public trust in financial governance. The government should foster a culture of openness by regularly publishing financial reports, audit results, and performance outcomes of government programs. Encouraging public participation in budget discussions and making financial data accessible to the public will strengthen accountability and ensure that the government's financial decisions are aligned with public interests.

v. Aligning Budget Reforms with Broader Governance and Administrative Reforms: To maximize the impact of budget reforms, they must be aligned with broader governance and administrative reforms. Improving public financial management is closely linked to other areas of governance, such as civil service reform, anti-corruption efforts, and decentralization policies. By coordinating these reforms, the government can create a more coherent and effective system of public administration, ensuring that financial reforms are supported by a strong institutional framework.

These recommendations, if implemented, will help Cambodia strengthen its public financial management system, improve accountability, and align its fiscal policies with its broader development goals.

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Sustaining Heritage: Analyzing the Management Practices, Socio-Economic Impacts, and Challenges in Bakong Commune, Siem Reap, Cambodia

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ABSTRACT

This study examines the sustainability of heritage management practices in Bakong Commune, Siem Reap Province, Cambodia. Bakong, an integral part of the larger Angkor Archaeological Park, represents a critical site for understanding the balance between cultural preservation and economic development. While heritage tourism has provided substantial economic benefits, it has also exacerbated environmental degradation and raised concerns about equitable economic distribution among local communities. The research methodology employed a mixed-methods approach, including surveys, interviews, focus group discussions, and field observations, to explore current heritage management practices, community involvement, and socio-economic impacts. The findings indicate significant gaps in community participation, uneven distribution of tourism benefits, and environmental challenges that threaten the long-term sustainability of the site. The study provides key recommendations for enhancing community involvement, promoting equitable economic benefits, and strengthening environmental management practices to ensure the sustainability of Bakong as a heritage site. These recommendations aim to contribute to the broader goals of sustainable heritage management in Cambodia.

Keywords: ***Sustainable heritage; heritage management; cultural preservation; socio-economic development; tourism impact, local community involvement; environmental conservation***

1. Introduction

Heritage management is a multifaceted discipline that involves the careful preservation of both cultural and natural assets while integrating sustainable development and socio-economic growth. In today's rapidly globalizing world, where tourism serves as a critical economic driver, the sustainable management of heritage sites has become increasingly important. Sustainable heritage management encompasses practices aimed at safeguarding historical sites and cultural traditions, while simultaneously fostering economic growth and social development for local communities. This balanced approach ensures that heritage, while preserved for future generations, remains valuable to current stakeholders by generating economic benefits and promoting social cohesion (Bandarin, 2002).

Sustainable heritage management encompasses both cultural preservation and socio-economic development in a balanced and holistic manner. The concept emerged from the increasing recognition that while heritage conservation is essential, it must also consider the economic and social well-being of the communities that reside near or within heritage sites. This approach is closely aligned with the broader global objectives of sustainable development, particularly in how it integrates environmental sustainability

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with the safeguarding of cultural assets (UNESCO, 2002). It emphasizes community engagement, inclusive development, and long-term planning to ensure that heritage sites not only remain preserved but also continue to provide tangible benefits to both present and future generations.

Cambodia, with its rich cultural history, is home to some of the most significant heritage sites in Southeast Asia, particularly the Angkor Archaeological Park. Angkor Wat, a UNESCO World Heritage Site since 1992, attracts millions of visitors annually, contributing significantly to the country's economy. However, this influx of tourism has placed considerable pressure on both conservation efforts and the livelihoods of local communities. As a result, the need for a sustainable approach to heritage management has become more urgent, with the balance between tourism development and conservation becoming increasingly difficult to maintain (Miura, 2011). Bakong, part of the larger Angkor complex, is one of Cambodia's oldest and most culturally significant temple complexes. Built in the 9th century, Bakong stands not only as a testament to the architectural prowess of the Khmer Empire but also as an integral part of the local cultural identity (Brigitta, 2011).

The importance of sustainable heritage management extends beyond national boundaries. Globally, heritage sites are invaluable assets that contribute to cultural identity, national pride, and socio-economic development. Preserving these sites ensures that future generations can access their cultural and historical heritage while providing present-day populations with economic opportunities through tourism and related industries (Cornelia & Mikhail, 2013). However, without sustainable management, the increasing influx of tourists can result in the degradation of heritage sites, environmental damage, and socio-economic inequalities within local communities (Fang, 2004).

In Cambodia, particularly in Siem Reap Province where the Angkor Archaeological Park is located, these challenges are even more pronounced. The rapid growth of tourism has brought significant economic benefits to the region, but it has also led to environmental degradation and social challenges, such as the displacement of local communities and the unequal distribution of tourism revenues (Chheang, 2009). Since Siem Reap is heavily reliant on tourism, the sustainability of its heritage management practices is vital for the province's long-term economic and environmental stability.

The case of Bakong Commune in Siem Reap Province offers a unique perspective on the broader challenges of heritage management in Cambodia. Siem Reap, the gateway to the Angkor temples, is the most popular tourist destination in Cambodia, with tourism serving as a primary source of income for the local population. However, the intense focus on Angkor Wat and Angkor Thom often overshadows smaller, yet equally important, sites like Bakong. While Bakong has benefited from the overall tourism growth in the region, it also faces distinct challenges related to heritage conservation, equitable economic benefits for local communities, and environmental sustainability (Michael, 2013).

One of the critical issues in Siem Reap, and Bakong in particular, is the equitable distribution of benefits from heritage tourism. While the tourism industry has flourished, many local residents, particularly those in rural areas, remain marginalized from these economic gains. This situation reflects the

broader challenge of ensuring that heritage tourism supports both the preservation of cultural heritage and the socio-economic advancement of local populations (Mina, 2017). In Bakong, where many local people live near the temples and engage in small-scale economic activities, heritage management practices must strike a balance between the need for conservation and the need to support local livelihoods.

The selection of Bakong Commune as the focus of this study is justified by several factors. First, Bakong is a historically significant site that has not received as much attention as the more famous Angkor Wat complex, making it a valuable case study for examining the sustainability of heritage management practices in less-visited areas. Second, Bakong's unique position as part of the broader Angkor Park, but distinct in its economic and social dynamics, allows for a focused exploration of how smaller heritage sites can contribute to the broader goals of sustainable tourism and development. Third, the involvement of the APSARA Authority in managing the site provides an opportunity to assess the effectiveness of official heritage management policies and their impact on local communities (Miura, 2011).

Moreover, this study aims to fill a gap in the literature, as previous research has largely focused on the more prominent Angkor sites. By concentrating on Bakong, this study seeks to contribute to the understanding of sustainable heritage management in Cambodia from the perspective of local community engagement, economic development, and environmental conservation. Additionally, this research addresses the pressing need for strategies that not only conserve heritage sites but also empower local communities to benefit from their cultural assets in a sustainable manner.

2. Literature Review

The field of heritage management has evolved significantly over the years, shifting from a purely preservationist approach to one that incorporates the broader socio-economic needs of the communities surrounding heritage sites. Sustainable heritage management now emphasizes the balance between conserving cultural and natural heritage and promoting economic and social development. This review highlights key literature that has contributed to understanding these dynamics, particularly in the context of Cambodia and, more specifically, Bakong Commune in Siem Reap Province.

Sustainable heritage management integrates cultural preservation with socio-economic and environmental concerns, ensuring that heritage sites provide long-term benefits to both present and future generations. Bandarin (2002) argues that the core of sustainable heritage management lies in the capacity to maintain the cultural and historical significance of heritage sites while also addressing the needs of contemporary communities. This balance is increasingly critical in heritage sites that experience heavy tourist traffic, as these locations must mitigate the potential adverse effects of tourism on both the environment and local cultures.

In Cambodia, heritage management is closely tied to the preservation of Angkor's archaeological park. Miura (2011) points out that sustainable heritage management in Angkor, including Bakong, requires addressing the dual pressures of conserving cultural monuments and providing economic opportunities to the local population. Miura also notes the complexity of managing these heritage sites, given the diverse interests of stakeholders, including local communities, international organizations, and governmental authorities.

One of the most significant contributions of heritage sites is their potential for driving economic development through tourism. Several scholars have examined the positive and negative impacts of heritage tourism, especially in developing countries. Cohen (1996) emphasizes the economic potential of heritage tourism, suggesting that it can be a major source of income for local communities when managed effectively. However, Cohen also warns of the risks of unequal distribution of these benefits, particularly when larger companies monopolize the tourism industry, leaving local communities with limited economic opportunities.

Cornelia and Mikhail (2013) further argue that the value of cultural heritage extends beyond its economic contributions. Heritage tourism fosters cultural pride, strengthens social cohesion, and promotes environmental education. However, the economic benefits of heritage tourism often come at the cost of increased environmental degradation, especially when tourism infrastructure is not sustainably developed. This issue is particularly relevant in Cambodia, where rapid tourism growth has led to significant strain on heritage sites like Angkor Wat and Bakong.

Managing heritage sites sustainably requires addressing a multitude of challenges, ranging from environmental degradation to community displacement. Fang (2004) highlights the environmental impacts of heritage tourism in China, a scenario that mirrors the situation in Cambodia. Fang argues that the growing number of tourists poses a threat to the physical integrity of heritage sites, particularly when tourism development is prioritized over conservation efforts.

Similarly, in Cambodia, Chheang (2009) notes the strain that tourism has placed on Angkor's heritage sites. While tourism has brought considerable economic benefits to Siem Reap, it has also resulted in environmental degradation and socio-cultural displacement. Chheang emphasizes that sustainable heritage management in Cambodia must focus on mitigating these negative effects, particularly by involving local communities in management decisions and ensuring that they benefit from tourism revenues.

Mina (2017) advocates for a community-led approach to sustainable heritage management, arguing that local communities should play a central role in decision-making processes. This approach is particularly relevant in Cambodia, where the benefits of tourism often fail to reach the rural populations living near heritage sites. Mina's work underscores the importance of empowering local communities to participate in heritage management, not only as beneficiaries but also as active stakeholders in the conservation and tourism processes.

The specific context of heritage management in Cambodia presents unique challenges and opportunities. Angkor, one of the most visited heritage sites in the world, serves as a prime example of both the potential and pitfalls of heritage tourism. According to Miura (2011), the influx of tourists has brought economic growth to Siem Reap but has also exacerbated environmental and social problems. The APSARA Authority, which oversees the management of Angkor, has implemented various policies to balance tourism development with conservation. However, significant gaps remain between policy frameworks and their practical implementation, particularly in terms of community involvement.

Brigitta (2011) points out that the historical

and cultural significance of Bakong, part of the larger Angkor complex, often goes unnoticed in favor of more prominent sites like Angkor Wat. However, Bakong's importance as one of the earliest Khmer temples makes it a vital part of Cambodia's heritage. The challenge for Bakong, and for Cambodian heritage management in general, is to ensure that these less-visited sites receive the same level of attention and resources for sustainable management as the more popular sites.

Despite the efforts made by local authorities and international organizations, significant gaps remain in the sustainable management of heritage sites. Miura (2011) highlights the disconnect between official policies and local realities in Cambodia. While the APSARA Authority has made progress in regulating tourism and preserving monuments, local communities often feel excluded from decision-making processes and are not adequately compensated for the economic and social disruptions caused by heritage management regulations.

The issues of displacement and land-use restrictions have also been widely discussed in the literature. Kim (2018) explores how restrictive land-use policies in heritage zones can negatively impact local populations, particularly in terms of limiting their economic activities. This is a concern in Bakong, where local residents are often restricted from using land for agricultural or commercial purposes due to heritage conservation regulations. Such policies, while necessary for the preservation of cultural heritage, can exacerbate poverty and social inequality if not managed in a way that includes local voices and compensates affected communities.

The relationship between sustainable development and heritage management has become increasingly prominent in academic discussions. The Sustainable Development Goals (SDGs), particularly Goal 11, emphasize the need for inclusive, safe, and sustainable cities, which include the protection of cultural and natural heritage (United Nations, 2015). In this context, heritage management is seen not only as a conservation issue but also as a development imperative. The challenge for heritage managers is to integrate these global goals with local realities, ensuring that heritage sites contribute to economic development, social inclusion, and environmental sustainability.

According to UNESCO (2013), heritage sites like Angkor and Bakong must be managed in a way that aligns with the broader goals of sustainable development. This means involving local communities in the decision-making process, ensuring that tourism revenues are distributed equitably, and implementing policies that protect the environment. In Cambodia, achieving these goals requires a multi-stakeholder approach that includes not only government authorities and international organizations but also local residents, business owners, and civil society organizations.

The literature on sustainable heritage management provides a comprehensive framework for understanding the challenges and opportunities faced by heritage sites like Bakong. Scholars agree that while heritage tourism can bring significant economic benefits, it also presents risks to both the physical integrity of heritage sites and the well-being of local communities. The key to addressing these challenges lies in adopting a more inclusive approach to heritage management, one that prioritizes community involvement, equitable distribution of benefits, and environmental sustainability.

In the case of Bakong, the existing literature

highlights the need for more attention to be paid to less-visited sites and for greater involvement of local communities in management decisions. This study seeks to build on these discussions by exploring the specific challenges faced by Bakong Commune and providing recommendations for improving sustainable heritage management practices.

3. Research Objectives

The present research has been conducted with the following objectives:

i. To examine the current heritage management practices in Bakong Commune, Siem Reap Province.
ii. To analyze the socio-economic impacts of heritage management on the local community.
iii. To identify the gaps and challenges in implementing sustainable heritage management.
iv. To evaluate the sustainability of heritage management practices in Bakong through a SWOT analysis.
v. To provide recommendations for improving sustainable heritage management in Bakong Commune.

4. Research Methodology

The research methodology for this study focuses on a mixed-methods approach, integrating both quantitative and qualitative research techniques to comprehensively examine the sustainability of heritage management practices in Bakong Commune, Siem Reap Province, Cambodia. The methodology is designed to capture a holistic view of how heritage management affects the local community.

The data collection process is divided into two major categories: primary data collection and secondary data collection. Primary data were collected through quantitative survey, qualitative interviews, focus group discussions (FGDs), and observations. For, quantitative survey, a structured questionnaire was developed and administered to 315 households in the Bakong Commune, including local residents, business owners, and individuals involved in heritage tourism. The survey collected data on various aspects such as income from tourism, access to economic opportunities, perceptions of heritage management practices, and challenges faced by the local population. In-depth interviews were conducted with key stakeholders, including APSARA Authority representatives, local community leaders, religious figures (monks), and other relevant individuals to collect qualitative information. These interviews aimed to explore their perspectives on the effectiveness of heritage management practices, the economic and social impacts on local communities, and potential areas for improvement.

A purposive sampling method was used to select the respondents for both the survey and interviews. Purposive sampling is appropriate for this study because it allows for the deliberate selection of participants who have direct experience or involvement with heritage management in Bakong. This includes local residents who live near the heritage sites, business owners who derive income from tourism, APSARA officials responsible for managing the site, and community leaders.

Further, focus group discussions (FGDs) were organized with local community members to gather collective insights and experiences related to heritage management practices in Bakong. The FGDs allowed for the exploration of common issues and the collective identification of challenges and opportunities in managing heritage

sustainably. Finally, field observations were conducted to assess the physical state of heritage sites, the activities of tourists, and interactions between the local community and heritage management authorities. This provided contextual data on how tourism and heritage management are practically implemented in Bakong.

Secondary data were collected from academic journals, books, government reports, and publications from international organizations such as UNESCO and the APSARA Authority. These sources provided contextual information on heritage management in Cambodia, sustainable tourism practices, and case studies from other heritage sites globally. The literature review helped to establish a theoretical framework for understanding the challenges and opportunities of heritage management.

A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) was also employed to assess the heritage management practices in Bakong. The SWOT analysis provided insights into the strengths of existing practices (e.g., the protection of heritage sites), the weaknesses (e.g., lack of community participation), opportunities for improvement (e.g., inclusive economic opportunities for locals), and potential threats (e.g., environmental degradation due to increased tourism).

While the study adopted a comprehensive approach, certain limitations must be acknowledged. The use of purposive sampling, while effective in targeting relevant participants, may introduce some biases as it is not fully representative of the broader population. Furthermore, the study is geographically limited to Bakong Commune, and the findings may not be entirely generalizable to other heritage sites in Cambodia. Additionally, the reliance on self-reported data from surveys and interviews may lead to some inaccuracies due to participant bias or recall errors.

5. Results and Discussion

The results of the study on the sustainability of heritage management practices in Bakong Commune reveal several important findings that are critical for understanding the current state of heritage management in the region. The data collected through quantitative surveys, qualitative interviews, and focus group discussions provide a comprehensive view of the socio-economic impacts, community involvement, and environmental challenges associated with heritage management in Bakong. This section presents the findings, supported by tables and figure, followed by a discussion of their implications.

5.1 Heritage Management Practices

The current heritage management practices in Bakong Commune, part of the greater Angkor Archaeological Park, are overseen by the APSARA Authority, the government agency responsible for the protection, conservation, and management of Angkor and the surrounding areas. These practices aim to preserve the cultural and historical significance of Bakong, one of the earliest Khmer temples, while balancing the needs of the local population and the pressures of increasing tourism.

The heritage management practices in Bakong revolve around conservation efforts, tourism management, and community involvement. While the APSARA Authority has established a framework to safeguard the integrity of the site, significant challenges remain in the areas of community engagement and equitable economic distribution.

5.1.1 Conservation and Preservation Efforts

The conservation efforts in Bakong are

primarily focused on maintaining the physical integrity of the temple structures and the surrounding environment. These efforts include routine maintenance, restoration of deteriorated sections, and monitoring of the site to prevent damage from environmental factors and human activity, particularly the impact of tourism. However, interviews with local officials and community leaders indicate that despite these measures, there are concerns about the long-term sustainability of these efforts due to limited resources and the increasing number of tourists visiting the area.

Field observations also reveal that while conservation efforts are evident, there are instances where sections of the site show signs of wear and tear, particularly in areas with high tourist foot traffic. This raises questions about the adequacy of the current maintenance practices and the need for more comprehensive restoration projects to ensure the temple's preservation for future generations.

5.1.2 Tourism Management

Tourism plays a crucial role in the economy of Siem Reap Province, and Bakong is no exception. The APSARA Authority has implemented several tourism management strategies to control the flow of visitors and minimize the negative impacts of mass tourism on the site. These strategies include limiting the number of visitors to certain areas, creating designated pathways to reduce direct contact with the temple structures, and providing educational materials to raise awareness about the importance of heritage conservation.

Despite these efforts, the survey results show that local residents feel that the tourism management strategies in place are insufficient in addressing the environmental degradation caused by the increasing number of visitors. Many respondents expressed concerns about the lack of infrastructure to support the growing tourism industry, particularly in terms of waste management and transportation.

5.1.3 Community Involvement in Heritage Management

One of the most significant challenges in the current heritage management practices in Bakong is the lack of meaningful community involvement. The survey and focus group discussions reveal that while the local community is aware of the heritage management efforts, they feel excluded from the decision-making process. Local residents, particularly those living near the temple, expressed frustration over land-use restrictions imposed by the APSARA Authority, which limit their ability to engage in agricultural or commercial activities on their land.

Only 10 percent of survey respondents indicated that they were actively involved in heritage management activities, such as community consultations or public discussions on heritage preservation. The majority of respondents (70 percent) reported that they were not consulted or involved in any decision-making processes related to the management of the Bakong site (Table 1).

Table 1: Community Involvement in Heritage Management

Level of Involvement	Percentage of Respondents
Actively Involved	10%
Occasionally Consulted	20%
Not Involved in Decision-Making	70%

Source: Own Survey.

This disconnect between the APSARA Authority and the local community has led to growing dissatisfaction among residents, who believe that they should have a greater role in managing the heritage site, particularly in areas that directly impact their livelihoods. The lack of community involvement also raises concerns about the sustainability of the heritage management practices, as local support is crucial for the long-term success of conservation and tourism strategies.

5.2 Socio-Economic Economic Impact of Heritage Management

5.2.1 Economic Impact

One of the primary objectives of this study was to assess the socio-economic impacts of heritage management practices on the local population. The survey results show that while heritage tourism has brought economic benefits to the region, these benefits are unevenly distributed. The majority of the local population feels excluded from the direct economic advantages of tourism, such as employment in tourism-related industries and revenue generation from local businesses.

Survey data indicates that 45 percent of respondents reported no noticeable change in their income as a result of tourism, while 25 percent reported a significant increase. This disparity highlights the need for more inclusive economic development strategies that ensure the benefits of tourism are shared more equitably among the local population (Table 2).

Table 2: Economic Impact of Heritage Management

Economic Change	Percentage of Respondents
Significant Increase in Income	25%
Moderate Increase in Income	30%
No Noticeable Change in Income	45%

Source: Own Survey.

5.2.2 Effectiveness of the Heritage Management Practices

Satisfaction with heritage management practices reveals several insights into the effectiveness of the current management practices in Bakong Commune (Table 3). The lowest satisfaction level is found in community involvement, where only 10 percent of respondents feel satisfied. This suggests that there is a significant disconnect between the local population and the heritage management authorities. The lack of participation or consultation of the community in decision-making processes might be a major issue leading to dissatisfaction.

Secondly, as observed, tourism management has a moderate satisfaction level of 45 percent. This indicates that while some efforts are being made to control the negative impacts of tourism, such as visitor management or infrastructure development, there is still room for improvement. Issues like crowd control, waste management, and environmental degradation could be contributing to the lower satisfaction levels.

Further, the study reveals that conservation efforts have the highest satisfaction rating at 55 percent. This shows that the community acknowledges the efforts to preserve and protect the physical integrity of the heritage site. However, with nearly half of the respondents still expressing dissatisfaction, it implies that more comprehensive or transparent conservation strategies could

enhance public perception.

Satisfaction with the economic benefits derived from heritage management is relatively low, at only 25 percent. This suggests that the local population feels marginalized or excluded from the financial gains associated with heritage tourism. The uneven distribution of wealth and limited opportunities for locals to benefit economically from the tourism sector may be contributing factors to this dissatisfaction.

Table 3: Satisfaction with Heritage Management Practices

Areas of Concern	Satisfaction (%)
Community Involvement	10%
Tourism Management	45%
Conservation Efforts	55%
Economic Benefits	25%

Source: Own Survey.

Thus, while conservation efforts are somewhat successful, there is significant dissatisfaction regarding community involvement and the distribution of economic benefits. Addressing these issues, particularly by involving local communities more actively and ensuring that tourism-generated income is shared more equitably, would likely improve overall satisfaction with the heritage management practices in Bakong Commune.

5.3 Gaps and Challenges in Heritage Management Practices

While the APSARA Authority has made strides in preserving the cultural heritage of Bakong, several gaps in the current management practices need to be addressed:

Limited Community Involvement: The lack of meaningful participation from local residents in heritage management decisions has led to feelings of disenfranchisement and dissatisfaction among the community. There is a need for greater efforts to involve local stakeholders in the decision-making process to ensure that their voices are heard and their concerns addressed.

Tourism Infrastructure: The growing number of tourists visiting Bakong has outpaced the development of infrastructure to support sustainable tourism. This includes waste management systems, transportation facilities, and accommodations for tourists, which are currently insufficient to handle the increased demand.

Economic Disparities: The economic benefits of tourism in Bakong are not being shared equitably, with many local residents feeling marginalized from the economic gains. There is a need for targeted initiatives to support local entrepreneurs and provide opportunities for local communities to benefit more directly from the tourism industry.

Environmental Challenges: The study also examined the environmental impacts of heritage tourism in Bakong. The field observations and interviews with community leaders and environmental experts indicate that the rapid increase in tourism has contributed to environmental degradation in the region. Specifically, issues such as waste management, water scarcity, and the deterioration of the physical heritage site were identified as major challenges. The lack of effective environmental management policies exacerbates these problems, particularly in areas that are frequented by large numbers of tourists.

Figure 1: Key Environmental Challenges in Bakong Commune

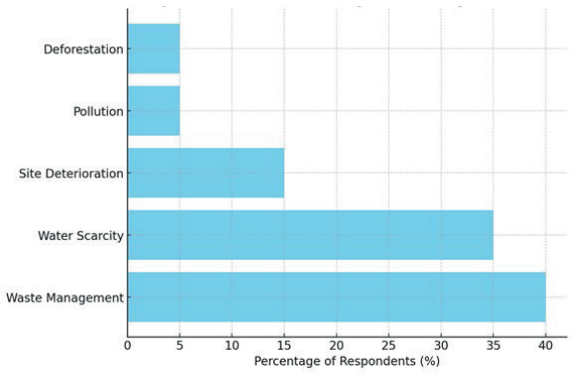

Figure 1 highlights the key environmental challenges identified by respondents, with waste management (40 percent) and water scarcity (35 percent) being the most significant concerns. The physical deterioration of the heritage site due to uncontrolled tourist access was also reported as a major issue.

5.4 SWOT Analysis of Heritage Management Practices

A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) was conducted to evaluate the current heritage management practices in Bakong Commune. This analysis provides a structured overview of the positive and negative aspects of the management practices, as well as potential areas for improvement.

Table 4: SWOT Analysis of Heritage Management in Bakong

Strengths	**Weaknesses**
- Strong cultural significance	- Lack of community involvement
- Attraction of international tourists	- Inequitable distribution of benefits
- Support from UNESCO and APSARA	- Environmental degradation
Opportunities	**Threats**
- Increase in sustainable tourism	- Over-reliance on tourism revenues
- Development of community-based tourism	- Deterioration of physical heritage
	- Water and waste management issues

Source: Own Survey.

As seen in Table 4, the strengths of the current heritage management practices include the strong cultural significance of the site and support from international organizations such as UNESCO. However, these strengths are undermined by weaknesses such as the lack of community involvement and environmental challenges. The opportunities for improvement include the development of sustainable and community-based tourism, while the main threats are over-reliance on tourism revenues and the risk of environmental degradation.

5.5 Discussion of Results

The results of this study reveal several critical insights into the sustainability of heritage management practices in Bakong Commune. First, while heritage tourism has brought economic benefits to some, the majority of the local population remains excluded from these advantages. This finding aligns with previous research that highlights the uneven distribution of economic benefits from tourism in heritage sites (Cohen, 1996; Miura, 2011). The lack of community involvement in decision-making further exacerbates this issue, as local residents feel disconnected from the management processes that directly affect their livelihoods.

Second, the environmental challenges identified in this study point to a pressing need for more effective environmental management policies. The degradation of

the heritage site due to uncontrolled tourist access and inadequate waste management threatens the long-term sustainability of the site. Similar findings have been reported in other heritage sites facing rapid tourism growth (Fang, 2004; Chheang, 2009).

The SWOT analysis further underscores the importance of addressing these challenges through community-based approaches. By involving local communities in heritage management and developing sustainable tourism practices, Bakong can ensure that both cultural preservation and socio-economic development are achieved.

6. Conclusion and Recommendations

6.1 Conclusion

This study on the sustainability of heritage management practices in Bakong Commune, Siem Reap Province, highlights several critical findings. While heritage tourism has provided some economic benefits to the region, these advantages are unevenly distributed, with many local residents feeling excluded from the financial gains. The lack of community involvement in heritage management decisions further exacerbates these feelings of disenfranchisement, indicating a need for more inclusive governance practices.

Environmental challenges, such as waste management and water scarcity, present significant risks to the sustainability of the heritage site. The physical deterioration of the site due to uncontrolled tourist access underscores the need for stricter environmental protection measures. Without effective management, these challenges could jeopardize both the cultural and economic value of Bakong.

Overall, while heritage management practices in Bakong have made some strides, significant gaps remain. Addressing these issues is crucial to ensuring that heritage tourism continues to benefit both the local community and the broader preservation goals for Cambodia's cultural assets.

6.2 Recommendations

Based on the findings of this study, the following recommendations are proposed to improve the sustainability of heritage management practices in Bakong:

Enhance Community Involvement: Greater efforts should be made to involve local communities in decision-making processes related to heritage management. This could include the establishment of local advisory committees that provide input on tourism development and conservation strategies. Ensuring that community voices are heard will not only improve local relations but also contribute to more sustainable management practices.

Equitable Distribution of Economic Benefits: To ensure that heritage tourism benefits all segments of the community, targeted initiatives such as micro-financing for local entrepreneurs, skill development programs, and employment opportunities in tourism-related industries should be developed. By improving access to economic benefits, the overall socio-economic impact of heritage tourism can be made more inclusive.

Strengthen Environmental Management: More robust environmental policies must be implemented to address issues such as waste management and the physical degradation of the heritage site. This could involve stricter regulations on tourist access to sensitive areas, investment in sustainable waste management systems, and the introduction of eco-tourism initiatives that minimize environmental impact.

Promote Sustainable Tourism Practices: The development of sustainable tourism

strategies, including the promotion of eco-tourism and community-based tourism, is essential for reducing the environmental footprint of heritage tourism. These practices would not only preserve the cultural site but also provide new economic opportunities for the local population.

Monitoring and Evaluation Systems: It is critical to establish comprehensive monitoring and evaluation systems to track the effectiveness of heritage management practices over time. This could involve regular environmental assessments, visitor impact studies, and community feedback mechanisms to ensure that management practices remain adaptive and responsive to emerging challenges.

By implementing these recommendations, Bakong Commune can achieve a more sustainable balance between cultural preservation, economic development, and environmental conservation, ensuring the long-term sustainability of the site and its surrounding communities.

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Employment Patterns, Career Progression, and Skill Development: A Tracer Study of Build Bright University Graduates in Cambodia

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ABSTRACT

This study examines the employment patterns, career progression, and skill development of graduates from Build Bright University (BBU), Cambodia, using a tracer study methodology. It explores how academic qualifications, skill specialization, and professional and soft skills influence workplace dynamics and long-term professional success. Key findings reveal that BBU graduates experience improved employment opportunities, workplace position advancements, and salary increases, with technical and professional fields showing higher alignment between education and job roles. The study also highlights challenges such as job mismatches, salary disparities among graduates, and the need for enhanced professional and soft skills. Recommendations include refining curriculum alignment with labor market demands, promoting lifelong learning, strengthening career services, and supporting entrepreneurial activities. By addressing these gaps, BBU can better prepare students for diverse career paths, contributing to their individual success and Cambodia's socioeconomic development. This research underscores the critical role of higher education in fostering employability and sustainable career growth in the country.

Keywords: Tracer study; employment patterns; career progression; skill development; higher education; graduate employability

1. Introduction

Tracer studies play a critical role in assessing the outcomes of higher education by exploring graduates' employment patterns, career progression, skill specializations, and workplace dynamics. These studies are integral to understanding how effectively universities prepare students for the job market and how academic qualifications align with career opportunities. According to Teichler (2007), tracer studies provide data on employment status, job roles, salary progression, and professional growth, offering a holistic view of graduate success. Higher education institutions leverage these insights to refine curricula, improve career services, and align their programs with labor market needs.

Employment patterns of graduates are central to tracer studies, offering insights into how quickly and successfully they transition into the workforce. Teichler (2007) emphasizes that the categorization of employment, full-time, part-time, self-employment, or unemployment, reflects the extent to which academic programs meet labor market demands. Research by Schomburg (2003) shows that graduates from technical fields, such as engineering and technology, tend to find full-time employment more rapidly than those from the humanities and liberal arts. Additionally, UNESCO (2017) highlights how STEM graduates often secure roles in industries experiencing high demand, such as technology and healthcare, indicating the importance of program relevance to job market conditions.

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Career progression, including promotions and salary increases, is a key area of focus in tracer studies. Graduates who secure higher-level roles at the start of their careers tend to experience faster professional growth (Allen & Van der Velden, 2011). Factors such as internships, part-time work, and extracurricular involvement during university significantly influence initial job levels, which in turn affect long-term career trajectories (Kraak, 2013). Employment continuity also plays a significant role in career advancement. Schomburg (2003) notes that graduates who remain with their first employer often achieve more stable salary growth and professional development opportunities compared to those who frequently change jobs.

The alignment of academic qualifications with job roles is crucial for graduate satisfaction and career success. Research by Teichler (2007) and Allen and Van der Velden (2011) reveals that graduates in professional fields like law, medicine, and engineering often find roles closely aligned with their academic training, leading to greater job satisfaction and career stability. However, those in the social sciences and humanities frequently report job mismatches, where their degrees do not directly relate to their job responsibilities. This misalignment can result in delayed career progression and lower job satisfaction. The World Bank (2018) suggests that fostering transferable skills, such as communication and analytical thinking, can help graduates in non-technical fields adapt to broader career opportunities.

Professional skill development is a cornerstone of higher education outcomes, with management skills, analytical thinking, communication abilities, and planning expertise being highly valued in the labor market. According to the ILO (2020), these skills are essential for career progression and workplace success. Graduates who participated in internships and leadership programs during university report significant improvements in these areas (British Council, 2019). Additionally, soft skills such as confidence, motivation, and adaptability are increasingly demanded by employers. Research by the World Bank (2018) highlights that soft skills complement technical expertise, enabling graduates to perform effectively in diverse professional environments.

Salary progression serves as an important indicator of career success and the economic value of higher education. UNESCO (2017) and the World Bank (2018) found that graduates in STEM fields generally experience faster salary growth compared to those in non-technical disciplines. However, gender disparities remain a concern, with male graduates often earning higher salaries than their female counterparts in equivalent roles (ILO, 2020). Schomburg (2003) emphasizes that salary increases are often tied to employment continuity and workplace performance, underscoring the importance of stable job roles in achieving long-term financial growth.

Job mismatch, where graduates' qualifications do not align with their roles, is a recurring issue in tracer studies. This mismatch is more prevalent among graduates of generalist programs, such as social sciences and humanities, compared to those in professional disciplines (Teichler, 2007). Graduates facing mismatches often report dissatisfaction, lower productivity, and delayed career advancement. Institutions can address this by embedding transferable and interdisciplinary skills into academic programs, enabling graduates to adapt to various job roles. The integration of lifelong learning initiatives is also critical for equipping graduates to

navigate evolving job markets.

Soft skills, including behavioral traits, attitudes, confidence, and motivation, are increasingly recognized as critical for workplace success. Employers value graduates who demonstrate adaptability, teamwork, and a positive work ethic (ILO, 2020). A study by the British Council (2019) found that graduates who engaged in extracurricular activities and leadership roles during university exhibited higher levels of confidence and motivation, which positively impacted their job performance and career growth. These findings highlight the need for higher education institutions to promote holistic student development through co-curricular and extracurricular programs.

Tracer studies provide invaluable insights into the employment patterns, career progression, and skill development of graduates. By examining these factors, higher education institutions can identify strengths and areas for improvement in their programs, ensuring better alignment with labor market demands. For graduates, the acquisition of both professional and soft skills plays a vital role in securing job opportunities, achieving career growth, and adapting to dynamic workplace environments. The findings of these studies underscore the importance of a well-rounded higher education experience that prepares students for long-term professional success.

The present study is highly relevant as it provides valuable insights into how well the university equips its graduates to meet the demands of the labor market, particularly in a developing economy like Cambodia. By examining employment patterns, career progression, job alignment with academic qualifications, and skill development, the study identifies strengths and gaps in the university's programs. It also sheds light on the effectiveness of academic and co-curricular initiatives in enhancing employability, salary growth, and professional advancement. Furthermore, the findings can inform policy decisions and curriculum reforms to better align education with industry needs, thereby supporting graduates in achieving long-term career success and contributing to Cambodia's socioeconomic development.

2. Objectives of the Study

The study has been undertaken with the following objectives:

i. To analyze the employment patterns of graduates, focusing on skill specialization and the relevance of their academic degrees.
ii. To evaluate the career progression of graduates, focusing on employment positions, salary growth, job transitions, and job mismatches.
iii. To study the professional and soft skills development of graduates.
iv. To propose recommendations for enhancing the future employability of the university's graduates.

3. Methodology

Before the university's convocation in November 2023 for graduating students, Build Bright University (BBU) conducted a tracer study among its 2022 graduates to explore various aspects, including employment patterns of university graduates, career progression and position levels, salary growth and employment continuity, alignment between educational qualifications and employment, and skill development and changes post-graduation.

The university used a census method for this study, gathering data as students collected their academic regalia. The study included 916 graduates, primarily from bachelor's

and master's programs. Graduates were asked to complete research questionnaires via Google Forms, and the data collected was subsequently transferred to SPSS by university specialists for detailed analysis.

A tabular and percentage analysis was performed on the data collected from BBU alumni, offering insights into how their education influenced various aspects of career and skill development. This systematic approach enabled a comprehensive evaluation of graduates' experiences, enabling BBU to evaluate its programs and make informed decisions for future improvements.

4. Results of the Research

4.1 Skills

This research surveyed graduates from the Faculty of Business Management, Faculty of Law and Social Sciences, Faculty of Architecture and Civil Engineering, Faculty of Information Technology, Faculty of Tourism, Faculty of Economics, and the Faculty of Arts, Humanities, and Languages. The survey included alumni from various specializations across both undergraduate and graduate programs, such as General Management, Accounting and Finance, Banking and Finance, Marketing, Tourism Management, Hotel and Hospitality Management, Law, Public Administration, Information Technology, Teaching English as a Foreign Language, Civil Engineering, Architecture, Electrical and Electronics Engineering, and Economics and Finance.

Most graduates chose to specialize in management (18.1 percent, followed by fields such as law (13.0 percent), information technology (11.2 percent), accounting and finance (10.4 percent), public administration (8.6 percent), and teaching English as a foreign language (7.8 percent). Other specializations, including electrical engineering, architecture, tourism, civil engineering, and public administration, had fewer students enrolled (Table 1).

Table 1: Distribution of Alumni as per Skill Specialization

Sl. No.	Skill Specialization	Number	Percentage (%)
1	General Management	166	18.1%
2	Accounting and Finance	95	10.4%
3	Banking and Finance	40	4.4%
4	Marketing Management	63	6.9%
5	Tourism Management	36	3.9%
6	Hotel and Hospitality Management	24	2.6%
7	Law	119	13.0%
8	Public Administration	79	8.6%
9	Information Technology	103	11.2%

10	Teaching English as a Foreign Language	71	7.8%
11	Building and Civil Engineering	28	3.1%
12	Architecture and Urban Planning	16	1.8%
13	Electrical and Electronic Engineering	20	2.2%
14	Economics and Finance	32	3.5%
15	Agriculture	24	2.6%
Total		**916**	**100.0%**

Source: Own Survey.

4.2 Employment Type

Table 2 and Table 3 show that the private sector is the predominant employer for Bachelor's degree holders, accounting for 66.4 percent of employment during study and increasing to 67.9 percent after graduation. This indicates that the private sector remains a stable employment option for graduates. Similarly, government employment for Bachelor's degree holders rises from 11.2 percent during study to 13.5 percent after graduation, showing a slight shift towards public sector roles post-graduation. Unemployment rates also decline for Bachelor's graduates, decreasing from 9.2 percent during their studies to 5.7 percent after graduation, suggesting that many students transition into employment after completing their education.

For Master's degree holders, government employment is the most significant category in both tables, comprising 60.3 percent during study and slightly increasing to 61.8 percent after graduation. The private sector sees a slight decrease for Master's degree holders, dropping from 27.9 percent during study to 26.5 percent post-graduation. Unemployment rates remain minimal for this group, with a consistent rate of 1.5 percent in both tables. In the "Other" degree category, private sector employment becomes the primary source of employment post-graduation, rising significantly from 25.0 percent during study to 62.5 percent after graduation, which indicates a substantial shift towards private sector jobs.

The data shows that employment prospects improve overall after graduation, with decreases in unemployment across all degree levels. The private sector is the main employer for Bachelor's degree holders, while Master's graduates predominantly find roles in government. This trend highlights a stronger alignment with government positions for Master's degree holders, whereas Bachelor's degree holders benefit from diverse opportunities in the private sector.

Table 2: Employment Distribution by Degree and Type During Study

Degree	Unemployed	Government	Civil Society	Private Sector	Self-Employed	Other	Total
Bachelor	77 (9.2%)	94 (11.2%)	21 (2.5%)	558 (66.4%)	80 (9.5%)	10 (1.2%)	840 (100.0%)

Master	1 (1.5%)	41 (60.3%)	3 (4.4%)	19 (27.9%)	4 (5.9%)	0 (0.0%)	68 (100.0%)
Other	2 (25.0%)	0 (0.0%)	0 (0.0%)	2 (25.0%)	2 (25.0%)	2 (25.0%)	8 (100.0%)
Total	**80 (8.7%)**	**135 (14.7%)**	**24 (2.6%)**	**579 (63.2%)**	**86 (9.4%)**	**12 (1.3%)**	**916 (100.0%)**

Source: Own Survey.

Table 3: Employment Distribution by Degree and Type After Graduation

Degree	Unemployed	Government	Civil Society	Private Sector	Self-Employed	Other	Total
Bachelor	48 (5.7%)	113 (13.5%)	20 (2.4%)	570 (67.9%)	82 (9.8%)	7 (0.8%)	840 (100.0%)
Master	1 (1.5%)	42 (61.8%)	3 (4.4%)	18 (26.5%)	4 (5.9%)	0 (0.0%)	68 (100.0%)
Other	1 (12.5%)	0 (0.0%)	0 (0.0%)	5 (62.5%)	2 (25.0%)	0 (0.0%)	8 (100.0%)
Total	**50 (5.5%)**	**155 (16.9%)**	**23 (2.5%)**	**593 (64.7%)**	**88 (9.6%)**	**7 (0.8%)**	**916 (100.0%)**

Source: Own Survey.

4.3 Job Location

Table 4 shows that the majority of graduates are based in Phnom Penh across all degree levels. For Bachelor's degree holders, 78.9 percent are located in Phnom Penh, while only 21.1 percent are in the provinces, indicating a strong concentration of Bachelor's graduates in the capital. Master's degree holders show a similar distribution, with 79.4 percent in Phnom Penh and 20.6 percent in the provinces. The "Other" degree category has the highest concentration in Phnom Penh at 87.5 percent, with only 12.5 percent in the provinces. Overall, 79.0 percent of all graduates are in Phnom Penh, compared to 21.0 percent in the provinces, suggesting that graduates, regardless of degree level, predominantly reside in or are employed within Phnom Penh, likely due to greater employment opportunities and resources available in the capital. This trend underscores Phnom Penh's role as a central hub for higher education graduates, attracting a significant majority due to its opportunities and facilities compared to the provinces.

Table 4: Distribution of Graduates by Degree and Location (Phnom Penh vs. Province)

Degree	Item	Phnom Penh	Province	Total
Bachelor	Number	663	177	840
	% within Degree	78.9%	21.1%	100.0%

Master	Number	54	14	68
	% within Degree	79.4%	20.6%	100.0%
Other	Number	7	1	8
	% within Degree	87.5%	12.5%	100.0%
Total	**Number**	**724**	**192**	**916**
	% within Degree	**79.0%**	**21.0%**	**100.0%**

Source: Own Survey.

4.4 Employment Position

Based on the data in Table 5 and Table 6, there is a notable shift in employment positions of the alumni before and after graduation. During their studies, a majority of Bachelor's degree holders (67.0 percent) held non-managerial positions, with smaller percentages in first-line (13.6 percent) and middle-line management (14.6 percent). Master's degree holders were more likely to be in management positions even during their studies, with 29.4 percent in both first-line and middle-line management, and 4.4 percent as top managers. For the "Other" degree category, half were non-managerial workers, while the other half fell into the "Other" category.

After graduation, the distribution changes significantly, especially for Bachelor's and Master's degree holders. For Bachelor's graduates, the proportion in non-managerial roles dropped to 61.1 percent, while middle-line management positions increased substantially to 35.2 percent. Master's degree holders showed a pronounced shift toward middle-line management, with 64.7 percent in this category, and a notable absence in top management. The "Other" degree holders also experienced changes, with the majority moving into non-managerial roles (62.5 percent) and a quarter into the "Other" category.

Thus, the result indicates that graduates, particularly those with Bachelor's and Master's degrees, were more likely to advance into management positions post-graduation, highlighting the impact of higher education on career progression within managerial roles.

Table 5: Employment Position Distribution During Study by Degree Level

Degree	Item	Non-Managerial Worker	First Line Level Manager	Middle Line Manager	Top Manager	Other	Total
Bachelor	Number	563	114	123	14	26	840
	% within Degree	67.0%	13.6%	14.6%	1.7%	3.1%	100.0%

Master	Number	25	20	20	3	0	68
	% within Degree	36.8%	29.4%	29.4%	4.4%	0.0%	100.0%
Other	Number	4	0	0	0	4	8
	% within Degree	50.0%	0.0%	0.0%	0.0%	50.0%	100.0%
Total	**Number**	**592**	**134**	**143**	**17**	**30**	**916**
	% within Degree	**64.6%**	**14.6%**	**15.6%**	**1.9%**	**3.3%**	**100.0%**

Source: Own Survey.

Table 6: Employment Position Distribution After Graduation by Degree Level

Degree	Item	Non-Managerial Worker	First Line Level Manager	Middle Line Manager	Top Manager	Other	Total
Bachelor	Number	513	0	296	11	20	840
	% within Degree	61.1%	0.0%	35.2%	1.3%	2.4%	100.0%
Master	Number	23	1	44	0	0	68
	% within Degree	33.8%	1.5%	64.7%	0.0%	0.0%	100.0%
Other	Number	5	0	1	0	2	8
	% within Degree	62.5%	0.0%	12.5%	0.0%	25.0%	100.0%
Total	**Number**	**541**	**1**	**341**	**11**	**22**	**916**
	% within Degree	**59.1%**	**0.1%**	**37.2%**	**1.2%**	**2.4%**	**100.0%**

Source: Own Survey.

4.6 Workplace Position Improvement

The data in Table 7 reveals that a significant majority (91.5 percent) of graduates from Build Bright University (BBU) across all faculties reported an improvement in their workplace position after graduation. Among the faculties, Arts, Humanities, and Language graduates had the highest proportion of workplace improvement, with 96.1 percent affirming better positions. Similarly, Engineering and Architecture, as

well as Science and Technology graduates, also reported high levels of improvement (92.7 percent). Business Administration graduates, who formed the largest respondent group, had 90.0 percent reporting workplace improvements, indicating a consistent trend across disciplines. The lowest improvement percentage was reported by Tourism and Hospitality graduates at 89.5 percent, though this figure is still very high. Overall, the data suggests that a BBU education significantly enhances career opportunities, with minimal differences across faculties. This underscores the university's broad impact on its graduates' professional growth, regardless of their field of study.

Table 7: Workplace Position Improvement After Graduation

Faculty	Yes	No	Total	% Yes within Faculty	% No within Faculty	% Total
Business Administration	388	43	431	90.0%	10.0%	100.0%
Tourism and Hospitality	17	2	19	89.5%	10.5%	100.0%
Law and Social Sciences	167	14	181	92.3%	7.7%	100.0%
Economics and Agricultural Science	27	3	30	90.0%	10.0%	100.0%
Science and Technology	127	10	137	92.7%	7.3%	100.0%
Engineering and Architecture	38	3	41	92.7%	7.3%	100.0%
Arts, Humanities, and Language	74	3	77	96.1%	3.9%	100.0%
Total	**838**	**78**	**916**	**91.5%**	**8.5%**	**100.0%**

Source: Own Survey.

4.7 Graduates' Salary

The data in Table 8 and Table 9 highlights a clear improvement in salary distribution for graduates after graduation. During their studies, 48.1 percent of Bachelor's degree holders earned between $201 and $400, while only 24.0 percent earned above $400 (combined). After graduation, the proportion of Bachelor's graduates earning between $201 and $400 remained similar at 48.3 percent, but the percentage earning above $400 significantly increased to 36.9 percent. Moreover, the percentage of Bachelor's graduates in the lowest salary bracket ($0 to $200) dropped from 27.9 percent during studies to 14.8 percent after graduation, reflecting upward salary mobility. Master's graduates also saw a major salary increase: during their studies, 38.2 percent earned between $401 and $600, while 30.9 percent earned over $600. After graduation, the percentage earning above $600 rose to 38.2 percent, with 19.1 percent earning more than $1000.

For "Other" degree holders, the majority earned between $201 and $400 both during (62.5 percent) and after graduation (62.5 percent), with minimal change in other salary brackets. Across all degree levels, the proportion of graduates earning less than $200 fell from 26.0 percent during study to 13.9 percent after graduation. Simultaneously, the percentage earning above $600 increased from 9.8 percent to 14.6 percent, highlighting the overall financial benefits of obtaining a degree.

The data demonstrates significant salary growth for graduates after completing their education. Bachelor's and Master's degree holders experience notable upward salary mobility, with Master's graduates showing the highest gains in accessing higher salary brackets, particularly those exceeding $1000. This underscores the strong correlation between higher education and increased earning potential.

Table 8: Salary of Graduates During Study

Degree	$0 to $200	$201 to $400	$401 to $600	$601 to $800	$801 to $1000	More than $1000	Total
Bachelor	234 (27.9%)	404 (48.1%)	133 (15.8%)	39 (4.6%)	19 (2.3%)	11 (1.3%)	840 (100.0)
Master	1 (1.5%)	20 (29.4%)	26 (38.2%)	7 (10.3%)	6 (8.8%)	8 (11.8%)	68 (100.0)
Other	3 (37.5%)	5(62.5%)	0(0.0%)	0(0.0%)	0 (0.0%)	0 (0.0%)	8 (100.0)
Total	**238 (26.0%)**	**429 (46.8%)**	**159 (17.4%)**	**46 (5.0%)**	**25 (2.7%)**	**19 (2.1%)**	**916 (100.0)**

Source: Own Survey.

Table 9: Salary of Graduates After Graduation

Degree	$0 to $200	$201 to $400	$401 to $600	$601 to $800	$801 to $1000	More than $1000	Total
Bachelor	124 (14.8%)	406 (48.3%)	203 (24.2%)	65 (7.7%)	25 (3.0%)	17 (2.0%)	840 (100.0)
Master	1 (1.5%)	12 (17.6%)	29 (42.6%)	7 (10.3%)	6 (8.8%)	13 (19.1%)	68 (100.0)
Other	2 (25.0%)	5 (62.5%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (100.0)
Total	**127 (13.9%)**	**423 (46.2%)**	**233 (25.4%)**	**72 (7.9%)**	**32 (3.4%)**	**31 (3.3%)**	**916 (100.0)**

Source: Own Survey.

4.8 Job Change after Graduation

Table 10 indicates that overall, 52.9 percent of graduates across all faculties reported changing jobs after graduation, while 43.0 percent did not, and 4.0 percent selected "Other." Graduates from the Arts, Humanities, and Language faculty had the highest percentage of job changes (58.4 percent), suggesting that graduates in this field might

have sought more diverse or flexible career opportunities. Similarly, the Science and Technology (54.0 percent) and Law and Social Sciences (54.7 percent) faculties also exhibited higher percentages of graduates who changed jobs, reflecting potentially dynamic job markets or a need for upward career mobility in these fields.

Conversely, Tourism and Hospitality graduates had the lowest rate of job changes, with only 26.3 percent reporting a change, while 73.7 percent remained in the same job. This may indicate stability in this industry or limited opportunities for significant job transitions. Graduates from Economics and Agricultural Science also displayed a lower tendency for job changes, with 36.7 percent changing jobs and 63.3 percent remaining in the same position. Engineering and Architecture graduates showed a balanced response, with an equal percentage (48.8 percent) reporting both job changes and stability, reflecting variability in career trajectories within this sector.

The data highlights variations in job change trends among graduates from different faculties. Faculties such as Arts, Humanities, and Language and Science and Technology showed higher job mobility, while Tourism and Hospitality and Economics and Agricultural Science demonstrated greater job stability. These trends could reflect the nature of job markets, career advancement opportunities, or industry demands associated with specific fields.

Table 10: Distribution of Graduates as per Their Views on Change of Jobs After Graduation

Faculty	Yes	No	Other	Total	% Yes within Faculty	% No within Faculty	% Other within Faculty	% Total
Business Administration	231	189	11	431	53.6%	43.9%	2.6%	100.0%
Tourism and Hospitality	5	14	0	19	26.3%	73.7%	0.0%	100.0%
Law and Social Sciences	99	64	18	181	54.7%	35.4%	9.9%	100.0%
Economics and Agricultural Science	11	19	0	30	36.7%	63.3%	0.0%	100.0%
Science and Technology	74	57	6	137	54.0%	41.6%	4.4%	100.0%
Engineering and Architecture	20	20	1	41	48.8%	48.8%	2.4%	100.0%
Arts, Humanities, and Language	45	31	1	77	58.4%	40.3%	1.3%	100.0%
Total	**485**	**394**	**37**	**916**	**52.9%**	**43.0%**	**4.0%**	**100.0%**

Source: Own Survey.

4.9 Job Mismatch

The table highlights that a significant majority of graduates (87.7 percent) perceive their degrees as aligned with the nature of their current jobs, while only 12.3 percent feel there is no alignment. Among the faculties, Tourism and Hospitality has the highest percentage of graduates reporting alignment (94.7 percent), suggesting a strong correlation between the curriculum and the industry's job requirements. Similarly, graduates from Law and Social Sciences (89.5 percent) and Science and Technology (89.1 percent) also report high levels of alignment, reflecting the practical application of their degrees in respective fields.

On the other hand, Economics and Agricultural Science has the lowest alignment rate, with 83.3 percent of graduates feeling their degree matches their job, while 16.7 percent report no alignment. Graduates from Engineering and Architecture and Arts, Humanities, and Language also have high alignment rates of 87.8 percent and 89.6 percent, respectively, but still report some levels of misalignment. Overall, the high alignment rates across all faculties underscore the effectiveness of the university's programs in preparing students for their professional careers.

The data suggests that the majority of graduates find their education relevant to their current job roles, with particularly strong alignment in fields like Tourism and Hospitality, Law, and Science and Technology. The slightly lower alignment in Economics and Agricultural Science may point to specific gaps in job-market alignment that could benefit from further exploration.

Table 11: Graduate Distribution as per the Views on the Degree Aligned with the Nature of Your Current Job

Faculty	Yes	No	Total	% Yes within Faculty	% No within Faculty	% Total
Business Administration	371	60	431	86.1%	13.9%	100.0%
Tourism and Hospitality	18	1	19	94.7%	5.3%	100.0%
Law and Social Sciences	162	19	181	89.5%	10.5%	100.0%
Economics and Agricultural Science	25	5	30	83.3%	16.7%	100.0%
Science and Technology	122	15	137	89.1%	10.9%	100.0%
Engineering and Architecture	36	5	41	87.8%	12.2%	100.0%
Arts, Humanities, and Language	69	8	77	89.6%	10.4%	100.0%
Total	**803**	**113**	**916**	**87.7%**	**12.3%**	**100.0%**

Source: Own Survey.

4.10 Professional Skill Development

Professional skills are essential for achieving career success and contributing to organizational goals. These skills not only enhance individual performance but also play a pivotal role in fostering thriving and dynamic workplaces. This section focuses on the development of professional skills such as management, analytical and critical thinking, communication, and planning among graduates after completing their studies at Build Bright University.

4.10.1 Management Skills

Table 12 reveals that the majority of graduates (58.1 percent) reported a moderate improvement in their management skills after graduation, indicating that their educational experience significantly contributed to skill development. Additionally, 27.3 percent of graduates stated that their management skills improved a lot, showcasing the effectiveness of the university's programs in fostering advanced management capabilities for over a quarter of the respondents. However, 14.6 percent of graduates indicated no change in their management skills, suggesting that some individuals may not have experienced sufficient practical or theoretical opportunities to enhance these abilities.

The data demonstrates that a substantial 85.4 percent of graduates experienced some level of improvement in their management skills after graduation, underlining the positive impact of their education. However, the 14.6 percent who reported no change highlights an area for potential curriculum enhancement, such as incorporating more practical, leadership-focused training or opportunities for applied learning.

Table 12: Improvement in Management Skills After Graduation

Improvement Level	Frequency	Percent
No Change	134	14.6%
Somewhat Improved	532	58.1%
Improved a Lot	250	27.3%
Total	**916**	**100.0%**

Source: Own Survey.

4.10.2 Analytical and Critical Thinking Skills

The table shows that a significant majority of graduates (90.6 percent) reported some level of improvement in their analytical and critical thinking skills after graduation. Among them, 55.7 percent experienced moderate improvement, while 34.9 percent noted substantial improvement, highlighting the effectiveness of the university's programs in developing these critical competencies. These results underscore the role of higher education in equipping students with problem-solving and decision-making abilities essential for professional success.

On the other hand, 9.4 percent of graduates reported no change in their analytical and critical thinking skills, which suggests that while the overall impact of education was positive, a small percentage of students may not have had sufficient exposure to activities or curricula that challenge and enhance these

skills. This could point to an area for potential curriculum enrichment, such as incorporating more practical case studies, critical debates, or analytical projects.

The data demonstrates that higher education at the university significantly enhances graduates' analytical and critical thinking skills, with over one-third experiencing significant growth. However, there is room for improvement in addressing the needs of the 9.4 percent who reported no change, ensuring that all students benefit equally from skill-building opportunities.

Table 13: Improvement in Analytical and Critical Thinking Skills After Graduation

Improvement Level	Frequency	Percent
No Change	86	9.4%
Somewhat Improved	510	55.7%
Improved a Lot	320	34.9%
Total	**916**	**100.0%**

Source: Own Survey.

4.10.3 Communication Skills

Table 14 shows that a significant majority of graduates (90.0 percent) reported an improvement in their communication skills after graduation, with 53.6 percent indicating they "somewhat improved" and 36.4 percent stating they "improved a lot." This suggests that the university's programs and experiences provide substantial opportunities for students to enhance their ability to communicate effectively, a critical skill for both professional and personal growth.

However, 10.0 percent of graduates reported no change in their communication skills, indicating a gap for some students. This could point to a need for more targeted interventions, such as group discussions, presentations, and real-world communication scenarios, to ensure that all students benefit from skill development in this area. Despite this, the overwhelming majority of graduates benefited significantly, reflecting the positive impact of the university's curriculum and activities on improving communication competencies.

The data highlights the university's success in fostering communication skills among its graduates, with over one-third experiencing significant improvement. However, a small proportion of students reporting no change suggests an opportunity to enhance communication-focused initiatives to ensure universal benefits.

Table 14: Improvement in Communication Skills After Graduation

Improvement Level	Frequency	Percent
No Change	92	10.0%
Somewhat Improved	491	53.6%

Improved a Lot	333	36.4%
Total	**916**	**100.0%**

Source: Own Survey.

4.10.4 Planning Skills

Table 15 indicates that a majority of graduates (86.9 percent) reported improvement in their planning skills after graduation, with 58.6 percent stating they "somewhat improved" and 28.3 percent indicating they "improved a lot." These figures highlight the university's role in helping students enhance their ability to plan effectively, a crucial skill for managing tasks, projects, and career growth. The high percentage of graduates experiencing at least some improvement suggests that the curriculum and experiences provided during their education emphasize structured thinking and organizational skills.

However, 13.1 percent of graduates reported no change in their planning skills, suggesting that while the overall impact is positive, some students may not have had sufficient opportunities to develop this skillset. This may point to the need for additional coursework or practical experiences, such as project-based learning, time management workshops, or real-world case studies, to ensure all students receive comprehensive training in planning.

The data demonstrates that the university has been largely successful in enhancing planning skills among its graduates, with over a quarter reporting significant improvement. Nonetheless, addressing the needs of the 13.1 percent who experienced no change could further strengthen the institution’s outcomes in preparing students for professional and personal planning challenges.

Table 15: Improvement in Planning Skills After Graduation

Improvement Level	Frequency	Percent
No Change	120	13.1%
Somewhat Improved	537	58.6%
Improved a Lot	259	28.3%
Total	**916**	**100.0%**

Source: Own Survey.

Thus, the data highlights a substantial improvement in graduates' soft skills after completing their university education. Key competencies such as change management, analytical and critical thinking, communication, and planning demonstrated significant progress, with improvement rates ranging from 85.4 percent to 90.6 percent. These results underscore the university's effectiveness in equipping graduates with essential workplace skills. However, a small proportion of graduates still require further development, presenting an opportunity for continuous skill enhancement and lifelong learning initiatives beyond graduation.

4.11 Soft Skill Development

Soft skills are essential personal attributes that enable individuals to interact effectively and harmoniously with others. These skills complement technical knowledge and play a crucial role in personal and professional success. In an increasingly people-centric world, cultivating soft skills is critical for achieving long-term success in any field. This section discusses the development of soft skills among Build Bright University graduates, focusing on behavior, attitude, confidence, and motivation after completing their studies.

4.11.1 Behavior

Table 16 reveals the extent of behavioral changes among the graduates of Build Bright University. The majority of respondents (91.3 percent) reported some degree of positive improvement, with nearly half (49.5 percent) indicating that their behavior "improved a lot." This substantial proportion demonstrates the significant impact of graduation, likely stemming from academic, social, and professional growth during their educational journey. Meanwhile, 41.8 percent experienced moderate improvement, suggesting that even those who didn't achieve drastic changes still benefited from the experience.

A smaller group, 8.7 percent, reported no behavioral change after graduation. This could be due to factors such as satisfaction with pre-existing behaviors, limited exposure to transformative experiences, or challenges in adapting to post-graduation opportunities. Identifying the reasons behind this lack of improvement could help institutions provide more tailored support through mentorship, soft skills training, or additional post-graduation resources. These measures could address gaps and ensure a more universally positive impact on graduates' personal development.

Overall, the data reflects positively on the role of educational institutions in shaping behavior. With 91.3 percent of graduates at Build Bright University experiencing some level of growth, graduation appears to be a critical turning point in personal and professional development. However, the 8.7 percent with no change presents an opportunity for further research and program refinement to enhance the impact of education on all students. This analysis highlights the importance of fostering holistic development to prepare graduates for success in their personal and professional lives.

Table 16: Improvement in Behavior After Graduation

Behavior Change	Frequency	Percent
No Improvement	80	8.7%
Improved Somewhat	383	41.8%
Improved a Lot	453	49.5%
Total	**916**	**100.0%**

Source: Own Survey.

4.11.2 Attitude

Table 17 demonstrates a significant positive change in graduates' attitudes. A majority (91.8 percent) reported improvement, with 50.3

percent indicating their attitude "improved a lot." This highlights the transformative impact of their educational journey, likely influenced by academic experiences, exposure to diverse perspectives, and professional preparation. The remaining 41.5 percent experienced moderate improvement, signifying that even those with smaller changes benefited from the university's influence on their personal growth.

A small proportion, 8.2 percent, reported no change in their attitude after graduation. This could reflect factors such as satisfaction with their pre-graduation mindset, limited engagement in transformative activities, or external challenges that may have inhibited personal growth. Identifying and addressing these barriers presents an opportunity for the university to develop targeted initiatives, such as enhanced counseling, skill-building workshops, or additional mentoring programs, to ensure a broader impact across the graduate body.

Overall, the data underscores Build Bright University's success in fostering positive attitude changes in its graduates. The fact that over half of respondents experienced significant growth speaks to the institution's ability to prepare students for real-world challenges and foster professional and personal development. However, the 8.2 percent reporting no change highlights a need for continuous improvement in academic and extracurricular offerings, ensuring that all students are equally supported in their growth journey.

Table 17: Improvement in Attitude After Graduation

Attitude Change	Frequency	Percent
No Improvement	75	8.2%
Improved Somewhat	380	41.5%
Improved a Lot	461	50.3%
Total	**916**	**100.0%**

Source: Own Survey.

4.11.3 Confidence

Table 18 highlights varying changes in graduates' confidence levels. Notably, 45.5 percent of respondents reported an increase in confidence, with 24.1 percent stating it "increased somewhat" and 21.4 percent stating it "increased a lot." This reflects the university's positive impact on a significant portion of its graduates, likely stemming from academic achievements, skill acquisition, and the overall experience of completing higher education. The increase in confidence underscores the role of the university in preparing graduates for real-world challenges.

However, a substantial proportion of respondents (35.5 percent) reported no change in confidence levels. This group suggests that while the university experience may have maintained their pre-existing confidence levels, it did not provide a transformative boost for all students. Addressing this could involve enhancing support systems, such as confidence-building programs, public speaking workshops, or career coaching, to help these students gain the assurance needed

to excel in their personal and professional lives.

Interestingly, 19.0 percent of respondents indicated a decrease in confidence, with 13.9 percent reporting it "decreased somewhat" and 5.1 percent reporting it "decreased a lot." This highlights an area of concern where certain students may have faced challenges or setbacks during their educational journey. Identifying the root causes, such as academic struggles, limited access to resources, or unmet expectations, can help the university implement measures to mitigate these issues. Overall, while the majority experienced stability or growth in confidence, the table underscores opportunities for improvement in ensuring a universally positive outcome for all students.

Table 18: Improvement in Confidence Level After Graduation

Confidence Change	Frequency	Percent
Decreased a Lot	47	5.1%
Decreased Somewhat	127	13.9%
No Change	325	35.5%
Increased Somewhat	221	24.1%
Increased a Lot	196	21.4%
Total	**916**	**100.0%**

Source: Own Survey.

4.11.4 Motivation

Table 19 highlights varied changes in graduates' motivation levels. A significant proportion (42.7 percent) reported an increase in motivation, with 22.7 percent experiencing a moderate increase and 20.0 percent experiencing a substantial increase. This demonstrates that graduation positively impacted many students' drive and ambition, likely due to the sense of accomplishment, new opportunities, and personal growth fostered during their academic journey.

However, 38.2 percent of graduates reported no change in motivation levels, indicating that their university experience neither enhanced nor diminished their pre-existing motivation. While this group maintained a stable outlook, it suggests an area where additional efforts could be made to inspire and engage students more effectively. Strategies such as personalized mentoring, goal-setting workshops, or motivational initiatives could help these individuals harness the full potential of their educational experience.

On the other hand, 19.1 percent of graduates experienced a decline in motivation, with 14.0 percent reporting a moderate decrease and 5.1 percent reporting a significant decrease. This decline may stem from unmet expectations, challenges faced during their studies, or post-graduation uncertainty. Addressing these issues through enhanced academic support, mental health resources, and career services can help mitigate such negative experiences. Overall, while the data reflects a largely positive trend, there is room for improvement to ensure a consistently uplifting impact on students' motivation after graduation.

Table 19: Improvement in Motivation After Graduation

Motivation Change	Frequency	Percent
Decreased a Lot	47	5.1%
Decreased Somewhat	128	14.0%
No Change	350	38.2%
Increased Somewhat	208	22.7%
Increased a Lot	183	20.0%
Total	916	100.0%

Source: Own Survey.

The above analysis on soft-skill development reveals that Build Bright University graduates generally experienced positive changes in behavior, attitude, confidence, and motivation after graduation, with the majority reporting significant improvements in these areas. Specifically, over 91 percent of respondents indicated growth in behavior and attitude, reflecting the institution's success in fostering personal and professional development through its academic and social experiences. While confidence and motivation showed slightly lower rates of improvement, with 45.5 percent and 42.7 percent respectively reporting positive changes, these areas also demonstrated the university's influence in preparing students for real-world challenges. However, notable proportions of respondents experienced no change or a decline in confidence and motivation, highlighting opportunities for the university to address barriers such as unmet expectations, limited resources, and post-graduation challenges. These findings underscore the need for continuous support systems, targeted interventions, and program enhancements to ensure a consistently transformative impact on all graduates.

5. Conclusion and Recommendations

5.1 Conclusion

This study on the employment patterns, career progression, and skill development of graduates from Build Bright University (BBU) has provided valuable insights into the impact of higher education on graduates' professional trajectories. The findings reveal a strong correlation between a BBU education and improved employability, with significant advancements in workplace positions, salary growth, and professional skill development observed post-graduation. The data highlights the critical role of skill specialization, academic alignment, and co-curricular activities in equipping graduates to meet labor market demands. Additionally, the analysis underscores the positive influence of the university's programs in fostering both professional skills, such as management and critical thinking, and soft skills, including motivation and confidence. These outcomes demonstrate the institution's effectiveness in preparing students for diverse career pathways, especially in Cambodia's developing economic landscape.

Despite the overall positive trends, the study identifies areas for improvement, such as addressing job mismatches, reducing salary disparities, and providing additional

support for students who report limited skill development. The findings emphasize the need for targeted curriculum enhancements, increased access to internships, and lifelong learning opportunities to address these challenges and ensure sustainable career growth for graduates. By leveraging the insights from this tracer study, BBU can refine its educational programs, align more closely with industry needs, and expand its support systems to better prepare students for long-term professional success, ultimately contributing to the broader socioeconomic development of Cambodia.

5.2 Recommendations

On the basis of the findings of the tracer study, the following recommendations are suggested to improve the employability of Build Bright University graduates:

i. Enhance Curriculum Alignment: To address issues of job mismatch, BBU should refine its academic programs to better align with current labor market demands. This includes incorporating industry-specific training, internships, and practical projects to ensure that graduates are well-prepared for their professional roles.

ii. Strengthen Career Services: BBU should expand its career counseling and job placement services to support graduates in securing employment that matches their skills and qualifications. Regular engagement with employers can help bridge the gap between education and employment.

iii. Promote Lifelong Learning: Offering continuous professional development programs, such as certifications and advanced skill training, can help alumni adapt to evolving industry requirements and improve their career progression opportunities.

iv. Focus on Skill Development: To ensure holistic development, BBU should integrate soft skills training, such as communication, teamwork, and confidence-building, into its curriculum. Practical workshops and real-world simulations can further enhance these critical competencies.

v. Track Graduate Outcomes: Establishing a robust alumni tracking system will allow BBU to continuously monitor the employment patterns and career progression of its graduates. This feedback can inform strategic decisions to improve academic offerings and graduate support services.

vi. Expand Employment Opportunities: Collaborating with industries and government sectors to create job opportunities for graduates can help mitigate unemployment and underemployment rates, particularly for those in non-technical fields.

These recommendations aim to improve the employability and professional outcomes of BBU graduates, ensuring long-term success in their careers while contributing to Cambodia's socioeconomic development.

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The Impact of Participatory Irrigation Management: A Case Study of Aunli Irrigation Project in Odisha, India

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ABSTRACT

The article investigates the effects of implementing Participatory Irrigation Management (PIM) on water distribution efficiency, agricultural productivity, and socio-economic outcomes in the Aunli Irrigation Project. The study highlights how PIM, through the formation of Water Users' Associations (WUAs), has transformed irrigation governance by involving farmers directly in managing water resources. By comparing pre- and post-PIM scenarios, the research illustrates significant improvements in water allocation, crop yields, and infrastructure maintenance. It also explores the social and environmental impacts, emphasizing the empowerment of farmers, conflict resolution, and the enhanced sustainability of the irrigation system. The findings suggest that PIM has the potential to revolutionize irrigation management, though challenges remain in ensuring the financial viability of WUAs and further enhancing infrastructure. The study concludes with recommendations to strengthen WUAs, improve financial sustainability, and address long-term climate-related challenges to water availability.

Keywords: Participatory Irrigation Management (PIM); Water Users' Associations (WUAs); agricultural productivity; water distribution efficiency; irrigation infrastructure improvement

1. Introduction

Agriculture has been the backbone of most economies, particularly in developing countries where it employs a significant portion of the population and contributes to food security and economic stability. Water is a fundamental resource for agriculture, and its availability directly affects the productivity of crops. Irrigation, the process of applying water to crops through artificial methods, is essential in areas where rainfall is inadequate or erratic. Globally, agriculture consumes about 70 percent of the world's freshwater resources, making irrigation systems crucial for food production. In India, where agriculture contributes to approximately 18 percent of the GDP and employs around 58 percent of the population, the importance of irrigation cannot be overstated (Dhawan, 1988).

India faces significant challenges in managing water resources due to its climatic variability, characterized by the monsoon season which brings uneven distribution of rainfall. This often results in droughts or floods in different regions. Irrigation allows farmers to control the timing and quantity of water supplied to crops, which not only mitigates the adverse effects of irregular rainfall but also enhances crop yields by providing the necessary moisture at critical growth stages (Chambers, 1988). Historically, regions with well-established irrigation systems, such as the Indo-Gangetic plains, have enjoyed higher productivity, greater food security, and better economic outcomes compared to rain-fed regions.

Irrigation also plays a vital role in supporting high-yielding varieties (HYVs) of crops,

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which are often water-intensive and require consistent moisture levels for optimal growth. The Green Revolution in India during the 1960s and 1970s, which introduced HYVs along with chemical fertilizers and pesticides, heavily relied on the expansion of irrigation infrastructure. The benefits of irrigation, therefore, extend beyond mere water provision, as it allows farmers to adopt modern agricultural practices, leading to improved food security and economic development.

Over the years, the traditional, centralized, and bureaucratic management of irrigation systems has faced several challenges, including inefficiency, poor maintenance, and inequitable distribution of water. This has led to low agricultural productivity and financial unsustainability in many state-managed irrigation projects. Participatory Irrigation Management (PIM) has emerged as an alternative approach, emphasizing the involvement of water users, particularly farmers, in the planning, management, and maintenance of irrigation systems. The central idea behind PIM is that those who directly benefit from irrigation systems – the farmers – are best suited to manage these systems, as they have a vested interest in ensuring their efficiency and sustainability (Ostrom et al., 1993).

Globally, PIM has been implemented in various forms across countries such as Mexico, the Philippines, Turkey, Egypt, and Sri Lanka. In these countries, PIM has been successful in improving water use efficiency, reducing operational costs, and increasing agricultural productivity (Meinzen-Dick et al., 1997). For example, in Mexico, irrigation management was transferred to Water Users' Associations (WUAs), which led to better maintenance of canals, improved water distribution, and increased farmer satisfaction. Similarly, in the Philippines, the National Irrigation Administration's PIM program empowered local farmer associations to take charge of irrigation, resulting in more equitable water distribution and improved crop yields (Johnson et al., 2002).

In India, PIM gained momentum in the 1990s as a response to the inefficiencies of state-managed irrigation systems. Several states, including Andhra Pradesh, Odisha, Maharashtra, and Madhya Pradesh, introduced PIM as part of their water management policies. The main objective was to improve water use efficiency, ensure equitable water distribution, and make the system financially sustainable. The introduction of PIM marked a shift from a purely top-down, bureaucratic approach to a more decentralized and farmer-centric model of irrigation management. In the Indian context, PIM was seen as a way to bridge the gap between the potential created by large-scale irrigation projects and the actual utilization of water resources (Vaidyanathan, 1999).

The success of PIM in India has been mixed, with some regions showing significant improvements in water management and agricultural productivity, while others have struggled due to poor implementation, lack of farmer participation, and inadequate institutional support. In Andhra Pradesh, for instance, the formation of WUAs under the Andhra Pradesh Farmers Management of Irrigation Systems Act, 1997, resulted in improved water distribution and better maintenance of irrigation infrastructure (Jairath, 2001). However, in other states, the lack of effective training and capacity-building for WUAs has hindered the success of PIM programs.

Odisha, an agrarian state in eastern India, has a long history of irrigation development due

to its dependence on agriculture for economic growth and livelihood. With a predominantly rural population, the state has focused on improving irrigation infrastructure to boost agricultural productivity. Odisha receives heavy rainfall during the monsoon season, but the distribution is uneven, leading to water scarcity in some areas and flooding in others. To mitigate the effects of this variability, the state has invested in constructing large, medium, and minor irrigation projects.

The Aunli Irrigation Project, located in the Angul district of Odisha, is one such medium-scale irrigation project. It was initiated in the late 1970s and completed in 1988 to provide irrigation to approximately 1,746 hectares of cultivable land in the Kharif season and 523 hectares during the Rabi season. The project was designed as a diversion weir scheme across the Aunli river, a tributary of the Brahmani river, with the main canal stretching 4.656 km, and eight minors and sub-minors distributing water to the command area.

Despite the project's potential, the state-managed system faced several challenges, including poor maintenance, water distribution inequities, and low agricultural productivity. The canals, which were initially unlined, suffered from seepage, reducing the amount of water reaching the tail-end farms. Farmers at the head reaches often received more water, while those at the tail end faced shortages, leading to social tensions and conflicts over water distribution (Hooja et al., 2002). The irrigation system also struggled with financial sustainability, as water rates were heavily subsidized, and revenue from water sales was insufficient to cover maintenance costs.

In response to these challenges, the Aunli Irrigation Project was included in the Odisha Water Resources Consolidation Project (OWRCP) in the mid-1990s, which aimed to improve the system's capacity through better maintenance and increased farmer participation. In 1998, the Farmer's Organization and Turnover (FOT) program was introduced as a pilot scheme in the Aunli project area, marking the beginning of Participatory Irrigation Management (PIM) in the region. Four Water Users' Associations (WUAs) were formed in the command area to take over the operation and maintenance of the canal system. These WUAs were tasked with ensuring equitable water distribution, improving agricultural productivity, and maintaining the irrigation infrastructure.

The introduction of PIM in the Aunli Irrigation Project has been a significant step toward addressing the issues of water distribution and agricultural productivity. By involving farmers directly in the management of irrigation, PIM aims to create a sense of ownership and responsibility among water users. This participatory approach is designed to make water distribution more equitable, particularly for tail-end farmers who previously received inadequate water supply. Under the PIM model, WUAs are responsible for ensuring that water is distributed according to the needs of all farmers, regardless of their location in the canal system (Brewer et al., 1999).

PIM also promotes better maintenance of irrigation infrastructure. In state-managed systems, the lack of accountability often leads to deferred maintenance and deterioration of canals and other structures. With WUAs in place, farmers have a direct stake in maintaining the infrastructure, as their livelihoods depend on the efficient functioning of the irrigation system. This has resulted in more timely repairs and better overall system performance.

Moreover, PIM has the potential to increase agricultural productivity by improving the reliability and adequacy of water supply. In the case of the Aunli Irrigation Project, farmers have reported higher crop yields and greater cropping intensity since the implementation of PIM. The ability to grow crops in both the Kharif and Rabi seasons has provided farmers with more opportunities to diversify their crops, leading to higher incomes and improved food security (Groenfeldt & Sun, 2004). Additionally, the adoption of modern agricultural practices, such as the use of high-yielding varieties (HYVs) and chemical fertilizers, has become more widespread as reliable irrigation allows for greater experimentation and risk-taking among farmers.

Thus, Participatory Irrigation Management (PIM) represents a crucial shift in the governance of water resources, particularly in regions like Odisha where agriculture is central to the economy. The case of the Aunli Irrigation Project demonstrates the potential of PIM to improve water distribution, enhance agricultural productivity, and create more sustainable irrigation systems through active farmer participation.

2. Objectives of the Study

The objectives of the study are as follows:

i. To assess the impact of PIM on water distribution equity and system maintenance.

ii. To compare socio-economic, environmental, and agricultural conditions before and after PIM implementation.

iii. To provide recommendations for improving WUAs' efficiency and functionality.

3. Research Methodology

3.1 Study Area

The study was conducted in the Aunli Irrigation Project, situated in the Angul district of Odisha, India. This medium-scale irrigation project spans a Culturable Command Area (CCA) of 1,746 hectares, providing essential irrigation for both Kharif (1746 ha) and Rabi (523 ha) crop seasons. The project consists of a 4.656 km long main canal, supported by eight minors and sub-minors, designed to distribute water across the region. Initially implemented as a diversion weir scheme across the Aunli river, the project plays a critical role in supporting agriculture in an area that has traditionally faced water distribution challenges, particularly for tail-end farmers. The Aunli project area covers a diverse range of agricultural lands across head, middle, and tail regions, with significant socio-economic diversity among farming households.

3.2 Data Collection

The study employed a mixed-methods approach, combining both qualitative and quantitative techniques to gain a comprehensive understanding of the impacts of Participatory Irrigation Management (PIM) in the Aunli Irrigation Project. Data collection was conducted through structured surveys, semi-structured interviews, and group discussions with key stakeholders, including farmers, members of Water Users' Associations (WUAs), and local officials. A total of 300 households were selected for the study, with data gathered from households located across head, middle, and tail-end regions of the irrigation system. The surveys focused on capturing information related to irrigation practices, agricultural yields, socio-economic and environmental conditions, and the functioning of WUAs.

3.3 Sampling

A stratified random sampling method was used to ensure that the study adequately

represented the diverse conditions of the Aunli Irrigation Project's command area. The entire command area was divided into three distinct regions: head reach, middle reach, and tail-end reach. One hundred households were randomly selected from each region, allowing for a comparative analysis of the impacts of PIM across different geographic locations within the project area. The sample included households of varying farm sizes, categorized into marginal, small, medium, and large farmers to ensure the study accounted for differences in landholding patterns and water usage.

3.4 Data Analysis

The collected data were analyzed using both quantitative and qualitative techniques. Quantitative data analysis focused on key indicators of irrigation efficiency, such as water distribution, cropping intensity, and agricultural yields before and after the implementation of PIM. Descriptive statistics, such as percentages and averages, were used to compare the pre-PIM and post-PIM scenarios. In addition, qualitative insights from interviews and group discussions were used to explore socio-economic and environmental factors, farmer perceptions of PIM, and the functioning of WUAs. This combination of methods allowed for a comprehensive assessment of the impact of PIM on water distribution, agricultural productivity, and the overall socio-economic well-being of the community.

4. Results and Discussion

This section evaluates the impact of Participatory Irrigation Management (PIM) on water distribution, agricultural productivity, and socio-economic and environmental conditions in the Aunli Irrigation Project. The discussion covers a detailed comparison of pre- and post-PIM conditions, focusing on water use efficiency, crop yields, and operational improvements within the irrigation system. Additionally, the social, economic, and environmental implications of PIM are analyzed, highlighting the role of Water Users' Associations (WUAs) in fostering community engagement and improving livelihoods.

4.1 Water Distribution: Pre-PIM Scenario

Before the introduction of Participatory Irrigation Management (PIM) in the Aunli Irrigation Project, the water distribution system was characterized by inefficiencies and inequities that severely impacted agricultural productivity, particularly for farmers located in the tail-end regions. The irrigation system, managed by the state government, was largely centralized and bureaucratic, with little involvement from the local farmers who depended on the system for their livelihood.

4.1.1 Discrepancies in Water Allocation

One of the most pressing issues in the pre-PIM scenario was the significant discrepancy in water distribution between the head, middle, and tail-end regions of the irrigation canal. Farmers at the head reach of the system enjoyed a relatively abundant and consistent supply of water. This was because they were located near the source of the canal, which allowed them to access water early in the distribution process before it traveled further downstream. Conversely, farmers in the tail-end areas suffered from chronic water shortages, as much of the water was lost to seepage, evaporation, or excessive extraction by head-reach farmers. This imbalance in water allocation led to social tensions and conflicts among farmers from different regions.

As illustrated in Table 1, the overall efficiency of the water distribution system was suboptimal, with significant disparities across regions. Farmers at the head received

nearly 97 percent of the water intended for their fields, while those at the tail-end only received 58 percent. These inefficiencies resulted in underutilization of the irrigation potential, contributing to lower agricultural productivity and economic losses for farmers in the tail-end areas.

Table 1: Pre-PIM Water Distribution Efficiency Across Regions

Region	Irrigable Area (ha)	Actual Irrigated Area (ha)	Efficiency (%)
Head Reach	700	680	97%
Middle Reach	600	480	80%
Tail-End Reach	446	260	58%
Total	**1746**	**1420**	**81.3%**

Source: Own Survey.

4.1.2 Poor Infrastructure and Maintenance

Another key factor contributing to inefficiencies in water distribution was the poor state of infrastructure. The irrigation canals in the Aunli project were largely unlined, leading to significant water seepage throughout the system. Unlined canals are known to suffer from water loss due to percolation into the ground, which reduces the amount of water reaching the fields, particularly those located farther downstream.

Maintenance of the canals was sporadic and inadequate under the pre-PIM system. The state-managed irrigation system faced chronic budgetary constraints, and there was little accountability for the upkeep of the canals. Siltation of canals, broken regulators, and clogged outlets were common, further exacerbating the problems of water distribution. The government's inability to maintain the infrastructure regularly contributed to water wastage and reduced the overall efficiency of the system.

4.1.3 Limited Farmer Involvement

Before the implementation of PIM, farmers had little say in the management of the irrigation system. The top-down approach meant that decisions regarding water release schedules, maintenance, and canal operation were made by government officials without consulting the farmers who were the primary users of the water. As a result, there was a disconnect between the government's management strategies and the actual needs of the farmers.

This lack of involvement not only led to inefficient water distribution but also fostered a sense of apathy among farmers regarding the maintenance and operation of the irrigation system. Since they had no control over the system, farmers were reluctant to invest their time and resources in maintaining the canals or regulating water flows. The absence of local participation also contributed to the inequitable distribution of water, as farmers in the head regions could often manipulate the system to their advantage, while those in the tail regions had no recourse for ensuring equitable access to water.

4.1.4 Impact on Agricultural Productivity

The inefficiencies in water distribution had a direct impact on agricultural productivity in the Aunli Irrigation Project. Farmers in the head-reach areas were able to cultivate their

land more intensively, often producing two or more crops per year, thanks to the reliable water supply. However, farmers in the tail-end regions faced frequent crop failures due to water shortages, particularly during critical growth periods such as planting and harvesting.

The inability to ensure a steady supply of water throughout the irrigation system led to lower overall cropping intensity in the project area. The cropping intensity in the pre-PIM scenario was approximately 114 percent, indicating that farmers were unable to fully utilize the available land for cultivation due to the irregular water supply. This reduced agricultural output not only affected the livelihoods of the farmers but also hindered the region's overall food security and economic development.

4.1.5 Conflicts Over Water Distribution

The unequal distribution of water created a breeding ground for conflicts between farmers in different regions of the irrigation system. Head-reach farmers, who had easier access to water, were often accused of over-extracting water, leaving little for those downstream. These conflicts sometimes escalated into physical altercations, with farmers blocking canals or tampering with outlets to secure more water for their fields.

The government's centralized approach to irrigation management did little to resolve these conflicts, as officials were often unaware of the day-to-day struggles faced by farmers in different parts of the system. The lack of an effective dispute resolution mechanism further aggravated the situation, contributing to social unrest and decreasing the overall efficiency of the system.

4.2 Water Distribution: Post-PIM Scenario

The implementation of Participatory Irrigation Management (PIM) marked a significant turning point for the Aunli Irrigation Project, resulting in improved water distribution and enhanced overall system efficiency. After PIM was introduced, farmers, through their Water Users' Associations (WUAs), became directly involved in managing water allocation, scheduling irrigation, and maintaining the infrastructure. This decentralized approach to irrigation management empowered local stakeholders and led to several positive changes in water distribution.

4.2.1 Equitable Water Distribution Across Regions

One of the most significant improvements observed post-PIM was the equitable distribution of water across the head, middle, and tail-end regions of the canal system. Prior to PIM, the tail-end farmers often faced severe water shortages, while head-reach farmers received excess water. Post-PIM, with active involvement of WUAs, water distribution became more balanced, ensuring that each region received its fair share of water based on crop needs and irrigation schedules.

The introduction of volumetric water allocation methods, monitored by the WUAs, enabled more accurate and fair distribution of water. This system allowed farmers to receive water based on the actual requirements of their crops and land size, preventing overuse by head-end farmers and improving access for tail-end users.

As shown in Table 2, the overall irrigation efficiency significantly increased to 93.9 percent post-PIM, with substantial improvements in the tail-end regions, which previously faced the most challenges in receiving water. The efficiency gains in tail-end areas can be attributed to better planning, equitable distribution practices, and infrastructure improvements.

Table 2: Post-PIM Water Distribution Efficiency Across Regions

Region	Irrigable Area (ha)	Actual Irrigated Area (ha)	Efficiency (%)
Head Reach	700	690	98.6%
Middle Reach	600	550	91.7%
Tail-End Reach	446	400	89.7%
Total	**1746**	**1640**	**93.9%**

Source: Own Survey.

4.2.2 Improvements in Infrastructure and Maintenance

Post-PIM, one of the key contributors to better water distribution was the upgrade in canal infrastructure. The unlined canals, which had previously led to water seepage and wastage, were partially lined, especially in critical sections where water loss was highest. The lining of these canals minimized water loss through percolation and ensured that more water reached the fields, particularly in the middle and tail-end areas.

In addition to the canal lining, sluice gates and other water regulation structures were repaired or replaced. These structures allowed WUAs to manage water flows more precisely, regulating the amount of water released into different parts of the system and reducing wastage. Regular maintenance schedules, enforced by the WUAs, ensured that the infrastructure remained functional throughout the year, significantly reducing the operational inefficiencies that plagued the system in the pre-PIM period.

4.2.3 Role of Water Users' Associations (WUAs)

The formation of WUAs post-PIM played a crucial role in improving water distribution. Farmers were organized into associations based on their geographic location within the irrigation system (head, middle, or tail regions). These associations were responsible for planning the water distribution schedule, maintaining the canals, and resolving disputes among farmers. The decentralized approach allowed for greater accountability, as farmers themselves took ownership of the irrigation system's operation.

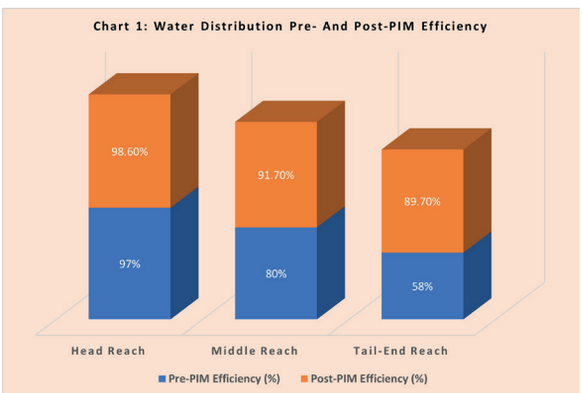
The WUAs also established transparent and participatory decision-making processes, where water distribution schedules were determined collectively. This minimized conflicts and ensured that all farmers had access to water based on their specific needs. Tail-end farmers, who were historically disadvantaged, gained representation in these associations, allowing their voices to be heard in decisions related to water allocation.

4.2.4 Benefits for Tail-End Farmers

Tail-end farmers were among the biggest beneficiaries of the post-PIM water distribution improvements. With the equitable distribution of water and improved infrastructure, tail-end farmers could now rely on a consistent and predictable water supply. This not only reduced crop failures due to water shortages but also enabled these farmers to increase their cropping intensity and diversify their crops, thereby improving their livelihoods.

The chart below highlights the changes in water distribution efficiency across the head,

middle, and tail-end regions before and after PIM was implemented. The efficiency gains in the tail-end regions are particularly notable, demonstrating the success of PIM in addressing long-standing water distribution inequities.



4.2.5 Reduction in Water Conflicts

Before PIM, conflicts over water distribution were frequent, especially between head-reach and tail-end farmers. Post-PIM, with the active involvement of WUAs and the equitable distribution of water, these conflicts were greatly reduced. The transparent decision-making processes within WUAs, combined with better regulation of water flows, minimized disputes and fostered a cooperative atmosphere among farmers. Farmers in all regions now had more confidence in the system, knowing that water allocation was managed fairly.

4.3 Improvement in Irrigation Infrastructure

The Participatory Irrigation Management (PIM) system implemented in the Aunli Irrigation Project significantly improved the infrastructure supporting water distribution. Prior to PIM, the irrigation infrastructure was poorly maintained and plagued by issues such as seepage, siltation, and unreliable water control systems. These problems contributed to inefficiencies in water distribution and poor agricultural productivity, particularly for farmers in the middle and tail-end regions. However, after PIM was introduced, a series of strategic improvements in the irrigation infrastructure transformed the system, making it more efficient and reliable.

4.3.1 Canal Lining and Seepage Reduction

One of the most critical infrastructural improvements made post-PIM was the lining of irrigation canals. Before PIM, many of the canals in the Aunli Irrigation Project were unlined, which led to high levels of water seepage. It was estimated that nearly 30 percent of the water intended for irrigation was lost due to seepage in the unlined canals, particularly in sandy soil areas.

Post-PIM, sections of the main canals and several critical sub-minors were lined with concrete, which drastically reduced water losses. Lining the canals also improved the velocity of water flow, ensuring that water reached the tail-end regions more effectively. This improvement addressed the longstanding problem of water shortages in the tail regions, contributing to a more equitable distribution of water. As shown in Table 3, the reduction in seepage losses post-PIM greatly improved the overall system efficiency, allowing more water to be utilized for irrigation.

Table 3: Pre- and Post-PIM Water Losses Due to Seepage

Canal Section	Pre-PIM Seepage Losses (%)	Post-PIM Seepage Losses (%)
Main Canal	25%	10%
Sub-minors and Field Canals	35%	12%

Overall System Efficiency	70%	90%
Total	**1746**	**1640**

Source: Own Survey.

4.3.2 Silt Removal and Regular Canal Maintenance

In the pre-PIM scenario, siltation was a major issue that disrupted water flows. Sediment would accumulate in the canals, reducing their capacity to carry water and causing blockages, particularly in the tail-end regions. This led to inconsistent water supply, especially during peak demand periods, such as during the early stages of crop growth.

Post-PIM, the Water Users' Associations (WUAs) were empowered to carry out regular desiltation and maintenance of the canals. Annual silt removal campaigns were conducted before the start of each cropping season, ensuring that the canals were free from blockages and capable of delivering water efficiently. Farmers within the WUAs took turns to oversee canal maintenance, contributing their labor and resources to keep the system operational.

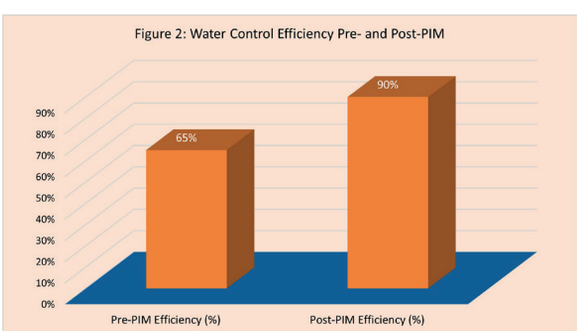
This community-based approach to maintenance not only reduced siltation but also fostered a sense of ownership among farmers, motivating them to invest in the upkeep of the infrastructure. The result was a more reliable irrigation system, with water reaching fields more consistently and efficiently.

4.3.3 Installation of Water Control Structures

Another key infrastructure improvement was the installation and upgrading of water control structures, such as sluice gates and regulators, throughout the irrigation network. These structures allowed for better management of water flows, enabling WUAs to control the volume of water released into different sections of the canal system.

Before PIM, many of the water control structures were either non-functional or poorly maintained, leading to uncontrolled water flows and wastage. Tail-end farmers often received little to no water, as head-reach farmers could divert more than their share. Post-PIM, the newly installed or repaired sluice gates allowed WUAs to implement volumetric water allocation methods, ensuring that each farmer received a fair share of water based on their land size and crop requirements.

Chart 2 would depict the improvements in water control efficiency, showing the difference in water management pre- and post-PIM. The ability to regulate water flow more accurately post-PIM reduced water wastage and increased the overall efficiency of the system, benefiting all farmers across the head, middle, and tail-end regions.



4.3.4 Rehabilitation of Minor and Sub-minor Canals

In addition to improvements made to the

main canal, PIM focused on rehabilitating the minor and sub-minor canals, which were critical for delivering water to individual fields. Before PIM, many of these smaller canals were neglected, leading to water bottlenecks that disrupted irrigation in the tail-end regions. Post-PIM, WUAs undertook the task of rehabilitating these canals, ensuring that water reached all parts of the command area.

The rehabilitation of these canals included lining sections prone to seepage, removing blockages, and improving the alignment of the canals to facilitate smoother water flow. These improvements enabled more effective distribution of water, reducing delays in water delivery and ensuring that farmers could irrigate their fields on time, which is particularly important during the critical growth stages of crops like paddy.

4.3.5 Increased Irrigation Coverage

With the infrastructure improvements made post-PIM, the total irrigated area within the Aunli Irrigation Project expanded significantly. More land, particularly in the middle and tail-end regions, was brought under irrigation, allowing farmers to cultivate crops on land that had previously remained fallow due to lack of water. The total irrigated area increased from 1,420 hectares pre-PIM to 1,640 hectares post-PIM, reflecting the system's improved capacity to meet the irrigation demands of the region. Table 4 clearly shows the difference between the irrigated area before and after PIM, highlighting the net increase of 220 hectares in the total irrigated area.

Table 4: Increase in Irrigated Area Post-PIM

Item	Area (ha)
Pre-PIM Irrigated Area	1,420
Post-PIM Irrigated Area	1,640
Net Increase	220
Total	**1746**

Source: Own Survey.

This increase in irrigation coverage allowed farmers to grow not only paddy but also a variety of other crops, such as oilseeds, pulses, and vegetables, thus contributing to crop diversification and enhancing household incomes. The expanded irrigation coverage allowed farmers to increase their cropping intensity, enabling them to grow multiple crops during both the Kharif and Rabi seasons. This not only enhanced agricultural productivity but also contributed to food security and economic growth in the region.

4.3.6 Positive Environmental Impact

The infrastructure improvements made under PIM also had a positive environmental impact. The reduction in seepage meant that less water was wasted, contributing to better groundwater recharge. Additionally, the reduction in water wastage reduced the pressure on local water resources, helping to maintain more sustainable water use practices.

The improved efficiency in water use also meant that less water was diverted from natural water bodies, helping to preserve local ecosystems. Furthermore, the introduction of more efficient water control structures reduced soil erosion along the canal banks, which was a major issue before PIM due to uncontrolled water flows.

These infrastructure improvements under PIM played a pivotal role in transforming the Aunli Irrigation Project into a more efficient, equitable, and sustainable system. The combination of canal lining, regular maintenance, upgraded water control

structures, and rehabilitated minor canals ensured that water was distributed more effectively, benefiting all stakeholders involved in the system.

4.4 Impact on Crop Yields

The implementation of Participatory Irrigation Management (PIM) in the Aunli Irrigation Project had a profound impact on agricultural productivity, particularly in terms of crop yields. Prior to PIM, the inefficient and inequitable distribution of water limited farmers' ability to fully utilize their land and resources, resulting in suboptimal crop yields. However, post-PIM, improvements in water availability, distribution, and infrastructure contributed to significant increases in crop yields, cropping intensity, and crop diversification.

4.4.1 Increase in Cropping Intensity

One of the immediate benefits of PIM was the increase in cropping intensity—the number of crops grown on the same land during different agricultural seasons. Pre-PIM, the cropping intensity was relatively low due to inconsistent water supply and limited access to irrigation, especially in the tail-end regions. Farmers often relied on rain-fed agriculture, which constrained them to a single crop per year, usually during the Kharif season.

After the introduction of PIM, reliable water distribution enabled farmers to grow multiple crops across both the Kharif (monsoon) and Rabi (winter) seasons. As a result, cropping intensity increased from approximately 114 percent pre-PIM to 168 percent post-PIM as shown in Table 5.

Table 5: Cropping Intensity Pre- and Post-PIM

Period	Cropping Intensity (%)	Additional Cropped Area (ha)
Pre-PIM	114	2,246
Post-PIM	168	2,846
Net Increase		220

Source: Own Survey.

The substantial increase in cropping intensity can be attributed to the improved reliability of water supply post-PIM, which allowed farmers to plan their cropping cycles more efficiently. This allowed for greater utilization of land, higher productivity, and the opportunity to grow a wider variety of crops.

4.4.2 Increase in Paddy Yields

Paddy (rice) is the dominant crop in the Aunli Irrigation Project area, and it requires consistent and abundant water supply for optimal growth. In the pre-PIM scenario, the frequent shortages in irrigation water, particularly in the tail-end regions, severely hampered paddy yields. Many farmers were forced to delay planting or abandon their crops due to water shortages during critical growth stages.

Post-PIM, the equitable distribution of water and improved irrigation infrastructure led to a significant increase in paddy yields. As shown in Table 6, paddy yields in the Kharif season increased from an average of 2.1 tons per hectare pre-PIM to 3.2 tons per hectare post-PIM. Similarly, Rabi season yields increased from 1.7 tons per hectare to 2.5 tons per hectare.

Table 6: Paddy Yield Pre- and Post-PIM (in tons/ha)

Period	Kharif Season (tons/ha)	Rabi Season (tons/ha)
Pre-PIM	2.1	1.7
Post-PIM	3.2	2.5

Source: Own Survey.

This improvement in paddy yields is largely attributable to the reliable water supply post-PIM, which enabled farmers to irrigate their fields more consistently during key growth periods, resulting in healthier crops and higher yields.

4.4.3 Crop Diversification

Another key impact of PIM on agricultural productivity was the increase in crop diversification. Prior to PIM, the inconsistent water supply meant that farmers in the Aunli project area primarily focused on cultivating paddy, which was seen as a safe crop despite its water-intensive nature. However, with the improvements in water distribution post-PIM, farmers were able to diversify their crop selection, planting higher-value crops such as oilseeds, pulses, and vegetables during both the Kharif and Rabi seasons.

Table 7: Crop Diversification Pre- and Post-PIM

Period	Pre-PIM Area (ha)	Post-PIM Area (ha)
Paddy	1,400	1,200
Oilseeds (mustard, etc.)	200	350
Pulses (lentils, etc.)	100	250
Vegetables	50	200

Source: Own Survey.

As seen in Table 7, the area dedicated to non-paddy crops increased significantly after the introduction of PIM. Farmers in the tail-end regions, in particular, took advantage of the improved water supply to grow crops that were previously difficult to cultivate due to water shortages. This diversification not only increased household incomes but also contributed to greater food security in the region by reducing dependence on a single crop.

In conclusion, the implementation of PIM in the Aunli Irrigation Project resulted in substantial improvements in crop yields, cropping intensity, and crop diversification. These gains were largely driven by the more equitable distribution of water, improved infrastructure, and the active involvement of farmers in the management of the irrigation system. The result was not only increased agricultural productivity but also improved livelihoods and a more sustainable approach to water management.

4.5 Social and Economic Impact

The introduction of Participatory Irrigation Management (PIM) in the Aunli Irrigation Project not only enhanced water distribution efficiency and agricultural productivity but also had far-reaching social and economic effects on the local farming communities. The decentralization of irrigation management and the involvement of Water Users' Associations (WUAs) transformed the social dynamics among farmers and contributed to improved economic conditions, particularly for small and marginal farmers. This section discusses the various social and economic impacts resulting from the PIM implementation.

4.5.1 Enhanced Community Engagement through WUAs

One of the most significant social impacts of PIM was the empowerment of local farmers

through their active participation in Water Users' Associations (WUAs). The pre-PIM period was characterized by a centralized, top-down approach to irrigation management, where farmers had little say in how water was distributed or how the system was maintained. This lack of involvement often led to dissatisfaction and conflicts among farmers, particularly between those in the head-reach and tail-end regions.

Post-PIM, the formation of WUAs gave farmers a direct role in decision-making related to water distribution, canal maintenance, and scheduling irrigation cycles. These associations fostered a sense of ownership among farmers, as they were now responsible for managing their own water resources. This increased community engagement also led to better cooperation and collaboration among farmers, reducing tensions and conflicts over water usage.

The transparent and participatory nature of WUAs ensured that water distribution was based on collective decisions, with representation from farmers in different regions. As a result, the system became more equitable, with water allocation being managed fairly among head, middle, and tail-end farmers. The involvement of women in WUAs also increased post-PIM, promoting gender inclusion and enhancing the overall social fabric of the community.

4.5.2 Improved Livelihoods and Economic Stability

The improved irrigation system post-PIM directly contributed to higher agricultural productivity, which in turn had a significant positive impact on the livelihoods of farmers. The increase in crop yields and cropping intensity as discussed before translated into higher household incomes for farmers across all regions of the Aunli Irrigation Project. Marginal and small farmers, who had previously struggled to sustain their livelihoods due to inadequate water supply, experienced the most substantial gains.

Table 8: Average Household Income Pre- and Post-PIM (in INR)

Farmer Category	Pre-PIM Income (INR)	Post-PIM Income (INR)
Marginal Farmers (<2.5 ha)	25,000	42,000
Small Farmers (2.5-5 ha)	50,000	75,000
Medium Farmers (5-10 ha)	90,000	1,25,000
Vegetables	50	200

Source: Own Survey.

As seen in Table 8, household incomes increased significantly after the implementation of PIM. Marginal farmers, who previously earned around INR 25,000 per year, saw their incomes rise to INR 42,000 post-PIM. Small and medium farmers also experienced notable increases in their incomes due to the enhanced reliability of water supply and higher crop yields.

This increase in income allowed farmers to reinvest in their farms, purchasing better-quality seeds, fertilizers, and farming equipment, which further boosted agricultural productivity. Additionally, the improved

financial stability of farming households reduced their reliance on informal credit sources, thus decreasing their vulnerability to debt.

4.5.3 Reduction in Water-Related Conflicts

Prior to PIM, conflicts over water distribution were common, particularly between farmers in the head-reach and tail-end regions. Head-reach farmers often had better access to water, leaving tail-end farmers with inadequate supplies, especially during critical periods of crop growth. These conflicts sometimes escalated into physical altercations, and the centralized management system did little to resolve such issues.

Post-PIM, the equitable distribution of water, overseen by WUAs, helped reduce these conflicts significantly. The decentralized, participatory management of the irrigation system ensured that water distribution was based on the needs of all farmers, regardless of their location along the canal. The transparency of WUA decisions, coupled with the representation of tail-end farmers in these associations, reduced the sense of grievance that had previously fueled conflicts.

Moreover, the WUAs themselves served as platforms for dispute resolution, allowing farmers to address their concerns collectively and amicably. This contributed to greater social cohesion within the farming community and created an environment where farmers were more willing to cooperate with one another for the common good.

4.5.4 Increased Food Security and Household Nutrition

The increase in agricultural productivity post-PIM not only improved farmers' incomes but also contributed to greater food security in the region. With more reliable access to water, farmers were able to grow more crops, and many began to diversify their crop selection. This diversification, which included growing pulses, oilseeds, and vegetables in addition to paddy, provided farming households with a more varied diet, improving household nutrition.

The increased availability of food also allowed farmers to store surplus crops for future use or sell them in local markets, further enhancing their economic stability. The overall improvement in food security reduced the vulnerability of farming households to market fluctuations and climatic uncertainties, as they were no longer solely reliant on paddy cultivation.

4.5.5 Strengthening of Social Networks

The collaborative nature of PIM and the formation of WUAs also strengthened social networks within the farming community. Farmers, who had previously worked in isolation or in competition with one another for water resources, were now encouraged to cooperate for the effective management of the irrigation system. This led to the development of stronger relationships among farmers, with WUAs serving as social hubs where farmers could exchange knowledge, share resources, and collaborate on irrigation management.

Additionally, the success of WUAs in improving irrigation management created a sense of pride and accomplishment among farmers, further strengthening their social ties. The inclusive nature of WUAs, which involved representation from marginal farmers and women, contributed to the empowerment of previously marginalized groups, fostering a more equitable and cohesive community.

4.5.6 Long-Term Economic Impact and Sustainability

The economic benefits of PIM extended beyond immediate improvements in crop yields and incomes. The long-term

sustainability of the irrigation system, ensured through regular maintenance and the active involvement of farmers in decision-making, created a stable economic environment for the community. Farmers were no longer subject to the uncertainties and inefficiencies of the pre-PIM irrigation system, allowing them to plan for the future with greater confidence.

In the long term, the increase in agricultural productivity and income stability led to improvements in overall rural development. With more reliable income sources, farmers were able to invest in education, healthcare, and housing, further improving their quality of life. The sustainability of the irrigation system, ensured through the active participation of WUAs, also meant that future generations of farmers could continue to benefit from the improvements brought about by PIM.

4.5.7 Social and Environmental Benefits of Higher Crop Yields

In addition to the direct economic benefits, the increase in crop yields post-PIM also had important social and environmental implications. The reliable supply of water and improved agricultural productivity helped reduce rural poverty in the Aunli project area. Farmers who had previously struggled with water shortages were now able to cultivate their land more intensively, leading to greater food security and improved livelihoods.

The environmental impact of increased yields was also noteworthy. The reduction in water wastage, combined with the introduction of more efficient irrigation practices, helped conserve local water resources. Additionally, the diversification into less water-intensive crops, such as oilseeds and pulses, reduced the overall demand for water in the region, contributing to the long-term sustainability of the irrigation system.

In summary, the implementation of PIM in the Aunli Irrigation Project had profound social, economic, and environmental impacts on the local farming community. The decentralization of irrigation management, coupled with the empowerment of farmers through WUAs, not only improved water distribution and agricultural productivity but also enhanced social cohesion, reduced conflicts, and contributed to long-term economic stability. The success of PIM in the Aunli project serves as a model for other irrigation systems seeking to improve water management and rural livelihoods through participatory approaches.

4.6 Operational Improvements

The Participatory Irrigation Management (PIM) system implemented in the Aunli Irrigation Project resulted in significant operational improvements that enhanced the overall functionality and sustainability of the irrigation system. Prior to PIM, the state-managed irrigation system was plagued by inefficiencies in water distribution, poor maintenance, and a lack of farmer involvement in decision-making. However, post-PIM, the operational aspects of the irrigation system saw substantial improvements, leading to better water use efficiency, improved system reliability, and stronger relationships between farmers and government agencies.

4.6.1 Better Operation and Maintenance of Canals

One of the key operational improvements under PIM was the enhancement of canal operation and maintenance. Before PIM, the responsibility for maintaining the canals rested solely with the government, which often faced resource and budget constraints, leading to delayed or inadequate maintenance. The lack of regular upkeep resulted in issues such as siltation, weed growth, and structural damage to canals, which reduced the overall

efficiency of water distribution.

Post-PIM, the Water Users' Associations (WUAs) took over the responsibility for the operation and maintenance of minor and sub-minor canals. These associations implemented regular maintenance schedules, which included desilting, cleaning, and repairing damaged sections of the canals. The active involvement of farmers in the upkeep of the canals ensured that maintenance was done in a timely and cost-effective manner, reducing water losses and improving the flow of water to all regions, particularly the tail-end areas.

The transition to a decentralized maintenance model empowered local farmers to take ownership of the irrigation infrastructure, fostering a sense of accountability and ensuring that the canals were maintained throughout the year. As shown in Table 9, the frequency of canal maintenance increased significantly post-PIM, leading to a reduction in water loss due to siltation and blockages. This table illustrates the improvements in canal maintenance post-PIM, including more frequent maintenance, reduced time between repairs, and lower water loss due to siltation.

Table 9: Canal Maintenance Pre- and Post-PIM

Indicator	Pre-PIM	Post-PIM
Frequency of Maintenance	Irregular	Regular
Average Time Between Repairs	6-12 months	2-3 months
Water Loss Due to Siltation	High	Low

Source: Own Survey.

4.6.2 System Reliability and Water Delivery

The operational improvements made under PIM also led to enhanced system reliability in terms of water delivery. Pre-PIM, farmers frequently experienced interruptions in water supply due to breakdowns in the system, such as clogged canals, damaged gates, or water over-extraction by head-reach farmers. These issues often resulted in delays in irrigation, which had a direct impact on crop yields, particularly for tail-end farmers.

Post-PIM, the improved maintenance of canals, coupled with the better regulation of water flows through upgraded water control structures, ensured that water was delivered more consistently and reliably to all parts of the command area. The installation and repair of sluice gates and regulators allowed WUAs to control water distribution more accurately, ensuring that water was released in a timely manner to meet the needs of crops at critical growth stages.

Table 12 illustrates how system reliability improved post-PIM, with fewer system breakdowns and more timely water delivery, particularly benefiting tail-end farmers who previously struggled to receive water on time. This table reflects the improvements in system reliability after the implementation of PIM, highlighting better water delivery, fewer system breakdowns, and improved access for tail-end farmers.

Table 10: System Reliability Pre- and Post-PIM

Indicator	Pre-PIM	Post-PIM
Water Delivery Timeliness	Low	High
System Breakdowns (per year)	Frequent	Rare
Tail-End Water Access	Limited	Improved

Source: Own Survey.

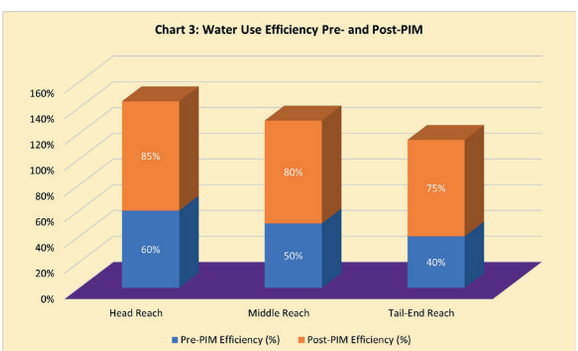
4.6.3 Water Use Efficiency

The operational improvements also led to significant gains in water use efficiency. Before PIM, the irrigation system suffered from high levels of water wastage due to unregulated flows, seepage, and inefficient canal infrastructure. Head-reach farmers often received excess water, while tail-end farmers received too little, leading to an imbalance in water distribution and inefficient use of available resources.

Post-PIM, the introduction of volumetric water allocation methods, managed by WUAs, allowed for more precise control over water flows. Water was allocated based on crop needs and land area, reducing over-extraction by head-end farmers and ensuring that water was distributed more equitably across all regions. The improved regulation of water flows through upgraded sluice gates and regulators further enhanced water use efficiency by minimizing water losses during distribution.

Additionally, the rehabilitation and lining of key sections of the canal system reduced seepage losses, ensuring that more water reached the intended fields. This contributed to higher overall water use efficiency, benefiting both farmers and the environment by conserving water resources.

Chart 3 depicts the percentage improvements in water use efficiency across the different regions of the irrigation system. The improvements in water use efficiency post-PIM not only reduced water wastage but also allowed farmers to cultivate larger areas of land, increasing their productivity and income.



4.6.4 Improved Relationships Between Farmers and Government Agencies

Another important operational improvement under PIM was the strengthening of relationships between farmers and government agencies. Before PIM, the top-down, bureaucratic management of the irrigation system often led to a disconnect between the needs of farmers and the policies implemented by the government. Farmers had little say in how the system was managed, and their concerns were often overlooked, leading to frustration and dissatisfaction.

Post-PIM, the establishment of WUAs created a formal channel for communication between farmers and government agencies. These associations acted as intermediaries, allowing farmers to voice their concerns, provide feedback, and collaborate with government officials on matters related to irrigation

management. This participatory approach improved trust and cooperation between the two parties, leading to more responsive and farmer-centered policies.

In addition to improving communication, WUAs also facilitated the training and capacity-building of farmers, ensuring that they had the knowledge and skills necessary to manage the irrigation system effectively. Government agencies provided technical support and guidance to WUAs, further strengthening the operational capacity of the irrigation system.

Table 11 highlights the improvement in farmer-government relations post-PIM, with more frequent interactions and stronger collaboration on system management. This table illustrates how the relationship between farmers and the government improved post-PIM, showing more frequent interaction, better responsiveness to farmer needs, and stronger collaboration in managing the irrigation system.

Table 11: Farmer-Government Relations Pre- and Post-PIM

Indicator	Pre-PIM	Post-PIM
Farmer-Government Interaction	Limited	Frequent
Responsiveness to Farmer Needs	Low	High
Collaboration on System Management	Minimal	Strong

Source: Own Survey.

In conclusion, the operational improvements brought about by PIM transformed the Aunli Irrigation Project into a more efficient, reliable, and sustainable system. The shift from a centralized, government-managed system to a decentralized, farmer-managed model resulted in better maintenance, improved water delivery, and enhanced water use efficiency. These operational gains not only benefited farmers economically but also contributed to the long-term sustainability of the irrigation system by fostering a more collaborative and participatory approach to water management.

5. Conclusion and Recommendations

5.1 Conclusion

The Participatory Irrigation Management (PIM) system implemented in the Aunli Irrigation Project has demonstrated significant improvements in water distribution efficiency, agricultural productivity, and community involvement. Prior to PIM, the irrigation system faced several challenges, including inequitable water distribution, inefficient infrastructure, and poor farmer participation. The state-managed, top-down approach left little room for stakeholder input, leading to uneven water distribution, particularly disadvantaging tail-end farmers.

The introduction of PIM, particularly through the formation of Water Users' Associations (WUAs), has brought transformative changes to the irrigation landscape of Aunli. The equitable distribution of water has been one of the most visible outcomes, addressing the longstanding grievances of tail-end farmers. This improved water access, coupled with better-maintained infrastructure, has increased cropping intensity, allowing farmers to grow multiple crops across both Kharif and Rabi seasons. The reliable water supply has also encouraged farmers to diversify their crop

selection, shifting away from the traditional paddy monoculture to more lucrative crops such as oilseeds, pulses, and vegetables.

In addition to enhancing water distribution and crop yields, PIM has strengthened the social fabric of the farming community by empowering local farmers. The decentralized management system allows farmers to have a direct say in the operation and maintenance of the irrigation system, fostering a sense of ownership and accountability. This increased participation has not only improved the physical operation of the irrigation system but has also reduced conflicts over water usage, as decisions are made collectively and transparently through the WUAs.

Economically, the PIM framework has led to improved livelihoods for farmers, with household incomes rising as a result of higher crop yields and better water availability. Marginal and small farmers, in particular, have benefited from the ability to cultivate their land more intensively and productively. Moreover, the improved efficiency in water use has reduced wastage, making the system more sustainable in the long term.

Despite the significant progress made under PIM, several challenges remain. Some WUAs still struggle with financial sustainability, as water charges collected from farmers are often insufficient to cover the full costs of system maintenance. Additionally, while many tail-end farmers have experienced improvements, there are still occasional gaps in water distribution during periods of high demand. The capacity of WUAs to manage these systems effectively varies, with some needing further training and institutional support.

Overall, the success of the PIM system in the Aunli Irrigation Project underscores the potential for participatory approaches to revolutionize irrigation management in India. By placing control in the hands of the end-users – the farmers – PIM has addressed many of the inefficiencies inherent in state-managed systems. The case of Aunli serves as a model for other irrigation projects seeking to improve water use efficiency and agricultural productivity.

5.2 Recommendations

Based on the findings from the Aunli Irrigation Project, several recommendations can be made to further enhance the effectiveness of Participatory Irrigation Management and to address the challenges that still exist:

i. Strengthening Water Users' Associations (WUAs)

To ensure the continued success of WUAs, it is vital to focus on capacity-building initiatives. Training programs should be held regularly to enhance financial management, infrastructure maintenance, and conflict resolution skills. Strong leadership within WUAs is essential for their effective operation, and ongoing support from government agencies and NGOs can facilitate this.

ii. Improving Financial Sustainability

Many WUAs face challenges in maintaining financial stability. Water tariffs should be reviewed and adjusted to reflect the true costs of maintaining the irrigation system without imposing a burden on small farmers. Additionally, government subsidies or grants can help support system maintenance in the early stages. WUAs can also diversify their income through advisory services on efficient water use or crop diversification.

iii. Enhancing Water Distribution Mechanisms

While water distribution has improved post-PIM, further refinement is needed. Upgrading canal infrastructure and introducing advanced technology such as drip and sprinkler

irrigation systems can reduce water loss and improve efficiency. Real-time monitoring systems can help ensure that water distribution matches actual demand, especially during peak periods.

iv. Encouraging Crop Diversification

PIM has led to some crop diversification, but more can be done. Farmers should be provided with access to credit and markets to diversify into high-value crops like vegetables and oilseeds. Government support programs promoting sustainable agricultural practices will further enhance the value of diversified crops. Field demonstrations and training programs can showcase the benefits of crop diversification.

v. Strengthening the Institutional Framework for PIM

For long-term sustainability, the institutional framework supporting WUAs must be strengthened. A dedicated regulatory body should monitor WUAs' performance and ensure compliance with standards. Regular feedback mechanisms between WUAs and government agencies will allow for timely intervention and necessary support.

vi. Addressing Climate Change Impacts

With climate change posing threats to water availability, the irrigation system must become more resilient. Building climate-resilient infrastructure, such as flood-resistant canals, will be essential. Integrated Water Resource Management (IWRM) practices should also be implemented to ensure water allocation across agricultural and domestic needs, while also protecting the environment.

vii. Expanding PIM to Other Regions

The success of PIM in the Aunli project suggests that the model could be replicated elsewhere. Feasibility studies should identify regions where PIM can be implemented, with proper institutional and financial support. Pilot programs can test the model in new areas before expanding it to a broader scale.

In conclusion, while Participatory Irrigation Management has brought about significant improvements in the Aunli Irrigation Project, continued investment in infrastructure, training, and institutional support will be necessary to ensure its long-term success. With proper implementation, PIM has the potential to revolutionize irrigation management in India, leading to greater water use efficiency, improved agricultural productivity, and enhanced rural livelihoods.

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Factors Contributing to the Sustainable Management of Chambok Community-Based Ecotourism in Cambodia

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ABSTRACT

Community-Based Ecotourism (CBET) is a sustainable tourism model that integrates local communities into the tourism management process, prioritizing environmental conservation, cultural preservation, and equitable economic benefits. This study explores the factors contributing to the effective management of Chambok CBET in Cambodia, examining the roles of community participation, governance, partnerships, environmental conservation, and visitor management. Chambok CBET, managed by local residents, serves as a model for sustainable ecotourism that fosters community empowerment, resilience, and environmental stewardship. Using both qualitative and quantitative data, the study identifies strengths and challenges in Chambok's approach, offering insights and recommendations that can inform similar CBET initiatives in other rural contexts. The findings underscore the potential of community-led ecotourism to drive sustainable economic growth while preserving natural and cultural assets.

Keywords: Community-Based Ecotourism (CBET); sustainable tourism; environmental conservation; community involvement; Cambodia

1. Introduction

Community-Based Tourism (CBT) is increasingly recognized as a sustainable tourism model that prioritizes environmental conservation, social equity, and cultural preservation. Defined as tourism owned and managed by local communities, CBT emphasizes the engagement of local residents in tourism activities to foster a sense of stewardship over natural and cultural resources. This approach not only enhances the visitor experience by providing unique insights into local lifestyles but also ensures that the economic benefits are distributed within the community, supporting its development (REST, 2003; WWF, 2001). Effective CBT promotes mutual learning between visitors and locals, generating a platform for cultural exchange and deeper ecological awareness (Tuffin, 2005).

CBT fosters economic self-reliance by creating employment opportunities, increasing household income, and promoting local pride and cohesion (Kontogeorgopoulos, 2005). At the same time, it empowers communities through active participation in decision-making and tourism management. When implemented effectively, CBT can address issues of income inequality and environmental degradation while fostering community identity and autonomy (Satarat, 2010). Thus, CBT is not merely a tourism strategy but a holistic development model with broad social and environmental benefits.

Chambok community-based ecotourism (CBET) in Cambodia serves as a notable example of CBT in action. Established with support from Mlup Baitong, a local nongovernmental organization, Chambok CBET has successfully operated as an

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ecotourism destination, drawing domestic and international visitors since 2003. Initially developed as a community-led conservation initiative for Kirirom National Park, Chambok CBET has evolved into a model for sustainable tourism in Cambodia. The community offers a range of services, such as homestays, guided tours, and traditional performances, enabling visitors to experience the natural beauty and local culture while supporting community development.

The importance of community-based ecotourism lies in its potential to transform local economies while preserving environmental and cultural assets. Unlike conventional tourism, which can sometimes lead to environmental degradation and cultural displacement, CBT places communities at the center of tourism development, allowing them to dictate the terms of engagement. This model not only promotes sustainable economic growth but also enhances social cohesion by fostering a collective responsibility for managing tourism impacts (Laing et al., 2009). By involving local stakeholders in tourism management, CBT reduces the risks associated with resource exploitation and emphasizes sustainable practices, such as waste management and habitat preservation, which benefit both tourists and residents.

CBT also addresses key social issues by enhancing local quality of life. Tourism revenue generated through CBT often funds community projects, such as education, healthcare, and infrastructure improvements, which raise living standards and promote social equity. This participatory approach builds local capacity, fosters resilience, and empowers marginalized groups by promoting gender and age equality (France, 1999). Furthermore, CBT supports cultural preservation by encouraging local residents to take pride in their heritage and share their traditions with visitors, facilitating cultural exchange and preserving intangible cultural assets for future generations.

From an environmental perspective, CBT contributes to biodiversity conservation and resource management. Many CBT initiatives actively promote environmental education and responsible tourism behaviors, raising awareness of conservation issues among both tourists and local communities (Plummer et al., 2006). The adoption of low-impact practices, such as ecotourism zoning and waste reduction measures, further underscores CBT's commitment to environmental sustainability. By integrating conservation goals into tourism management, CBT ensures that tourism activities support rather than undermine local ecosystems.

Economic benefits of CBT are substantial, as it provides a sustainable and independent source of funds for community development. Unlike conventional tourism, where profits often flow out of the community, CBT ensures that revenue stays within the local area, stimulating economic growth and reducing poverty. This financial autonomy allows communities to make strategic investments in local projects, contributing to long-term stability and self-sufficiency (Brinkerhoff, 2002). Consequently, CBT not only promotes economic growth but also enhances resilience by diversifying income sources and reducing dependency on external support.

Community-based ecotourism (CBET) also serves as a powerful tool for poverty alleviation. In many rural areas, tourism provides one of the few viable economic opportunities available to local residents. CBET allows communities to capitalize on their natural and cultural assets, turning these resources into sustainable income sources without the need for intensive infrastructure development. Studies have

shown that CBET can significantly enhance household incomes, reduce unemployment rates, and contribute to overall economic stability (Satarat, 2010). By creating jobs and encouraging entrepreneurship, CBET empowers local communities to achieve economic independence while maintaining their cultural heritage.

Moreover, CBET supports environmental justice by ensuring that the communities who live closest to natural resources have a say in their conservation and use. Traditional tourism models often overlook the needs and rights of local populations, leading to environmental degradation and social displacement. In contrast, CBET involves local communities in decision-making processes, allowing them to set boundaries and establish conservation guidelines. This approach not only fosters environmental stewardship but also empowers communities to take ownership of their natural resources (Laing et al., 2009). By centering environmental justice within tourism, CBET provides a model for sustainable development that prioritizes community welfare.

From a cultural perspective, CBET helps protect and revitalize traditional practices, languages, and arts that may otherwise be at risk of disappearing due to globalization. Tourism offers an opportunity for communities to share their unique heritage with visitors, generating both pride and revenue. Furthermore, cultural exchange facilitated through CBET can lead to a deeper appreciation of local customs among tourists, fostering global cultural awareness. This dynamic interaction between tourists and host communities enhances the cultural fabric of both parties, promoting respect and reducing cultural misunderstandings (Kontogeorgopoulos, 2005). Thus, CBET not only preserves local traditions but also enriches the broader global community.

CBET also plays a crucial role in fostering resilience among rural communities. By diversifying income sources, communities involved in CBET are better equipped to withstand economic shocks, such as those caused by natural disasters or fluctuations in tourist numbers. Studies indicate that communities with robust CBET programs can adapt more effectively to changing economic and environmental conditions because they have multiple revenue streams and strong social networks (Plummer et al., 2006). In this way, CBET contributes to long-term community resilience, allowing rural areas to thrive even in the face of adversity.

Finally, CBET aligns with global sustainability goals, including the United Nations Sustainable Development Goals (SDGs). Specifically, CBET supports goals related to poverty reduction, gender equality, environmental conservation, and sustainable economic growth. By embedding these goals within its framework, CBET serves as an example of how local initiatives can contribute to global sustainability efforts. The alignment with SDGs makes CBET a valuable model for policymakers and international organizations looking to support sustainable tourism initiatives that have positive impacts on both local and global scales (WWF International, 2001). In this context, CBET is not only beneficial to individual communities but also contributes to broader environmental and social progress.

In Cambodia, CBT holds significant promise as a tool for rural development and environmental conservation. As tourism grows in Cambodia, CBT provides a viable solution for sustainable tourism development that aligns with local cultural values and conservation goals. Chambok CBET, in particular, has become a model for community-

managed ecotourism, contributing to biodiversity conservation while providing economic benefits for local residents. With Cambodia's rich cultural heritage and natural resources, CBT is well-positioned to play a central role in the country's tourism strategy, offering a pathway to sustainable economic growth and poverty alleviation, especially in rural areas.

The selection of Chambok CBET as a case study reflects its exemplary role in sustainable tourism management within Cambodia. By focusing on Chambok, this study aims to identify the factors that contribute to successful community-based ecotourism management, providing insights for similar initiatives in other regions. Examining Chambok CBET's management structure, community involvement, and environmental practices will highlight effective strategies and potential challenges in implementing CBT. Ultimately, this research seeks to contribute to the broader discourse on sustainable tourism, offering practical recommendations for policymakers, NGOs, and communities striving to create sustainable tourism models in Cambodia and beyond.

2. Review of Literature

Community-Based Tourism (CBT) and Community-Based Ecotourism (CBET) have emerged as sustainable tourism models that prioritize local engagement, environmental conservation, cultural preservation, and equitable economic distribution. Unlike conventional tourism, which often marginalizes local communities and compromises environmental resources, CBT and CBET place communities at the core of tourism management, allowing them to retain control over tourism activities and benefit directly from economic gains. This literature review delves into the multidimensional benefits of CBT and CBET, examining existing studies that address the economic, social, environmental, and cultural impacts of these models.

Previous research highlights the strengths of CBT in fostering community empowerment, improving local economies, and preserving cultural heritage. However, it also uncovers challenges, such as financial mismanagement, inequitable profit-sharing, and environmental strain due to increasing tourist demand. By critically analyzing these studies, this review aims to identify effective practices and limitations within CBT and CBET, providing insights for future improvements in sustainable tourism initiatives. The review further discusses gaps in the literature, particularly in areas like governance, resilience planning, financial management, and cultural authenticity, suggesting avenues for future research and practical implementation in diverse community contexts.

Kontogeorgopoulos (2005) highlights the economic benefits of CBT, emphasizing that community-based tourism can reduce poverty by increasing local income and employment opportunities. However, Satarat (2010) critiques that while CBT can contribute to poverty alleviation, the economic benefits are often unevenly distributed within communities, leading to potential social conflicts. This suggests a need for mechanisms that ensure equitable profit-sharing among community members.

France (1999) argues that CBT strengthens social cohesion and preserves cultural heritage by involving locals in tourism management. Yet, as Tuffin (2005) points out, cultural preservation through tourism can sometimes result in the commodification of traditions, where local customs are altered to appeal to tourists. This raises concerns over authenticity and highlights the need for culturally sensitive tourism practices.

Plummer et al. (2006) emphasize the role of CBT in raising environmental awareness and promoting conservation among both tourists and locals. However, Laing et al. (2009) note that the environmental impacts of CBT are mixed, with some communities struggling to balance conservation with the economic pressures of tourism. This highlights the need for a sustainable tourism model that does not compromise ecological integrity.

REST (2003) describes CBT as an empowering tool that allows communities to retain control over tourism activities. In contrast, Aref and Redzuan (2008) argue that the effectiveness of CBT in empowering communities depends on local leadership and capacity-building. Without these elements, communities may remain dependent on external organizations for tourism management, which undermines true empowerment.

Lossa and Martimort (2008) discuss the positive impact of public-private partnerships (PPP) on CBT, providing communities with access to resources and expertise. However, Selin (1999) suggests that PPPs can sometimes overshadow local interests, where private entities prioritize profit over community welfare. Effective partnerships must balance economic objectives with social and environmental goals to benefit communities sustainably.

Carroll (1992) emphasizes the importance of strong leadership in CBT, particularly in fostering community cohesion and sustainable practices. Aref and Redzuan (2008) argue that leaders must also be skilled in conflict resolution and negotiation to handle diverse stakeholder interests. Inadequate leadership can result in mismanagement, hindering the sustainability of CBT initiatives.

Rith (2010) highlights financial management as a recurring challenge for CBT, with many communities lacking formal accounting practices. Satarat (2010) further points out that financial mismanagement can lead to conflicts and erode community trust in CBT. This underscores the need for financial training and transparent practices to ensure long-term sustainability.

Kontogeorgopoulos (2005) asserts that CBT supports cultural preservation by encouraging locals to maintain and share their heritage. However, as Tuffin (2005) notes, tourism-driven preservation may unintentionally alter local traditions to meet tourist expectations. This tension between preservation and commodification requires CBT practitioners to prioritize authenticity over commercial appeal.

Laing et al. (2009) argue that CBT strengthens local governance by involving communities in decision-making. Nevertheless, Brinkerhoff (2002) cautions that without clear governance structures, CBT can become vulnerable to external pressures and internal conflicts. This suggests that governance in CBT must be structured, inclusive, and adaptable to foster community resilience.

Plummer et al. (2006) highlight the role of CBT in educating tourists and locals on environmental issues. This approach promotes eco-friendly practices and fosters a conservation mindset. However, France (1999) argues that environmental education must be integrated into all CBT activities rather than being an isolated aspect, as its full impact on sustainable tourism depends on widespread adoption within the community.

Satarat (2010) shows that CBT initiatives can significantly enhance local incomes, supporting poverty alleviation in rural communities. Yet, Brinkerhoff (2002) critiques that CBT alone cannot address systemic poverty, especially if other economic

activities are neglected. A holistic approach, integrating CBT with other local economic development strategies, may provide more sustainable poverty alleviation.

Studies by Plummer et al. (2006) indicate that communities with robust CBT frameworks are better prepared for crises, such as economic downturns or environmental changes. However, Laing et al. (2009) note that CBT's resilience largely depends on flexible governance and diversified income sources. This finding emphasizes the need for CBT models that can adapt to crises, protecting community livelihoods and resources.

The existing literature on Community-Based Tourism (CBT) and Community-Based Ecotourism (CBET) highlights numerous benefits, including economic empowerment, environmental conservation, cultural preservation, and community involvement. These literatures indicate the significant potential of community-based ecotourism (CBET) in promoting sustainable economic growth, cultural preservation, and environmental conservation. However, gaps remain in understanding the specific management practices that contribute to the sustainability of CBET initiatives, particularly in rural contexts with limited resources and infrastructure. Additionally, while the importance of community involvement, partnerships, and leadership has been widely acknowledged, there is a lack of detailed studies examining the operational challenges, financial management practices, and strategic planning capacities of CBET communities. The present research addresses the factors that influence its successful management. This study contributes to the broader discourse on CBET by providing insights that can inform future ecotourism models and community development strategies, both within Cambodia and in similar contexts globally.

3. Objectives of the Study

The study has been conducted with the following objectives:

i. To identify the factors that contribute to the successful management of Chambok Community-Based Ecotourism (CBET) in Cambodia.

ii. To analyze how community involvement, environmental conservation, economic viability, and effective governance support sustainable tourism practices.

iii. To assess the role of partnerships, leadership, and monitoring in fostering resilience and sustainability in the Chambok CBET initiative.

iv. To offer insights and practical recommendations that can inform similar community-based ecotourism models in Cambodia and other regions for achieving sustainable development and conservation goals.

4. Research Methodology

The research methodology of this study employed both qualitative and quantitative approaches to gain comprehensive insights into the management and sustainability of Chambok community-based ecotourism (CBET). The methodology consisted of data collection from primary and secondary sources, sample selection, data analysis, and a structured approach to understanding the factors that contribute to the success and challenges of Chambok CBET.

Primary data was collected through field surveys, structured interviews, and direct observations. Thirteen key informants, including community leaders, tourism service providers, and local stakeholders, were selected for in-depth interviews. These interviews were guided by a semi-

structured questionnaire designed to explore management practices, community involvement, environmental conservation measures, and economic benefits associated with CBET. In addition, a survey was conducted among 231 households from six villages within the Chambok community, using a structured questionnaire to assess local perceptions, participation levels, and perceived impacts of ecotourism.

Secondary data was gathered from relevant literature, including government reports, academic journals, publications from the Ministry of Tourism and the Ministry of Environment, and previous research studies on CBET. Documents such as statistics from local administrations, tourism journals, and reports from Mlup Baitong, a non-governmental organization supporting the Chambok community, were also reviewed to provide background information and contextual understanding.

The study used the Yamane formula (1967) to determine an appropriate sample size for the household survey, ensuring statistical validity and representation. A total of 231 households were randomly selected from the Chambok commune to represent the local population's perceptions and involvement in CBET activities. For qualitative interviews, purposive sampling was employed to identify 13 key informants who had in-depth knowledge of Chambok CBET's operations, challenges, and impacts on the community.

Both qualitative and quantitative data analysis methods were utilized to interpret the data collected from the surveys and interviews. For quantitative analysis, tabular representation was used to visually display the data for clearer insights. Qualitative data from interviews and observations were analyzed thematically, focusing on recurring themes related to management community empowerment, and sustainability practices. This approach provided an in-depth understanding of the issues facing Chambok CBET and the factors contributing to its successful management.

5. Results and Discussion of the Study

5.1 About the Study Area

Chambok community-based ecotourism (CBET) is located in Chambok commune, Phnom Sruoch district, Kompong Speu Province, near the boundary of Kirirom National Park, approximately 120 kilometers west of Phnom Penh. Chambok CBET covers an area of 3,351 hectares and consists of six villages.

Due to the lack of public transportation, visitors to Chambok CBET must rely on private vehicles via National Route 4, which takes around 90 minutes from Phnom Penh. Alternatively, the new expressway reduces the travel time to approximately 60 minutes.

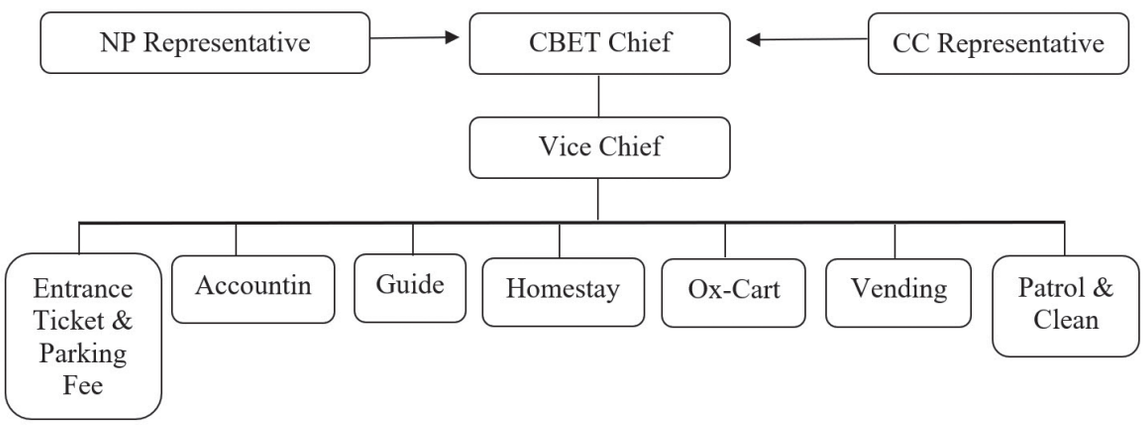
Established in 2000 with support from Mlup Baitong, a local non-governmental organization (NGO), Chambok CBET aimed to conserve the biodiversity of Kirirom National Park while improving the livelihoods of local villagers. In August 2002, the Chambok Commune Development Council, with assistance from Mlup Baitong, signed a two-year agreement with the Ministry of the Environment, granting the community access to 392 hectares of Kirirom National Park for community forestry and ecotourism development. The ecotourism area features a natural forest, a 30-meter waterfall, and various trekking trails.

In 2006, following the end of Mlup Baitong's support, Chambok CBET transitioned to full local management. The community encountered significant challenges during the Covid-19 pandemic, which led to a nearly two-year suspension of operations. However,

activities resumed in October 2022, initially attracting 934 visitors, primarily domestic tourists. From January to September 2023, Chambok CBET welcomed 5,012 tourists, generating over 29 million riels in revenue for the community.

The organization chart of Chambok CBET (Figure 1) indicates a well-structured community-based ecotourism initiative with clear roles and responsibilities. By integrating representatives from local and national bodies and distributing operational tasks among community members, Chambok CBET promotes effective management, community empowerment, and sustainability. This structure supports the CBET's goals of providing a meaningful tourist experience while fostering local economic and environmental benefits.

Figure 1: Organization Chart of Chambok CBET



Chambok CBET provides a range of services for both local and international tourists, including food and beverage services, ox-cart rides, bicycle rentals, homestays, guided tours, village sightseeing, handicraft workshops, and art performances. The homestay program, launched in 2003 with three members, expanded to 32 members by 2009. Currently, around 20 homestays are operational, with numbers fluctuating based on tourist demand. The program operates under a set of rules emphasizing trust, reciprocity, and collective responsibility.

A community-operated restaurant serves Khmer cuisine to tourists daily from morning until evening. Homestay guests are encouraged to dine here. The restaurant employs community members who work on a rotating shift basis, and special dietary requests can be accommodated with advance notice. The average meal costs $4 per person.

An Ox-cart service transports tourists from the village to the waterfall, approximately four kilometers from Chambok pagoda. Only non-polluting vehicles, such as bicycles and ox-carts, are permitted. The ox-cart service, operated by local villagers, charges $10 per ride and accommodates up to four passengers, contributing about 10 percent of the ecotourism income. A portion of the revenue supports the CBET committee. Bicycle rentals are available at $3 per day, with around 10 bicycles in service on weekends. The community is working to develop extended cycling routes to enhance the tourist experience.

Local guides, mainly young villagers, assist tourists with trekking and provide insights into the area's history, culture, and natural environment. Chambok CBET employs

10 guides, five of whom speak English and five who speak Khmer. The rate for English-speaking guides is $20 per day, while Khmer-speaking guides charge $15 per day. Traditional art performances, including local dances organized by primary school students, are offered at $25 per 30-minute show, with proceeds benefiting the performers, instructors, and the school.

Chambok CBET also offers training courses in traditional Khmer cooking and handicrafts. Course fees range from $2 to $3 per person, depending on the activity. Many tourists enjoy learning Khmer cooking, which features a variety of unique ingredients and flavors.

Additional activities include tree planting, camping, and village sightseeing. Tree planting costs $5 per person, and the community assumes responsibility for the trees' upkeep. Camping is available to both local and international tourists, with fees set at $3 per day for international visitors and $1.5 for locals. Village sightseeing, which allows tourists to experience local life, is offered at $2 per person.

Thus, Chambok CBET stands as a model of sustainable community-based ecotourism that not only preserves natural resources but also enhances the livelihoods of local villagers. Through a variety of services, including homestays, guided tours, cultural performances, and environmental activities, Chambok CBET provides tourists with an authentic Cambodian experience while promoting environmental conservation and cultural heritage. Despite the challenges faced, particularly during the Covid-19 pandemic, the community's resilience and commitment to sustainable tourism have enabled Chambok CBET to thrive and contribute positively to the local economy. As a self-sustained ecotourism initiative, Chambok CBET demonstrates the potential of community-led tourism to foster economic, social, and environmental benefits, making it a valuable case study for ecotourism development in similar rural contexts.

5.2 Factors Contributing to the Management of Chambok CBET

There are many factors, such as community involvement and empowerment, environmental conservation, economic viability, effective governance and leadership, partnership and networking, monitoring and evaluation, and visitor management, contributing to the successful management of the community-based ecotourism such as environmental conservation, social equity, and economic benefits. The details are below:

5.2.1 Community Involvement and Empowerment

A significant portion of respondents agrees that community members participate in tourism decision-making, with 40.7 percent agreeing and 12.1 percent strongly agreeing that members help decide on tourism matters. However, there are areas for improvement, as nearly 40 percent neither agree nor disagree, suggesting that decision-making involvement could be strengthened (Table 1).

Similarly, around 41.1 percent agree and 15.6 percent strongly agree that group decisions are based on consensus, indicating that a collaborative approach is valued within the community. Yet, a considerable percentage (38.1 percent) neither agree nor disagree, which could reflect ambivalence or limited active involvement.

In terms of freedom for independent decision-making, 45.9 percent agree and 18.2 percent strongly agree that members are free to make decisions, suggesting a moderately high level of empowerment and autonomy within the community.

Nearly half of the respondents (49.8 percent)

agree that members disseminate information about natural resource conservation, reflecting an emphasis on conservation education within the community. A large proportion (45.9 percent agree, 27.7 percent strongly agree) also believes that members can accurately inform tourists about attractions, indicating good knowledge-sharing and community involvement. A total of 48.5 percent agree and 23.4 percent strongly agree that members are willing to participate in tourism activities, highlighting a strong commitment to CBET.

The table reveals concerns regarding the fairness and transparency of benefit distribution. Only 3.0 percent strongly agree that tourism benefits are fairly distributed, while a majority (52.8 percent) disagree. Similarly, only 1.7 percent strongly agree that profit distribution is transparent, with 56.3 percent disagreeing. These figures indicate dissatisfaction with how benefits and profits are managed, which could be a significant issue affecting community trust and sustainability.

Community involvement in monitoring and evaluating tourism activities is relatively high, with 45.9 percent agreeing that members help monitor activities, and 47.6 percent agreeing they are involved in the evaluation process. However, there is some ambivalence, as about 35.9 percent neither agree nor disagree, suggesting there might be areas for improvement in transparency and participation.

Further, 51.5 percent agree and 23.8 percent strongly agree that the community offers tourism activities that encourage learning between tourists and villagers, indicating a strong emphasis on cultural exchange. Opportunities for interaction between tourists and community members are also supported, with 48.9 percent disagreeing and 34.2 percent neither agreeing nor disagreeing, suggesting some room for improvement.

Moreover, 45.5 percent disagree that local guides provide adequate information on attractions, with only 11.3 percent strongly agreeing, suggesting that training for guides could enhance the visitor experience. Lessons on local products (e.g., basket weaving, local food) are less commonly provided, as 55.8 percent disagree that such activities are available.

A moderate number of respondents (42.4 percent) agree that tourists have opportunities to learn local wisdom and traditions, though the remaining responses indicate mixed views, signaling potential areas for further development.

To conclude, the analysis highlights the community's moderate to strong involvement in decision-making, monitoring, and cultural exchange activities, essential for CBET sustainability. However, dissatisfaction with benefit distribution, transparency, and limited availability of local educational activities and guide training are challenges that need to be addressed to enhance community empowerment and satisfaction (Table 1).

Table 1: Community Involvement and Empowerment

Factors	SD	D	ND	A	SA
Community members help deciding tourism	2 (0.9)	15 (6.5)	92 (39.8)	94 (40.7)	28 (12.1)
Community members help deciding tourism activities for tourists	-	8 (3.5)	78 (33.8)	108 (46.8)	37 (16)

Group decision is based on member's consensus	2 (0.9)	10 (4.3)	88 (38.1)	95 (41.1)	36 (15.6)
Members are free to make their decision independently	-	7 (3.0)	76 (32.9)	106 (45.9)	42 (18.2)
Members disseminate information about natural resource conservation in the community to their relatives, friends, and neighbors	-	7 (3.0)	58 (25.1)	115 (49.8)	51 (22.1)
Members can give accurate information about tourist attractions to the tourists	-	8 (3.5)	53 (22.9)	106 (45.9)	64 (27.7)
Members are willing to participate in assigned tourism activities and responsibilities	-	5 (2.2)	60 (26.0)	112 (48.5)	54 (23.4)
Tourism benefits are fairly distributed	-	10 (4.3)	122 (52.8)	92 (39.8)	7 (3.0)
Tourism profit distribution is transparent and accountable	-	13 (5.6)	130 (56.3)	84 (36.4)	4 (1.7)
Members are satisfied with tourism benefit that they receive	-	13 (5.6)	134 (58.0)	77 (33.3)	7 (3.0)
There is evaluation division, and committees are directly responsible for CBET evaluation	-	1 (0.4)	68 (29.4)	122 (52.8)	40 (17.3)
Members help monitoring tourism activities	-	4 (1.7)	93 (40.3)	106 (45.9)	28 (12.1)
Members are involved in tourism evaluation process	-	5 (2.2)	83 (35.9)	110 (47.6)	33 (14.3)
The community offers tourism activities that encourage learning process between the tourists and local villagers	-	14 (6.1)	43 (18.6)	119 (51.5)	55 (23.8)
The community provides local guides that are able to explain and provide the details of both natural and cultural attractions to the tourists	-	7 (3.0)	105 (45.5)	93 (40.3)	26 (11.3)
The village tour is available for the tourists to learn local ways of living	-	3 (1.3)	72 (31.2)	119 (51.5)	37 (16.0)
The community offers local product lessons to the tourists (i.e., basket weaving, local food, etc.)	-	9 (3.9)	129 (55.8)	76 (32.9)	17 (7.4)
The tourists have opportunities to talk, discuss, and exchange ideas and knowledge with community members	-	2 (0.9)	113 (48.9)	79 (34.2)	37 (16.0)
The tourists have opportunities of being transferred local wisdom and traditional knowledge from local people	-	11 (4.8)	83 (35.9)	98 (42.4)	39 (16.9)

Note:

1. SD = Strongly Disagree; D = Disagree; ND = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree
2. Figures in the parentheses ( ) indicate percentage to the total number of households surveyed.

Source: Own Survey.

5.2.2 Environmental Conservation

Table 2 reveals that a high percentage of respondents (42.4 percent strongly agree, 40.3 percent agree) believe that environmental factors contribute significantly to sustainable CBET management. This suggests a strong community awareness of the importance of environmental conservation in maintaining CBET operations.

CBET has fostered a sense of love and care for the environment among community members, with 52.8 percent agreeing and 15.2 percent strongly agreeing. This sense of responsibility is crucial for community-driven conservation efforts. Approximately 90 percent of respondents (48.5 percent agree, 41.6 percent strongly agree) indicate that CBET has raised awareness of natural resource importance among community members, showcasing the educational impact of CBET on environmental matters.

Systematic waste management is seen as a positive outcome of CBET, with 75.3 percent agreeing and 7.4 percent strongly agreeing. Similarly, 52 percent of respondents agree that CBET has led to systematic wastewater management. These figures highlight CBET's role in improving environmental practices within the community. Some respondents acknowledge negative impacts of CBET, including waste and water issues. A total of 36.4 percent agree and 19 percent strongly agree that CBET creates waste problems. Additionally, 62.8 percent agree that CBET has led to water shortages, and 64.1 percent agree that it has caused wastewater issues, reflecting concerns about resource strain and waste management.

Although deforestation concerns exist, 47.2 percent neither agree nor disagree, while 45 percent agree that deforestation is increasing due to CBET. This suggests a split in perception, with some community members possibly witnessing environmental strain but others not seeing deforestation as a prominent issue. Noise and air pollution are reported as emerging concerns, with 46.8 percent agreeing and 39.8 percent strongly agreeing. This highlights the impact of increased tourist activity on local environmental quality.

Expansion of the community into natural tourist areas is noted by 55 percent of respondents, and 47.6 percent agree that constructions related to CBET damage natural scenery. These findings suggest a potential conflict between tourism development and environmental preservation, as expansions and constructions may threaten natural beauty.

Thus, it is observed that while CBET has positively impacted environmental awareness and encouraged systematic waste management, it has also led to some environmental challenges, such as waste accumulation, water shortages, and potential degradation of natural scenery. These mixed impacts highlight the need for sustainable practices and stricter environmental regulations within CBET to minimize its negative effects while maintaining community involvement in conservation efforts.

Table 2: Environmental Conservation

Factors	SD	D	ND	A	SA
In general, environmental factor contributes to the sustainable CBET management	-	-	40 (17.3)	93 (40.3)	98 (42.4)
CBET creates sense of love and care for natural resource and environment among community members	-	-	74 (32.0)	122 (52.8)	35 (15.2)
CBET increases awareness of natural resources among community members	-	-	23 (10.0)	112 (48.5)	96 (41.6)
Systematic waste management is developed because of CBET	-	-	40 (17.3)	174 (75.3)	17 (7.4)
Systematic wastewater management is developed because of CBET	-	-	84 (36.4)	122 (52.)	25 (10.8)
CBET creates waste problem	-	29 (12.6)	74 (32.0)	84 (36.4)	44 (19.0)
CBET creates water shortage	-	-	47 (20.3)	145 (62.8)	39 (16.9)
CBET creates wastewater problem	-	-	42 (18.2)	148 (64.1)	41 (17.7)
Deforestation is increasing because of CBET	-	4 (1.7)	109 (47.2)	104 (45.0)	14 (6.1)
Noise pollution and air pollution emerge because of CBET	-	-	31 (13.4)	108 (46.8)	92 (39.8)
Community expansion to natural tourist attractions is another problem emerged from CBET	-	-	58 (25.1)	127 (55.0)	46 (19.9)
Natural scenery is damaged by many constructions related to CBET	-	-	41 (17.7)	110 (47.6)	80 (34.6)

Note:

1. SD = Strongly Disagree; D = Disagree; ND = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree
2. Figures in the parentheses ( ) indicate percentage to the total number of households surveyed.

Source: Own Survey.

5.2.3 Economic Viability

As shown in Table 3, a significant portion of respondents (48.9 percent agree and 17.3 percent strongly agree) believe that CBET has improved the economic conditions of local residents, indicating a generally positive perception of CBET's role in enhancing community wealth. Additionally, 43.3 percent agree and 12.6 percent strongly agree that CBET has led to increased household income. However, 40.7 percent disagree, suggesting that while CBET benefits some households, its economic impact is not universally felt across the community.

Regarding opportunities for youth, 45.9

percent agree and 12.6 percent strongly agree that CBET provides additional income for younger community members through tourism-related jobs, underscoring CBET's role in supporting youth employment. While 35.1 percent agree and 10.8 percent strongly agree that CBET has generated new jobs in the community, 50.6 percent neither agree nor disagree, possibly reflecting limited awareness or mixed perceptions regarding job opportunities directly created by CBET.

In terms of overall well-being, 60.2 percent disagree that CBET has significantly improved community well-being, with only 8.2 percent strongly agreeing. This suggests that, despite economic benefits, improvements in overall well-being are less apparent, potentially due to unequal distribution of benefits or external pressures. A substantial 61.9 percent disagree that CBET promotes widespread profit distribution, with only 10 percent strongly agreeing. This finding raises concerns about equitable profit-sharing, hinting that benefits may be concentrated among a few individuals or groups.

Furthermore, 72.7 percent disagree that CBET has fostered additional tourism-related commercial opportunities and services for local people, indicating limited diversification of the local economy. Approximately 64.1 percent neither agree nor disagree that CBET allows local products to be sold at higher prices, though 18.2 percent agree, suggesting that CBET may create market opportunities for some local goods. However, this may not apply consistently across all product types.

Regarding cost of living, 65.4 percent neither agree nor disagree, although 21.6 percent agree that CBET has contributed to higher living expenses, indicating a perception that tourism may lead to inflation in certain goods and services. Similarly, 63.6 percent neither agree nor disagree about rising food prices due to CBET, though 21.2 percent agree that food costs are affected, suggesting that this impact may not be widely recognized across the community.

A large portion of respondents (64.9 percent) disagree that tourism-related businesses are primarily operated by outsiders, suggesting that locals retain control over most tourism enterprises. Additionally, 69.3 percent neither agree nor disagree regarding conflicts with outsiders operating businesses, while 21.6 percent agree, indicating that while some tension exists, it is not a widespread issue. Moreover, 77.1 percent neither agree nor disagree on whether tourism-related shops have caused disorder, with only a minority expressing concerns about community disorganization.

In summary, while CBET is generally perceived to have a positive economic impact by increasing household income and creating jobs, concerns persist regarding equitable profit distribution and the overall impact on community well-being. Although CBET offers economic opportunities, some respondents feel it has led to higher living costs and occasional tension with external business operators. These insights highlight the need for improved profit-sharing mechanisms and strategies to ensure that CBET's economic benefits are more broadly shared within the community.

Table 3: Economic Viability

Factors	SD	D	ND	A	SA

In general, CBET helps to improve the economic condition of the local people	-	10 (4.3)	68 (29.4)	113 (48.9)	40 (17.3)
Household income increase because of CBET	-	8 (3.5)	94 (40.7)	100 (43.3)	29 (12.6)
Younger generation are able to earn additional income from doing tourism-related jobs	-	10 (4.3)	86 (37.2)	106 (45.9)	29 (12.6)
CBET creates many new jobs in the community	-	8 (3.5)	117 (50.6)	81 (35.1)	25 (10.8)
Community have better well-being because of CBET	-	4 (1.7)	139 (60.2)	69 (29.9)	19 (8.2)
CBET encourage wide profit distribution in the community	-	5 (2.2)	143 (61.9)	60 (26.0)	23 (10.0)
There are additional commercial opportunities and services related to tourism available for local people	-	4 (1.7)	168 (72.7)	48 (20.8)	11 (4.8)
Local products can be sold at higher prices	5 (2.2)	26 (11.3)	148 (64.1)	42 (18.2)	10 (4.3)
The overall cost of living is higher because of CBET	5 (2.2)	15 (6.5)	151 (65.4)	50 (21.6)	10 (4.3)
Price of food are higher due to CBET	4 (1.7)	14 (6.1)	147 (63.6)	49 (21.2)	17 (7.4)
Tourism-related business and services are mostly operated by the outsiders	-	10 (4.3)	150 (64.9)	60 (26.0)	11 (4.8)
The operation of tourism business by the outsiders creates conflicts with the community members	2 (0.9)	12 (5.2)	160 (69.3)	50 (21.6)	7 (3.0)
Too many tourism-related shops and sellers create disorder and disorganize in the community	2 (0.9)	18 (7.8)	178 (77.1)	26 (11.3)	7 (3.0)
Tourists face the problems of cheating and fraud	-	25 (10.8)	151 (65.4)	42 (18.2)	13 (5.6)

Note:

1. SD = Strongly Disagree; D = Disagree; ND = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree
2. Figures in the parentheses ( ) indicate percentage to the total number of households surveyed.

Source: Own Survey.

5.2.4 Effective Governance and Leadership

The management and sustainability of Chambok Community-Based Ecotourism (CBET) significantly rely on effective governance and strong leadership. A well-defined governance structure, which includes clearly delineated roles and responsibilities among stakeholders, is essential for creating an environment of accountability, transparency, and collaboration. The organization of the CBET council, including subcommittees responsible for various operational aspects such as finance, guiding, homestay management, and conservation efforts,

demonstrates a commitment to structured management practices. This hierarchical setup, with distinct roles for community leaders and members, allows for efficient decision-making, regulation adherence, and consistent engagement with both internal and external stakeholders.

Leadership within the CBET framework extends beyond mere management and includes fostering a culture of trust, commitment, and collective responsibility. The leadership approach emphasizes community involvement in setting policies and guidelines, which has been instrumental in aligning CBET's goals with the community's long-term development interests. Leaders in Chambok CBET are also tasked with maintaining sustainable ecotourism practices by promoting environmental conservation and responsible tourism behaviors among both residents and visitors. This participatory approach ensures that the economic and social benefits of CBET are equitably distributed across the community, helping to mitigate potential conflicts and encouraging continued support for the ecotourism initiatives.

Moreover, the leaders in Chambok have adapted their strategies in response to external challenges, such as the COVID-19 pandemic, which halted operations and affected tourism revenue. The resilience shown by the leadership during these challenging times highlights the importance of adaptability in governance. After the pandemic, the leadership's focus on re-establishing Chambok CBET and ensuring a smooth transition back to normal operations demonstrated their commitment to long-term sustainability. This adaptive governance model is crucial for handling crises and ensuring that the CBET continues to benefit the local economy, environment, and social fabric.

In summary, effective governance and leadership in Chambok CBET play a pivotal role in fostering a sustainable and resilient ecotourism model. By embedding principles of transparency, community participation, and adaptive management, Chambok CBET exemplifies how strong leadership can drive successful community-based ecotourism initiatives.

5.2.5 Partnerships and Networking

The partnership and networking aspect is a critical factor in the successful management of Chambok Community-Based Ecotourism (CBET), playing a vital role in ensuring the project's sustainability and effective operation. Chambok CBET has established strong partnerships with various stakeholders, including local government agencies, non-governmental organizations (NGOs), academic institutions, and conservation groups. These partnerships facilitate resource sharing, capacity building, and the establishment of effective co-management practices. For instance, partnerships with the Ministry of Environment (MoE) and Mlup Baitong have provided Chambok CBET with essential technical and financial support, especially in the early stages of its development, allowing it to establish infrastructure, develop policies, and implement ecotourism activities aligned with sustainable natural resource management.

Furthermore, networking with external partners has enhanced Chambok CBET's capacity to handle complex conservation and tourism management challenges. Regular interactions with stakeholders from academic and conservation organizations have allowed Chambok CBET to gain valuable insights and technical expertise, aiding in the improvement of its management strategies and policy implementation. These partnerships also enable Chambok CBET

to engage in collective decision-making, ensuring that all stakeholders' interests are considered, which fosters a sense of ownership and accountability among the community members.

Moreover, the collaboration between Chambok CBET and external organizations has led to increased funding opportunities, as demonstrated by successful grant applications for conservation and community development projects. This external funding has been crucial in maintaining and expanding the ecotourism activities, particularly during challenging periods like the COVID-19 pandemic, which required Chambok CBET to pause operations temporarily. The ability to draw on diverse networks has been instrumental in the resilience and recovery of the CBET project, highlighting the importance of sustained partnership and networking as pillars of its management framework.

5.2.6 Monitoring and Evaluation

In the context of Chambok Community-Based Ecotourism (CBET), monitoring and evaluation (M&E) serves as a pivotal factor contributing to its management and sustainability. The implementation of systematic monitoring and evaluation mechanisms enables the community to assess the effectiveness of CBET initiatives, track tourism's impact on the local environment, and ensure that resources are managed responsibly. Monitoring and evaluation are carried out both internally by community members and externally by collaborating organizations, such as Mlup Baitong (MB), which provided initial support and continues to play an advisory role in certain capacities.

The Chambok CBET project employs a multi-tiered approach to M&E, where local staff are tasked with maintaining records of all meetings and keeping essential documents related to CBET operations. These records facilitate transparency and accountability, allowing stakeholders, including donors, to evaluate progress and identify areas for further intervention. Regular evaluations also help the CBET council make informed decisions regarding environmental conservation practices, community engagement, and tourism infrastructure development, which are essential for maintaining the ecological and cultural integrity of Chambok.

MB and other supporting agencies frequently conduct participatory monitoring trips, which involve various stakeholders, including government representatives and community members. This collaborative approach helps maintain a shared understanding of project goals and fosters community ownership of CBET initiatives. The outcomes of these evaluations are often discussed at provincial and national tourism forums, allowing Chambok CBET to showcase its achievements and adapt its strategies based on broader ecotourism trends.

In summary, Chambok CBET's M&E practices are integral to its sustainable management, helping the community to maintain high standards of operation, adapt to changing environmental and economic conditions, and align with national ecotourism policies. Through these efforts, the community ensures that Chambok remains a leading example of sustainable ecotourism in Cambodia.

5.2.7 Visitor Management

Effective visitor management is essential in ensuring that Chambok Community-Based Ecotourism (CBET) achieves its objectives sustainably. By managing the flow and activities of visitors, the community can maintain the area's natural resources and preserve its cultural integrity, which are central to the ecotourism experience. The Chambok CBET implements a visitor management plan that includes zoning

systems, carrying capacity limits, and guided tours, ensuring that the number of visitors aligns with the community's ability to provide a high-quality experience without overburdening its infrastructure or harming the environment. The use of designated trekking paths and restricted access zones minimizes environmental degradation while maximizing visitor engagement with the area's natural beauty.

In addition, visitor management at Chambok CBET is reinforced through comprehensive informational services provided by local guides. These guides, knowledgeable about the area's cultural and ecological significance, offer tourists insights into local conservation practices, cultural traditions, and the natural environment. Such educational elements enhance visitors' understanding of ecotourism principles and foster a sense of respect and responsibility toward the environment.

Moreover, the CBET council has established clear regulations for visitor behavior, emphasizing the preservation of natural resources and respect for community norms. This structured approach to managing visitors helps reduce potential conflicts, ensures that tourism activities align with community values, and enhances the overall sustainability of the ecotourism model.

6. Conclusion and Recommendations

6.1. Conclusion

The Chambok Community-Based Ecotourism (CBET) model demonstrates how community-led tourism can foster sustainable development by balancing environmental conservation, cultural preservation, and economic growth. Through active participation in tourism management, Chambok's residents have achieved economic resilience, enhanced local governance, and strengthened social cohesion. The study underscores the significance of community involvement, effective governance, strategic partnerships, and robust monitoring and evaluation processes as essential factors for the sustainability of CBET. Chambok's approach to ecotourism, marked by a focus on environmental stewardship and visitor management, serves as a replicable model for similar rural communities in Cambodia and beyond.

6.2. Recommendations

The study provides the following recommendations to bolster the sustainability of Chambok CBET and ensure that it continues to provide economic, social, and environmental benefits to the community.

Enhance Training for Local Guides: Improving the training of local guides on ecological and cultural aspects of Chambok can enhance the visitor experience and foster greater appreciation for conservation efforts among tourists.

Improve Benefit Distribution Transparency: Addressing community concerns over fair and transparent profit-sharing can build trust and satisfaction among members, which is essential for the long-term sustainability of CBET.

Develop Additional Local Products and Activities: Introducing more local crafts and food experiences can provide additional income opportunities for residents while enriching the cultural offerings for tourists.

Strengthen Partnerships for Financial and Technical Support: Continued collaboration with NGOs, government bodies, and private sectors can provide the necessary resources for expanding and maintaining CBET operations, particularly in times of economic stress.

Expand Monitoring and Evaluation Mechanisms: Regular assessments

involving all stakeholders can help identify areas for improvement, adapt to changing environmental and market conditions, and align CBET's objectives with national tourism policies.

Promote Community Capacity-Building: Investing in community capacity-building initiatives, especially in areas like financial management and marketing, can empower locals to play a more active role in tourism planning and operations.

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