



Outdoor Recreational Activities in Bali, Indonesia:

The Cultural Landscape Subak as a Respite

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Keywords : greenspaces; terraced paddy landscape; UNESCO World Heritage Site; leisure activities; nature-based interventions; pro-environmental behaviour; mixed methods research; the environmental psychology of landscape architecture; public health; sustainable development goals

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Abstract

While Indonesia faces countless environmental challenges due to the deforestation and exploitation of nature, the terraced rice landscapes of Bali – known as subak – appear to be not only more protected, but also better preserved than the rest of the country’s greenspaces. It is therefore imperative to ponder upon the question of why this discrepancy may be and, in this case, investigate how subak visitors have been using these areas for outdoor recreational activities and thus contribute to greater environmental awareness. This first study of outdoor recreational activities in the cultural landscape subak aims to identify what characterises these activities and describe how these activities connect to sustainable development. The study compiled a quantitative questionnaire answered by fifty-eight respondents, five semi-structured in-depth interviews, and a series of participant observations. Based on quantitative and qualitative analyses, nine characteristics were identified: (1) colours of nature, (2) smells of nature, (3) wide open space, (4) sounds of nature, (5) species richness, (6) distinctive cultural and religious practices, (7) togetherness, (8) protection, as well as (9) affordability. The study described the positive and negative connections between outdoor recreational activities in the cultural landscape subak with the 2030 Agenda for Sustainable Development, particularly on SDG 3 Good Health and Well-Being, SDG 11 Sustainable Cities and Communities, and SDG 12 Responsible Consumption and Production. The results of the study revealed that (1) outdoor recreational activities in the subak areas have yielded benefits, namely improved cognitive and social skills, as well as an enhanced state of health and well-being, (2) the role of the subak areas in facilitating outdoor recreational activities has shown cognitive, emotional, and behavioural changes in the study participants, and (3) outdoor recreational activities in the subak areas have fostered a more environmentally conscious mindset that helps improve human health and well-being. Above all, the study emphasises a new environmental mindset, whereby there is a genuine desire to preserve/conservate the subak environment and to achieve the Sustainable Development Goals (SDGs) within the framework of this study. Overall, the mixed methods analysis applied in the study provided new transcendent perspectives that in future research can form the starting point for emphasising outdoor recreational activities with characteristics that can improve health and well-being. In summary, such research can both inspire change as well as usher in concrete actions and solutions to address environmental threats to the cultural landscape subak – which is also a UNESCO World Heritage Site.

Keywords: greenspaces; terraced paddy landscape; UNESCO World Heritage Site; leisure activities; nature-based interventions; pro-environmental behaviour; mixed methods research; the environmental psychology of landscape architecture; public health; sustainable development goals

Sammanfattning

Medan Indonesien står inför otaliga miljöutmaningar på grund av avskogningen och exploateringen av naturen, så verkar de terrasserade rislandskapen på Bali – så kallade subak – inte bara vara mer skyddade, utan också bättre bevarade än de övriga grönområdena i landet. Det är därför nödvändigt att fundera över vad denna diskrepans kan bero på och, i detta fall, undersöka hur subak-besökare har använt dessa områden för friluftaktiviteter, vilket bidrar till ett större miljömedvetande. Denna första studie av friluftaktiviteter i kulturlandskapet subak syftar till att identifiera vad som kännetecknar dessa aktiviteter och beskriva hur de kan kopplas till hållbar utveckling. Studien sammanställde ett kvantitativt frågeformulär besvarat av femtioåtta respondenter, fem semistrukturerade djupintervjuer och en serie deltagarobservationer. Baserat på kvantitativa och kvalitativa analyser så identifierades nio egenskaper: (1) naturens färger, (2) naturdofter, (3) vidöppen yta, (4) naturljud, (5) artrikedom, (6) särpräglade kulturella och religiösa sedvänjor, (7) samhörighet, (8) skydd och (9) överkomliga priser. Studien beskrev de positiva och negativa kopplingarna mellan friluftaktiviteterna i kulturlandskapet subak med Agenda 2030 och de globala målen för hållbar utveckling, särskilt Mål 3: god hälsa och välbefinnande, Mål 11: hållbara städer och samhällen och Mål 12: hållbar konsumtion och produktion. Resultaten av studien avslöjade att (1) friluftaktiviteter i subakområdena har gett fördelar i form av förbättrade kognitiva och sociala färdigheter, samt ett förbättrat tillstånd av hälsa och välbefinnande, (2) subakområdenas roll för att utöva fritidsaktiviteterna har uppvisat kognitiva, emotionella och beteendemässiga förändringar hos studiedeltagarna och (3) friluftaktiviteter i subakområdena har främjat ett mer miljömedvetet tänkande som hjälper till att förbättra människors hälsa och välbefinnande. Framförallt poängterar studien på ett nytt miljötank, varvid det finns en genuin vilja att bevara subak-miljön samt att uppnå globala målen för hållbar utveckling inom ramen för denna studie. Sammantaget gav den blandade metodanalysen som tillämpades i studien nya transcendent perspektiv som i framtida forskning kan utgöra utgångspunkten för att betona friluftaktiviteternas egenskaper som kan förbättra hälsa och välbefinnande. Sammanfattningsvis kan sådan forskning både inspirera till förändring och leda till konkreta handlingar och lösningar för att bemöta miljöhot mot kulturlandskapet subak – som också är ett Unescos Världsarv.

Nyckelord: grönområden; terrasserade rislandskap; Unescos världsarvslista; fritidsaktiviteter; naturbaserade interventioner; miljövänligt beteende; forskning om blandade metoder; landskapsarkitekturens miljöpsykologi; folkhälsa; globala målen för hållbar utveckling

Abstrak

Sementara Indonesia menghadapi banyak tantangan lingkungan akibat deforestasi dan eksploitasi alam, lanskap sawah terasering di Bali – yang dikenal sebagai subak – tampaknya tidak hanya lebih terlindungi, tetapi juga lebih terpelihara daripada ruang terbuka hijau (RTH) lainnya di negara ini. Oleh karena itu penting untuk merenungkan pertanyaan mengapa perbedaan ini bisa terjadi dan, dalam hal ini, menyelidiki bagaimana pengunjung subak telah menggunakan area ini untuk aktivitas-aktivitas rekreasi di ruang terbuka dan dengan demikian berkontribusi pada kesadaran lingkungan yang lebih besar. Studi pertama tentang aktivitas-aktivitas rekreasi di ruang terbuka di lanskap budaya subak ini bertujuan untuk mengidentifikasi apa yang menjadi karakteristik aktivitas-aktivitas tersebut dan menjelaskan bagaimana aktivitas-aktivitas tersebut terhubung dengan pembangunan berkelanjutan. Studi ini mengompilasi kuesioner kuantitatif yang dijawab oleh 58 responden, 5 wawancara mendalam semi-terstruktur, dan serangkaian observasi partisipan. Berdasarkan analisis kuantitatif dan kualitatif, 9 karakteristik teridentifikasi: (1) warna alam, (2) bau alam, (3) ruang terbuka yang luas, (4) suara alam, (5) kekayaan spesies, (6) praktik budaya dan agama yang khas, (7) kebersamaan, (8) perlindungan, serta (9) keterjangkauan harga. Studi ini menjelaskan hubungan positif dan negatif antara aktivitas-aktivitas rekreasi di ruang terbuka di lanskap budaya subak dengan Agenda 2030 untuk Pembangunan Berkelanjutan, khususnya pada Tujuan 3: Kesehatan yang Baik dan Kesejahteraan, Tujuan 11: Kota dan Komunitas yang Berkelanjutan, dan Tujuan 12: Konsumsi dan Produksi yang Bertanggung Jawab. Hasil studi ini menemukan bahwa (1) aktivitas-aktivitas rekreasi di ruang terbuka di kawasan subak telah memberikan manfaat, yaitu penambahan keterampilan kognitif dan sosial, serta peningkatan kondisi kesehatan dan kesejahteraan, (2) peran kawasan subak dalam memfasilitasi aktivitas-aktivitas rekreasi di ruang terbuka telah menunjukkan perubahan kognitif, emosional, dan perilaku pada peserta studi, dan (3) aktivitas-aktivitas rekreasi di ruang terbuka di kawasan subak telah menumbuhkan pola pikir yang lebih sadar lingkungan yang membantu meningkatkan kesehatan dan kesejahteraan manusia. Lebih dari segalanya, studi ini menekankan pada pola pikir lingkungan baru, di mana ada keinginan yang tulus untuk melestarikan lingkungan subak dan untuk mencapai Tujuan Pembangunan Berkelanjutan (TPB) dalam konteks studi ini. Secara keseluruhan, analisis metode campuran yang diterapkan dalam studi ini memberikan perspektif transenden baru yang dalam penelitian masa depan dapat menjadi titik awal untuk menekankan aktivitas-aktivitas rekreasi di ruang terbuka dengan karakteristik yang dapat meningkatkan kesehatan dan kesejahteraan. Singkatnya, penelitian semacam itu dapat menginspirasi perubahan serta mengantarkan tindakan dan solusi nyata untuk mengatasi ancaman lingkungan terhadap lanskap budaya subak – yang juga merupakan Situs Warisan Dunia UNESCO.

Kata kunci: ruang terbuka hijau; lanskap sawah bertingkat; Situs Warisan Dunia UNESCO; aktivitas santai; intervensi berbasis alam; perilaku pro-lingkungan; penelitian metode campuran; psikologi lingkungan arsitektur lanskap; kesehatan masyarakat; tujuan pembangunan berkelanjutan

논문 개요

인도네시아는 삼림 벌채와 자연 착취로 인해 수많은 환경 문제에 직면해 있지만 수박(subak)으로 알려진 발리의 계단식 논 풍경은 국가의 다른 녹지보다 더 잘 보호될 뿐만 아니라 더 잘 보존된 것으로 보인다. 따라서 이러한 불일치가 발생하는 이유에 대해 숙고하고, 이 경우 수박 방문객들이 자연친화적 야외활동을 위해 이 지역을 어떻게 사용하여 환경 인식 향상에 기여했는지 조사하는 것이 필수적이다.

문화 경관 수박에서의 자연친화적 야외활동에 대한 이 첫 번째 연구는 이러한 활동의 특징을 식별하고 이러한 활동이 지속 가능한 개발과 어떻게 연결되는지 설명하는 것을 목표로 하였다. 이 연구에서는 58 명의 관심 참여자가 응답한 정량적 설문지를 통해, 5 건의 반구조화된 심층 인터뷰 및 일련의 참가자 관찰이 하였다.

양적 및 질적 분석을 기반으로 (1) 자연의 색상, (2) 자연의 냄새, (3) 넓은 열린 공간, (4) 자연의 소리, (5) 종의 풍부함, (6) 독특한 문화 및 종교 관행, (7) 공생, (8) 보호 및 (9) 경제성의 9 가지 특성을 식별하였다. 이 연구는 특히 SDG 3 건강과 복지(Good Health and Well-Being), SDG 11 지속가능한 도시 및 거주지 조성(Sustainable Cities and Communities), SDG 12 책임 있는 소비와 생산(Responsible Consumption and Production)에 관한 지속 가능한 개발을 위한 2030 의제와 문화 경관 수박에서의 야외 레크리에이션 활동 사이의 긍정적 및 부정적 연관성을 설명했습니다.

결과 연구:

- (1) 수박 지역의 자연친화적 야외활동은 인지 개선과 사회적 기술의 향상뿐만 아니라, 건강과 웰빙이 증진된 상태를 나타내었다.
- (2) 수박 지역의 역할- 자연친화적 야외활동을 촉진하는 것은 연구 참가자의 인지, 감정 및 행동 변화를 보여주었다.
- (3) 수박 지역의 자연친화적 야외활동은 인간의 건강과 웰빙을 개선하는 데 도움이 되는 보다 환경 의식적인 사고 방식을 육성하였다. 무엇보다 본 연구는 본 연구의 틀 내에서 수박 환경을 보존하고 지속가능발전목표(SDGs:Sustainable Development Goals)를 달성하고자 하는 진정한 열망이 있는 새로운 환경적 사고방식을 강조한다.

전반적으로 이 연구에 적용된 혼합 방법 분석은 향후의 관련된 연구에서 건강과 웰빙을 향상시킬 수 있는 특성을 지닌 자연친화적 야외 활동을 강조하는 출발점이 될 수 있다는 새로운 초월적 관점을 제공했다. 요약하면, 그러한 연구는 변화를 불러일으키고 유네스코 세계 문화 유산이기도 한 수박 문화 경관에 대한 환경 위협을 해결하기 위한 구체적인 행동과 해결책을 제시할 수 있다.

핵심어: 녹색 공간; 계단식 논 풍경; 유네스코 세계 문화 유산; 자연친화적 야외활동; 자연 기반 개입; 친환경 행동; 혼합 방법 연구; 풍경 건축의 환경 심리학; 공중 위생; 지속가능발전목표

Dedicated to the memory of

my maternal grandmother

emak Lidya Wulandari (Lie Sek Nio)

R.I.P. on the 16th of January 2017, aged 87,

my paternal grandmother

omah Nani Suryani

R.I.P. on the 13th of March 2017, aged 87,

my maternal grandfather

engkong Wiryanto Suryo (Sie Wie Seng)

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List of Abbreviations

CAB	Catur Angga Batukaru – part of the cultural landscape subak of Bali Province which is also the largest subak in the world
ha	hectare(s)
IDR	Indonesian Rupiah – the official currency of the Republic of Indonesia
I.P. address	Internet Protocol address
KTR	Non-Smoking Zones (in Indonesian: <i>Kawasan Tanpa Rokok</i>)
MFS	Minor Field Studies – a scholarship funded by the Swedish International Development Cooperation Agency to undertake fieldwork in a developing country
MM	Mixed Methods
MMR	Mixed Methods Research
NBIs	Nature-Based Interventions
NBT	Nature-Based Therapy
PEB	Pro-Environmental Behaviour
PET	Polyethylene terephthalate – the chemical name for polyester
PRS	Perceived Restorativeness Scale
PSDs	Perceived Sensory Dimensions
RQ	Research Question
SDGs	Sustainable Development Goals
SDG 3	Sustainable Development Goal 3: Good Health and Well-Being
SDG 11	Sustainable Development Goal 11: Sustainable Cities and Communities
SDG 12	Sustainable Development Goal 12: Responsible Consumption and Production
SEK	Swedish Krona – the official currency of the Kingdom of Sweden
Sida	Swedish International Development Cooperation Agency (in Swedish: <i>Styrelsen för internationellt</i>

	<i>utvecklingsamarbete</i>) – a government agency under the Ministry of Foreign Affairs of the Kingdom of Sweden
SLU	Swedish University of Agricultural Sciences (in Swedish: <i>Sveriges lantbruksuniversitet</i>)
SPSS	Statistical Product and Service Solutions – software for statistical analysis
TA	Thematic Analysis
THK	Tri Hita Karana philosophy – the three causes of happiness and prosperity, referring to harmony with God, among people, and with nature/environment
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
VPN	Virtual Private Network
WWF	World Wildlife Fund

“People who cannot find time for recreation are obliged sooner or later to find time for illness.”

– John Wanamaker, merchant and former U.S. postmaster general

Chapter 1. Introduction

Situated in a luscious, terraced area of copious paddy fields, and squeezed between steep mountain ranges, lies the many subak landscapes of the Bali Island in Indonesia. Since its naissance in the eleventh century, the subak has been used as an irrigation and water management system of paddy fields surrounded by greenspaces, supporting its own unique ecology of providing semi-aquatic crops to the densely populated Balinese. For the zealot Hindu practitioners that make up the majority of the Balinese, the landscape has thus carried religious importance embodied in the Tri Hita Karana philosophy (henceforth THK) – a concept of life in synergy with nature. The subak has also functioned as a place for recreation and relaxation (Indonesian Archipelago Cultural Initiatives, 2018). Various outdoor recreational activities conducted in the subak areas have indeed attracted not only the locals but also domestic and international tourists. In short, the subak serves a multitude of purposes – may it be religious, recreational, or as a quintessential part of daily livelihood. It should also be pointed out that the practice of cultivating the subak landscape only exists in Bali (Satria, 2019; UNESCO, 2012a).

Because of its intrinsic value to Bali throughout the centuries up until current day, the subak is still revered as a unique, natural place for relaxation and recreation. Studies have shown that greenspaces improve public health, mainly reducing stress through exposure to nature (Cohen et al., 2014), and through physical activities in natural environments, individuals have shown significant reductions of distress (Davis, 1998; Hanna et al., 2019). It is not hard to imagine why subak visitors – not only the locals but also domestic and international ones – have been fascinated by the rich environment of the subak, especially since it forms the very bedrock of life on the island. One might even say that the subak mimics an imaginary utopia described only in legends and fairy tales. It is one of the many things that makes Bali truly magical.

Growing up in Indonesia, I have always found great comfort in the fact that the cultural landscape subak has withstood the test of time. Before this study, I myself have visited the landscape several times and I have always pondered upon the question of how it has survived throughout the centuries. Even so, how can it continue to thrive, in spite of climate change and natural disasters that plague our Earth? As part of Indonesia’s cultural heritage, the Subak Museum was inaugurated

in 1981 in the Sanggulan Village, Bali (Museum Subak, 2013) and in 2012 the cultural landscape subak was added to the World Heritage List (UNESCO, 2012a). Seemingly, there is an interest in preserving the subak as it has been cultivated and utilised throughout history. Coming to terms with the impending doom of climate disasters, such as warmer temperatures and deforestation, public health and well-being may show a relevant link when discussing future preservation and how to protect the subak in face of these threats. Therefore, this study aspires to provide some answers. As a researcher of this study, I feel compelled to encapsulate a bit of that intrinsic magic that makes the subak truly unique. The subak just works as a concept. Because of its numerous purposes, it still proves itself invaluable, not only to the Balinese but also to everyone who would like to take a comforting walk in its lush splendour. This is precisely what makes the subak landscape so enchanting and worthwhile to study.

This chapter introduces this research project that focuses on the outdoor recreational activities of the cultural landscape subak and how they connect to sustainable development. Section 1.1 encapsulates the problem statement of this study. Section 1.2 describes the aims and questions of this study. Section 1.3 provides the context and theoretical background for this study. Section 1.4 identifies the limitations of this study. Section 1.5 presents the disposition of the remaining chapters.

1.1 Problem Statement

Indonesia faces many issues concerning the preservation of greenspaces in the future. While the country covers one of the largest forest areas in the world (Shahbandeh, 2020), poor management, human negligence (United Nations Environment Programme, 2008), as well as a steadily growing and more densely habiting population (United Nations Population Division, 2019) have proven to decrease these areas at an alarming speed. As a result of illegal logging (United Nations Environment Programme, 2008) and fires (Putri, 2021), greenspaces are put at constant risk. At the same time, Indonesia is expected to become the fourth most populous country in the world by 2050, with a staggering 331 million people (United Nations Population Division, 2019). As Indonesia grows larger, its greenspaces continue to lessen, which can effectively have a major impact on human health and well-being, increase environmental-related risks, and thereby inflict more health and well-being problems. The law to protect and manage the environment is already stated in the Environmental Protection and Management Law, Law No. 32/2009 (Ministry of Environment and Forestry of the Republic of Indonesia, 2009). Nonetheless, the enforcement of this environmental law has many obstacles due to the high level of corruption, as well as the lack of a sense of

belonging to the environment and knowledge about sustainability (Wibisana & Fajrini, 2019). Bali and its subak areas, however, present somewhat of an anomaly compared to Indonesia at large. Bali itself has a unique tradition when it comes to nature as it is deeply embedded in its belief system. While the rest of Indonesia has the majority of Muslims, 86.91% of Balinese people practice Hinduism (Ministry of Religious Affairs of the Republic of Indonesia, 2021). As a result, the Balinese wholeheartedly practice the Hindu philosophy of THK, which means ‘the three causes of happiness and prosperity’ referring to harmony with God, harmony among people, and harmony with nature or environment (Indonesian Archipelago Cultural Initiatives, 2018; UNESCO, 2012a). The philosophy is not about the single relationships with God, human, and nature, but rather “the interaction and balance between these relationships” (Peters & Wardana, 2013, p. 83). In the view of the locals, the manifestation of this philosophy is the subak, and is thus considered as a concept of life for the Balinese people themselves (UNESCO, 2012a). While the subak areas are threatened with extinction due to residential development, awareness about their preservation has been highlighted by the UNESCO and the Balinese government (World Agroforestry, 2013). This seems fruitful as research in 2013 showed that the subak areas decreased by 1,000 ha each year (Lansing as cited in World Agroforestry, 2013), whereas in 2019 ‘only’ 800 ha (Geria et al., 2019).

The performance of outdoor recreational activities, namely how it improves health and well-being and has a strong connection with sustainable development, has been demonstrated through numerous investigations. However, previous studies on outdoor recreational activities in the cultural landscape subak could not be found despite my fluency in several languages, including the Indonesian language. Therefore, knowledge about how outdoor recreational activities in the cultural landscape subak related to human health and well-being, in general, is still lacking. Furthermore, there are no guidelines nor action plans on the cultural landscape subak in relation to the relevant Sustainable Development Goals (henceforth SDGs) in the currently available technical guidelines (see Ministry of National Development Planning of the Republic of Indonesia, 2020) and study of indicators (see Statistics Indonesia, 2014) for the preparation of action plans in Indonesia to achieve SDGs. Consequently, further research is needed on the outdoor recreational activities of the cultural landscape subak and how they connect to sustainable development. This can provide a starting point for emphasising outdoor recreational activities with characteristics that can improve health and well-being, as well as inspire change and usher in concrete actions and solutions to address threats to the cultural landscape subak. In addition to contributing to modern techniques of sustainable land use, the protection of cultural landscapes can also maintain or enhance natural values in the landscape, which can help maintain biodiversity (International Union for Conservation of Nature, 2014).

1.2 Aims and Questions of the Study

The overarching aims of this project are to investigate the characteristics of outdoor recreational activities in the cultural landscape subak and how outdoor recreational activities in the cultural landscape subak connect to sustainable development.

The research questions for this study are:

1. What characterises outdoor recreational activities in the cultural landscape subak? (henceforth RQ1)
2. How do outdoor recreational activities in the cultural landscape subak connect to sustainable development? (henceforth RQ2)

1.3 Context and Theoretical Background

The section builds the connection between the concepts of greenspaces for public health from an environmental psychology perspective, sustainability in environmental psychology, greenspaces as restorative environments, outdoor recreational activities in nature as salutogenic experiences, and Nature-Based Therapy (henceforth NBT) and Nature-Based Interventions (henceforth NBIs), as well as describes the context of the cultural landscape subak itself.

1.3.1 Greenspaces for Public Health

Greenspaces may improve public health by increasing social interaction and reducing stress through exposure to nature (Cohen et al., 2014). It is critical that greenspaces render a variety of functions as different groups of people have different health needs (American Planning Association, 2003). This should be the case for the cultural landscape subak as well. People from different backgrounds, i.e., age, socioeconomic, and ethnic, may have different traditions in physical activity – in this case, outdoor recreational activities – and attitudes towards natural settings. Public greenspaces such as the cultural landscape subak serve as an affordable means to healthy activities, especially for economically disadvantaged people.

1.3.2 Sustainability in Environmental Psychology

Although the topic of sustainability represents a new area of research within psychology itself, key research areas linked to sustainability efforts have been suggested to include investigations to understand how to improve our relationship with nature (Di Fabio & Kenny, 2021). The field of environmental psychology boosts health and well-being as well as promotes sustainable behaviour by helping people develop bonds with nature. Addressing sustainability issues in the field of

environmental psychology means tackling perspectives that are exclusively based on the ecology and socio-economic environment, thereby seeking to improve human health and well-being through our relationship with the environment. A more profound appreciation for nature is empowered by reconnections with nature, possibly permitting convalescence for the well-being of the participants and the physical environment itself, which likewise offers the place potential for sustainable practice (Davis, 1998). We “are at the centre of concerns for sustainable development” and are therefore “entitled to a healthy and productive life in harmony with nature” (United Nations Conference on Environment and Development, 1992, p. 1).

Among the 17 goals in the 2030 Agenda, SDG 3 Good Health and Well-Being, SDG 11 Sustainable Cities and Communities, and SDG 12 Responsible Consumption and Production are the most relevant to the context of this study. According to the United Nations General Assembly (2015), the overarching goal of SDG 3 is to “ensure healthy lives and promote well-being for all at all ages” (p. 16), SDG 11 to “make cities and human settlements inclusive, safe, resilient and sustainable” – with one of the targets in particular being underlined to “provide universal access to safe, inclusive, and accessible green and public spaces” (pp. 21–22), as well as SDG 12 to “ensure sustainable consumption and production patterns” (p. 22).

1.3.3 Greenspaces as Restorative Environments

Studies in environmental psychology have shown the significance of greenspaces for human health and well-being. People with a stronger connection with greenspaces are less likely to experience depression, stress, and anxiety, regardless of the duration of their nature dose, i.e., the duration spent in nature (Oh et al., 2021). Other benefits include that stress is reduced (Ulrich, 1984; Ulrich et al., 1991) and general well-being is enhanced (Grahn & Stigsdotter, 2003). Exposure to greenspaces is also linked to various positive impacts on the immune system, cardiovascular functions, and mental health (Oh et al., 2017). Spending time in greenspaces is revealed to increase happiness and reduce negative emotions (White et al., 2013), improve sleep quality and reduce stress (Cohen et al., 2014; Grigsby-Toussaint et al., 2015), promote positive social interactions (Orban et al., 2017), contribute to feelings of freedom and restoration (Pálsdóttir et al., 2022), and help generate a sense of meaning in life (O’Brien et al., 2011).

1.3.4 Outdoor Recreational Activities in Nature as Salutogenic Experiences

Various studies have demonstrated the benefits of sensory experiences and outdoor recreational activities in greenspaces for health and well-being (Franco et al., 2017; O’Brien et al., 2021). All this evidence suggests that outdoor recreational activities

in nature are not only an important component of healthy living but also “a remedy against the deficiencies of a modern life separated from nature” (Bell et al., 2007, p. 21). Despite all this, many other studies still refer to outdoor recreational activities as merely leisure activities as if these activities are not part of NBT (Davidson & Stebbins, 2011; Mackenbach et al., 2018). We need to acknowledge that these activities in nature are part of NBT which have indeed been proven to run parallel to the development of the concept of global health which is no longer focused solely on “the absence of disease or infirmity” but rather on “a state of complete physical, mental, and social well-being” (World Health Organization, 1948, p. 1). It is no longer acceptable to use a biomedical health model that only treats illness or disease separately from person and place (Baum, 2016; Farre & Rapley, 2017; Marmot & Wilkinson, 2006; Murphy, 2004), which suggests that models that also incorporate social and environmental contexts are more appropriate.

1.3.5 Nature-Based Therapy and Nature-Based Interventions

Any form of outdoor recreational activity in relation to human health and well-being falls under the overarching umbrella term *nature-based therapy*. It is the practice of utilising nature as a facilitator for therapeutic treatment and recovery (Corazon et al., 2010), which shares the same theoretical foundations as traditional occupational therapies, but further emphasises the patient’s relationship and connection with nature (Finnie et al., 2022; Rosa et al., 2019). NBTs have been demonstrated to benefit the physical, psychological, and social well-being of different patient cohorts (Annerstedt & Währborg, 2011) and offer the option of receiving mental health support in a nature that can reframe clinical approaches to mental health consumers (Tambyah et al., 2022). As the study population in this research has not been prescribed NBT-related activities in the cultural landscape subak per se, the more fitting term to describe their outdoor recreational activities will be assigned as *nature-based interventions*. NBIs emphasise the same concept as NBT: synergy with nature and its utilisation for recreational activities such as “horticulture-based activities, being in natural environments, and engaging in nature-related crafts or green exercise” (Bonham-Corcoran et al., 2022, p.16). NBIs can therefore be defined more casually as it does not require an entirely “structured promotion of nature-based experiences” (Shanahan et al., 2019, p. 2).

1.3.6 Cultural Landscape Subak

The cultural landscape subak is a manifestation of the THK philosophy of Hinduism that has shaped the landscape of Bali for more than 2,000 years. Officially named *the Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy*, this site was enlisted as a UNESCO World

Heritage Site on the 6th of July 2012 (UNESCO, 2012a). It consists of five rice terraces and their water temples that cover 19,500 ha, including the Subak Landscape of Catur Angga Batukaru (henceforth CAB). These water temples are the central point of a collective water management system of canals and weirs, known as subak. Due to its powerful cultural, religious, and artistic associations of the natural element, the subak landscape is categorised as an *associative cultural landscape* (UNESCO, 2012a, 2012b). In the following subsections, these associations are further clarified as some of the terminologies are used in the next chapters.

1.3.6.1 *Subak as an Irrigation System*

Subak in theory is a social organisation that specifically regulates the traditional irrigation system used in rice cultivation in Bali (Lansing, 2006). This ecologically sustainable system began to exist and developed under the influence of strong Hindu religious values, which made the farming community in Bali have a harmonious relationship with nature in order to achieve optimal yields. The subak system is a self-subsistent community that functions to regulate the distribution of continuous irrigation flows – called *tektek* – that irrigate each rice field area. The membership of each subak institution consists of “all the farmers who owned land watered by a common source, such as a spring or tertiary canal” (Lansing, 2006, p. 47). This irrigation system is essential because “tunnels and canals proliferated on the slopes of the volcanoes” in Bali causing the acute problem of water sharing among the subaks (Lansing, 2006, p. 48). Managed by *pekaseh* – a traditional Balinese leader who is also a Balinese farmer – this irrigation system is managed in groups and tiers accompanied by the division of specific roles for each member (Windia et al., 2015). The *pekaseh* is tasked with leading subak meetings, regulating water distribution, establishing *awig-awig* – the subak regulations, arranging religious ceremonies related to the subak, handling conflicts or disputes if any, and coordinating with other parties, i.e., institutions, at the village and sub-district levels so that the subak can carry out their role well. There is also a *pangliman* – the vice chair of a *pekaseh*, *penyarikan* – a secretary, and *petengan* – a treasurer. A fairly large subak area, such as the Subak Landscape of CAB, is divided into smaller areas, called *tempek* – also known as *munduk* or *empelan*, since it is more difficult to organise. Each *tempek* is led by a *kelian*, who is assisted by a *kesinoman* – also known as *juru arah*, to help convey information to all *krama* – the subak members – and ensure that decisions agreed upon in the subak meetings are implemented accordingly.

1.3.6.2 *Subak as a Religious Practice*

With the THK philosophy as a way of life, Balinese people carry out religious activities and daily rituals all over the subak landscape, as these practices are

considered significant elements influencing water irrigation and rice cultivation (Peters & Wardana, 2013). Regardless of which religious ceremonies and rituals are conducted by the Balinese, visiting *palinggih* – the Balinese altars of worship for the patron gods of agriculture – and giving offerings are always parts of their daily life. The two most important ones are the *canang sari* offerings and Dewi Sri. The *canang sari* offerings (see Figure 1.1) can be easily seen every day across the cultural landscape subak. These daily offerings show gratitude of the Balinese to the Sang Hyang Widhi Wasa – the Supreme God of Balinese Hinduism – in praise and prayer (Ariasa, 2019). These offerings contain colourful, meaningful flowers placed on small square or round trays made of lontar leaves (*Borassus flabellifer*). There are always four colours of flowers; each colour is placed in a specific direction. The white or pink ones pointing to the east are the symbol of Ishvara, one of the primary forms of God. The red ones pointing to the south are the symbol of Brahma, a Hindu god regarded as the creator of the universe. The yellow ones pointing to the west are the symbol of Mahadeva, also known as Shiva, the god of destruction. The blue, green, purple, or black ones pointing to the north are the symbol of Vishnu, the god of preservation. These offerings can be placed in various places, such as the altars or even on the ground in rice fields (see Figure 1.3). Also part of the religious ceremonies and rituals, the goddess of rice, prosperity, and fertility Dewi Sri – also known as Lakshmi or Shri – is one of the key goddesses in Hinduism, depicted by an effigy called *cili* (Peters & Wardana, 2013). As decorations that symbolise Dewi Sri, the *cili* (see Figure 1.2) is usually woven from the same material used to create the *canang sari* tray – the lontar-palm leaves. It is indeed a normal sight to see Balinese farmers place *cili* in the altars in many areas all over the cultural landscape subak (see Figure 1.3) as they expect the goddess to ward off poverty, famine, pests, and even death.



Figure 1.1 Canang sari offerings all over subak CAB.



Figure 1.2 Never the same: variation in cili figures. (Brinkgreve, 2016)



Figure 1.3 Canang sari offerings and cili on palinggih all over subak CAB.

1.3.6.3 Subak as a Place

From the earlier descriptions of what the cultural landscape subak is, it is clear that the subak is also defined as a place. Having layers of terraced paddy fields, coupled with a picturesque natural panorama, makes any subak not only offers a unique natural sightseeing sensation but also an artistic view. Some of the most popular subaks in Bali that offer various outdoor recreational activities are Tegallalang Rice Terraces, Sidemen Rice Terraces, Canggu Rice Paddies, Rice Terraces Munduk, Belimbing Rice Terraces, Pupuan Rice Terraces, and Jatiluwih Rice Terraces (Bali Guide, 2021; Gunadi, n.d.; Jalan Melali, 2021; Omnivagant, 2019). As shown in Figure 1.4 to Figure 1.10, no subak has the same view.



Figure 1.4 Tegallalang Rice Terraces in Gianyar Regency, Bali. (Drew, 2005) <https://bit.ly/3d9TDJF>



Figure 1.5 Sidemen Rice Terraces in Karangasem Regency, Bali. (Ivan Pranovitch, 2022) <https://bit.ly/3QwdbXd>



Figure 1.6 Canggu Rice Paddies in Badung Regency, Bali. (Omnivagant, 2019) <https://bit.ly/3QhFsRF>



Figure 1.7 Rice Terraces Munduk in Buleleng Regency, Bali. (Muthuraja S, 2022) <https://bit.ly/3p8bTpx>



Figure 1.8 Belimbing Rice Terraces in Pupuan District of Tabanan Regency, Bali. (Putu Agus Y, 2019) <https://bit.ly/3zMpXdj>



Figure 1.9 Pupuan Rice Terraces in Selemadeg District of Tabanan Regency, Bali. (Garasi 111, 2021) <https://bit.ly/3AcHWuV>

The last aforementioned subak, Jatiluwih Rice Terraces (see Figure 1.10), is the one directly relevant to the fieldwork of this study, which is discussed further in Section 2.2 of Chapter 2.



Figure 1.10 Jatiluwih Rice Terraces in Penebel District of Tabanan Regency, Bali.

Figure 1.11 shows the five main locations of the Cultural Landscape Subak of Bali Province and the locations of the aforementioned subaks, with numbers in orange and pink circles respectively.

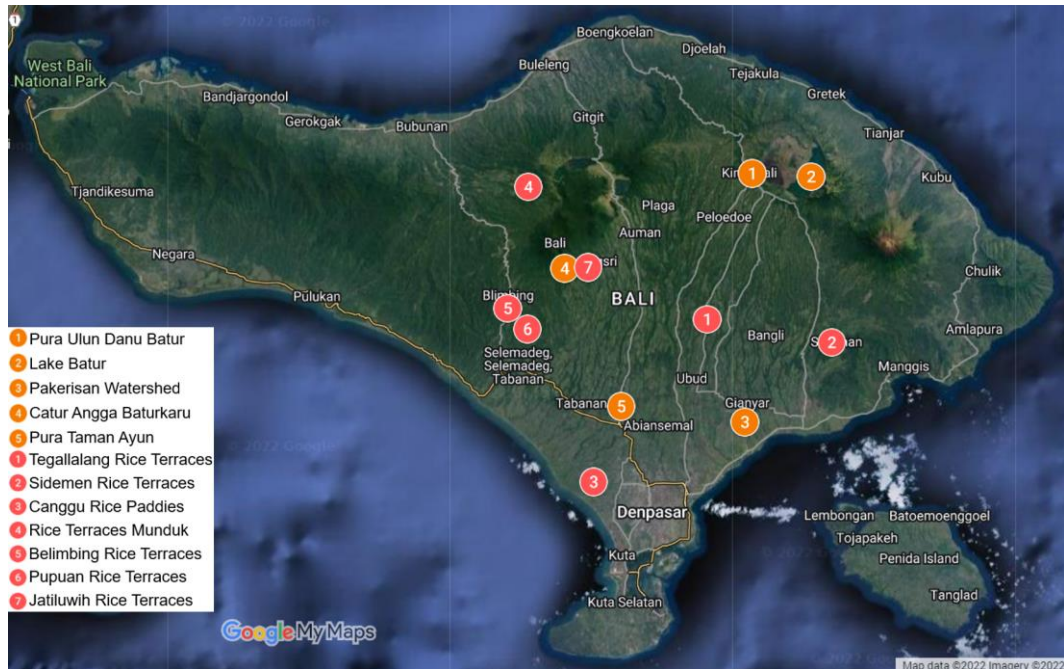


Figure 1.11 Numbers in orange circles pinpoint the five main locations of the Cultural Landscape Subak of Bali Province, while the ones in pink circles indicate the locations of some of the most popular subaks that offer a variety of outdoor recreational activities.

1.4 Limitations of the Study

This study was made possible as I was awarded the Minor Field Studies (henceforth MFS) scholarship¹ of 27,000 SEK which was funded by the Swedish International Development Cooperation Agency, or Sida in short. This scholarship offered an opportunity for me as a second-cycle – Master’s – student to participate in MFS in a developing country of my choice where I could gather material for my degree project, namely this study. The decision to go to Indonesia for this was completely obvious to me as I speak the Indonesian language fluently – Indonesia is my birth country² – and understand the culture inside and out, which proved invaluable during fieldwork. There was indeed a lot of information in both English and Swedish that was mistranslated from the Indonesian sources, e.g., websites. I also escaped a scam attempt from a local who thought I was an international tourist who did not understand the language. It is safe to say that a language barrier was not a limiting factor in this study.

In terms of cultural barriers, this was not the case either. A researcher’s cultural and educational background may have an impact on the way s/he observes and perceives things (Bourke, 2014; Creswell & Creswell, 2018). This was also the case for me as I have multiple cultural backgrounds – Chinese, Indonesian, South Korean, and Swedish – and have also been educated through transdisciplinary perspectives³, mainly in medicine, medical anthropology, environmental

psychology, landscape architecture, and creative arts therapy. As mentioned in Hammersley (1993), the position of the researcher as an insider or outsider to the culture being studied and whether this position gives her/him an advantageous position in the research process affects the way research data is processed. The same was true of my position on the culture being studied – in this case, the Indonesian cultural context. Although I am not a Balinese, I spent most of my younger years in Indonesia, which included countless visits to Bali and some subaks. Consequently, I know the Indonesian cultural norms, including the Balinese ones. For example, during the fieldwork, I knew what was expected of me as a woman visiting Indonesia and the holy places in Bali – which is discussed further in Section 2.6 of Chapter 2.

A clear limitation is to replicate the study as the experience of the participants may change after the study (Bryman, 2016). Accordingly, the improbability of replicating this study is a limitation because the experience of the study population of outdoor recreational activities in the cultural landscape subak may change after their last interaction with me during the data collection. The COVID-19 pandemic has also certainly limited this study in many aspects. By the time I arrived in Indonesia, the Indonesian government had just reopened the borders. A week later, the Balinese government had also just allowed tourists – both domestic and international – to enter Bali. All of this made it unusually difficult to get study participants, particularly for the participant observations method in the study site, resulting in the number of participants observed low. Since the sample for this study only involves a small part of the entire subak visitors, the findings of this study cannot be generalised either and the data obtained should not be considered as a representative sample for statistical considerations. A researcher's emotional intelligence as an individual also plays an important role, especially when s/he is in the field (Moser, 2008). This was also what I tried to do, for example, when a local attempted to scam me, I stayed calm so that I did not inadvertently scare off potential study participants who might witness the incident.

Despite all the limitations, including the time and budget constraints to complete this research project at the second cycle level, the results are expected to provide transcendent perspectives in relevant fields, such as environmental psychology, landscape architecture, health science, public health, health promotion, recreation ecology, and sustainable development.

1.5 Disposition

Chapter two narrates the methods I employed to study outdoor recreational activities in the cultural landscape subak. Divided into six sections, this chapter

consists of the research design, study site, study participants, data collection, data analysis, as well as ethical considerations throughout this study.

Chapter three presents the results generated in the different parts of the study. Divided into two sections, this chapter delivers the results of each of the two research questions. In each section, data are compared, integrated, and interpreted using quantitative and qualitative analyses to answer the research question.

Chapter four discusses the results of this study and contextualises them in relation to implications and future research, as well as method reflections. In the first three sections, this chapter discusses outdoor recreational activities in the cultural landscape subak as NBIs, the role of the cultural landscape subak for NBIs, and outdoor recreational activities in the cultural landscape subak as a way to adopt pro-environmental behaviour (henceforth PEB), respectively. The last section discusses method reflections.

“In every walk with nature, one receives far more than he seeks.”

– John Muir, naturalist and conservationist

Chapter 2. Methods

This chapter narrates the methods I employed to study outdoor recreational activities in the cultural landscape subak. Section 2.1 introduces the research design for this study. Section 2.2 and Section 2.3 present the study site and study participants, respectively. Section 2.4 elucidates the data collection, which includes a quantitative questionnaire, in-depth interviews, and participant observations. Section 2.5 identifies the data analysis used in this study, which includes statistical analysis, thematic analysis (henceforth TA), autoethnography, and mixed method (henceforth MM) analysis. Section 2.6 specifies the ethical considerations throughout this study.

2.1 Research Design

To investigate the characteristics of outdoor recreational activities in the cultural landscape subak and how these activities in the subak connect to sustainable development, mixed methods research (henceforth MMR) was used as the research design for this study. It is the combination and integration of quantitative and qualitative methods in one study evidence (Creswell & Plano Clark, 2018; Johnson & Onwuegbuzie, 2004). The quantitative research design involves numbers, measurements, and often forms of analysis based on sampling theory (Gorard, 2010). It seeks to control for bias so that facts, phenomena, and instances can be objectively grasped (Creswell & Creswell, 2018). Qualitative research design, on the other hand, usually involves texts, observations, recordings, discourses, images, and on rare occasions sensory data (Gorard, 2010). It seeks to understand the perspective of participants or a situation by looking at first-hand experience to provide meaningful data (Creswell & Creswell, 2018). MMR design is therefore considered complex but innovative as it strives to integrate both quantitative and qualitative paradigms in one and the same study (Gorard, 2010). The triangulation design of MMR offers a balance between the two paradigms (Creswell & Creswell, 2018). A solid base for broader quantitative measures, scaling, and generalisation can be provided by qualitative design through its emphasis on exploration, theory construction, contextualisation, comprehension, and introspection. By emphasising large samples, an overview can be provided by quantitative design in which patterns and inconsistencies can be revealed, and these can be further investigated with

qualitative methods. The latter was the case for this study. A quantitative questionnaire, in-depth interviews, and participant observations were conducted as part of the MMR design for this study. These methods complement each other as they open up possibilities for the researcher to think differently about the topic, generate diversified data, and produce different analyses (Creswell & Creswell, 2018; Malson, 2013). Figure 2.1 illustrates the concurrent MMR design for this study.

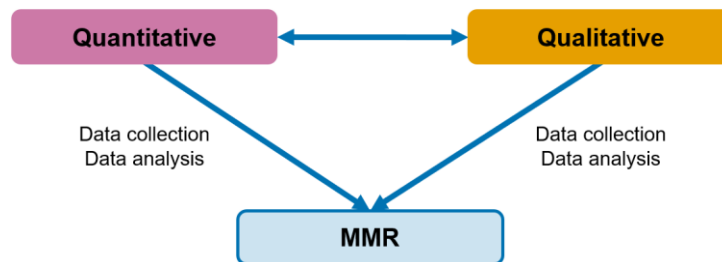


Figure 2.1 Concurrent MMR design for this study.

2.2 Study Site

The materials for this study were collected from the Subak Landscape of CAB as this place is the largest subak in the world (UNESCO, 2012a). The Subak Landscape of CAB covers an area of 17,376.1 ha surrounded by forests, water temples and their subaks, mountain lakes, springs, and rivers (see Figure 2.2) (Surata & Jayantini, 2013) where various outdoor recreational activities are offered.

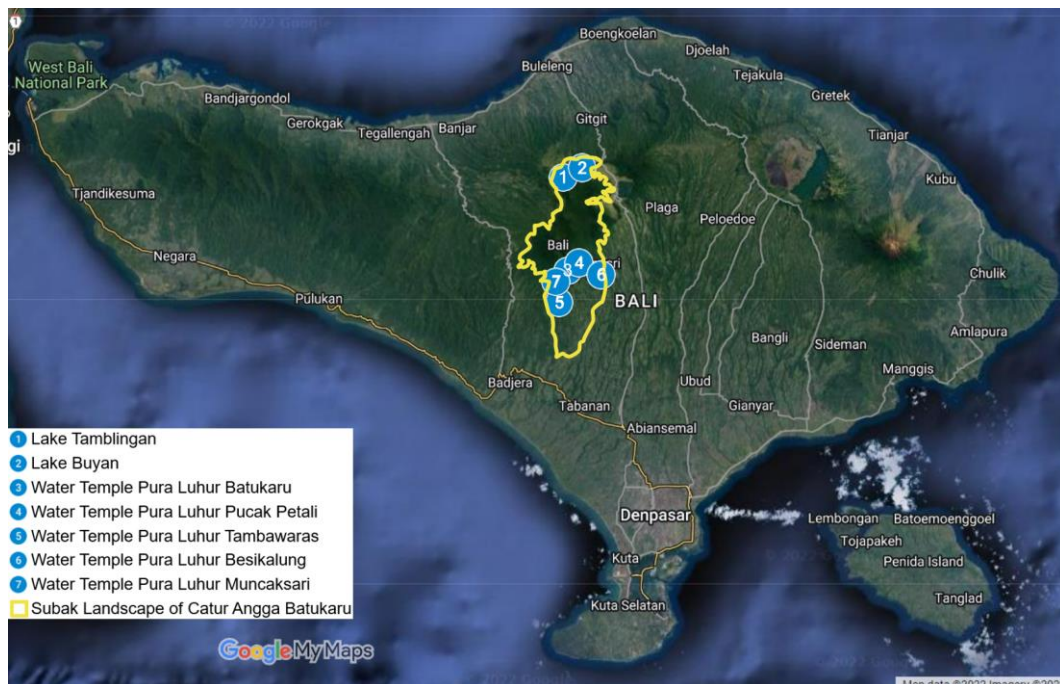


Figure 2.2 Map of Bali with yellow line showing the area of the Subak Landscape of CAB and numbers in blue circles pinpointing the main sites of this cultural landscape.

2.2.1 Jatiluwih Rice Terraces

Among those in the Subak Landscape of CAB, the area of Jatiluwih Rice Terraces comprises over 600 ha, making it the largest rice terraces in Bali (Desa Jatiluwih, 2020), where various outdoor recreational activities, such as walking (Wardana & Adikampana, 2018), trekking, cycling, and breathing exercises (Shanti Toya Ashram, 2021), have been practised for many years. This study site is the terraced paddy landscape near numbers 5, 7, 3, 4, and 6 illustrated in Figure 2.3 of the main local sign.



Figure 2.3 The Subak Landscape of CAB according to the main sign at the study site.

It was when I first got to Jatiluwih Rice Terraces that I realised there were five different tracks available there – I could not find any info on this before the fieldwork. As shown in Figure 2.4, there were a total of five suggested routes for subak visitors to do the activities in the subak area. The first one was a 1.5 km short track that was marked with a red line and could be completed in approximately 45 to 60 minutes. The second one was a 2 km medium track that was marked with a purple line and could be completed in approximately 1 to 1.5 hours. The third one was a 2.3 km medium track that was marked with a yellow line and could be completed in approximately 1 to 2 hours. The fourth one was a 3.1 km long track that was marked with a blue line and could be completed in approximately 1.5 to 2 hours. The fifth one was a 5.5 km extra track that was marked with a white line and could be completed in approximately 3.5 to 4 hours. Only the last track had been made possible for the cycling activity. There were signs with the exact same information throughout the subak area to help visitors familiarise themselves with the possible routes.



Figure 2.4 One of the signs at Jatiluwih Rice Terraces that illustrates the five tracks.

2.2.2 Museum Visits – Subak Museum and Bali Museum

Although I initially planned to conduct the fieldwork only at Jatiluwih Rice Terraces, I decided to include museum visits to the Subak Museum and the Bali Museum to examine whether they provided visitors with informative and visual explorations of the topic of the cultural landscape subak and its relation to human health and well-being.

Subak Museum

Figure 2.5 shows the three different areas that are included as parts of the Subak Museum, i.e., the museum building itself, a life-size housing complex showing how subak meetings are usually held and what krama do when processing and storing rice, as well as rice terraces of Subak Banjar Anyar.



Figure 2.5 Three different areas that are included as parts of the Subak Museum: the museum building itself, a life-size housing complex, as well as rice terraces of Subak Banjar Anyar.

Bali Museum

Figure 2.6 shows the complex of the Bali Museum, which includes four buildings with permanent exhibitions of prehistoric, historical, ethnographic, and fine art objects. Several of the items on display were relevant to the subak (see Figure 2.7).



Figure 2.6 The complex of the Bali Museum, which includes four buildings with permanent exhibitions.



Figure 2.7 Several of the items on display at the Bali Museum that were relevant to the subak.

2.3 Study Participants

The user group in focus for this study was the general public, which referred to all subak visitors, i.e., the locals, as well as domestic and international tourists. What is meant by the locals in this case are Balinese people or people from other regions in Indonesia but residing and working in Bali, domestic tourists are people from other regions in Indonesia who had been or were travelling to Bali at the time of the study, and international tourists are people from other countries who had been or were travelling to Bali at the time of the study. Although the study participants for each data collection method were not the same, all participants in this study were at least 18 years old and, at the time of the study, had visited at least one subak area at least once. Due to the complexity of this study, the study participants based on their respective data collections, including how they were obtained and when the data collection was carried out, are summarised in Table 2.1. The following subsections present more details on the study participants and their background information based on each data collection.

Table 2.1 Summary of the study participants based on each data collection, including how they were obtained and when the data collection was carried out

What	How and When	Who
Quantitative questionnaire	Distributed electronically with the help of my contacts in Indonesia; nearly two months from March to April 2022	58 respondents; 21–67 years old, over 70% women, over 40% domestic tourists, over 80% with a university degree, average score 4.59 out of 5 for good general health
In-depth interviews	Availability sampling from those who signed up in the questionnaire; semi-structured, conducted online 22–27 April 2022	5 interviewees: 2 locals (woman and man), 2 domestic tourists (woman and man), 1 international tourist (woman); mid-20s – 40s, 4 with a Bachelor's degree and 1 with a Doctorate or equivalent. No reported health problems except one with allergic rhinitis and another with cold urticaria
Participant observations	Two different activities per day, each activity twice, 14–20 March 2022; twelve activity sessions, including walking, trekking, cycling, breathing exercise, plant observation, and landscape photography.	A total of 35 subak visitors; no background information could be obtained
	A two-hour visit at each museum, 17 March 2022	Myself

2.3.1 Quantitative Questionnaire

As shown in Table 2.2, a total of 58 responses were received from the quantitative questionnaire (N = 58). It was revealed that 14 respondents identified themselves as a man (24.1%), 43 as a woman (74.1%), and 1 as other⁴ (1.7%).

The average age (mean) of the respondents was 32 years old. 24 was the age that most respondents were (mode) when filling in the questionnaire. The age of the respondents varied from 21 years old being the youngest and 67 the oldest (see Table 2.3).

Their general health was good, as indicated by an average score of 4.59 for the statement ‘My general health is good’ on a scale of ‘1 Strongly Disagree’ to ‘5 Strongly Agree’. In terms of the type of subak visitors, 17 respondents were the locals (29.31%), 26 domestic tourists (44.83%), and 15 international tourists (25.86%). Regarding the highest level of education obtained, 8 respondents had a

senior high school graduation certificate (13.79%), 4 an Associate’s degree (6.9%), 35 a Bachelor’s degree (60.34%), 6 a Master’s degree (10.34%), and 5 a Doctorate degree or equivalent (8.62%)

Table 2.2 The number of the respondents based on their gender identity

	Frequency	Percent
Man	14	24,1
Woman	43	74,1
Other	1	1,7
Total	58	100,0

Table 2.3 The mean, mode, minimum, and maximum of the respondents’ age

N	Valid	58
Mean		32,45
Mode		24
Minimum		21
Maximum		67

2.3.2 In-Depth Interviews

Five interviewees were selected from ten people who signed up on the questionnaire to be potential interviewees. Two of them were locals – one woman and one man, two domestic tourists – one woman and one man, and one international tourist – a woman. Table 2.4 shows some basic information about the interviewees’ type of subak visitors, pseudonym – the altered name of the interviewees to maintain confidentiality, gender identity, and age.

Table 2.4 Basic information about the interviewees

Type of subak visitors	Pseudonym	Gender identity	Age
Local	Ni Luh	woman	mid 20s
Local	I Made	man	mid 20s
Domestic tourist	Pertiwi	woman	mid 20s
Domestic tourist	Arief	man	late 20s
International tourist	Seo-yeon	woman	40s

None of the interviewees reported any health problems, except for two who had mild health problems – one interviewee with allergic rhinitis⁵ and the other with cold urticaria⁶. Four interviewees obtained a Bachelor’s degree and one a Doctorate degree or equivalent. Their educational backgrounds were diverse; one in graphic design, two in biology, one in psychology, and one in medicine.

2.3.3 Participant Observations

A total of 35 subak visitors were observed during twelve separate activity sessions, including walking, trekking, cycling, breathing exercise, plant observation, and landscape photography. Although all of them agreed to be observed, none was willing to answer further questions and therefore no background information could be obtained from them.

2.4 Data Collection

This section presents empirical material generated from the fieldwork, i.e., the quantitative questionnaire, in-depth interviews, and participant observations. This is illustrated in Figure 2.8 in relation to the concurrent MMR design for this study.

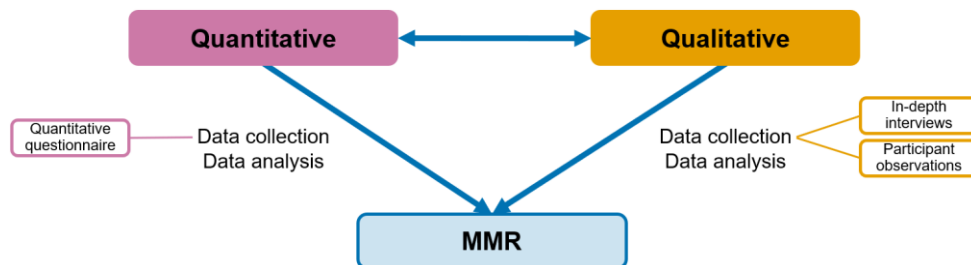


Figure 2.8 Concurrent MMR design for this study: data collection.

2.4.1 Quantitative Questionnaire

The questionnaire was designed so that respondents could only choose one answer, except in one question where they could select all the appropriate answers, and all questions had to be answered before the respondents could submit their answers, except the parts where they could choose whether they wanted to be contacted for an in-depth interview and if they wanted to leave anonymous feedback to improve further studies. To help narrow down which SDGs to focus on for answering RQ2, some questions were divided according to their connection to sustainable development, i.e., SDG 3, SDG 11, and SDG 12. To increase the response rate, I included different types of questions in the questionnaire, i.e., radio buttons, textboxes, checkboxes, and Likert scales. To maintain the respondents' attention span and interest when filling out the questionnaire, I designed the Likert scale with five points from '1' for 'Strongly Disagree' or 'Unimportant' to '5' for 'Strongly Agree' or 'Very Important'. The questionnaire was created on the Netigate platform in both English (see Appendix A) and Indonesian (see Appendix B). It was then distributed electronically for nearly two months from March to April 2022. This was done through social media with the help of my contacts in Indonesia, i.e., family members, friends, and colleagues during my upbringing in Indonesia, as well as local authorities, organisations, and businesses. The respondents needed for the questionnaire did not have to be at the study site at the same time with me.

2.4.2 In-Depth Interviews

Textually rich qualitative data was generated through this method by involving the interaction between the interviewer and the interviewee, i.e., as interaction partners. The interviews were performed in a semi-structured manner to cover relevant topics and allow flexibility throughout the conversation. Accordingly, I created an interview guide to roughly outline the relevant themes, i.e., 'outdoor recreational

activities in the cultural landscape subak’ and ‘SDGs’ – as these were related to the research questions of this study (see Appendix C). To select the interviewees, I used availability sampling because that was the only possible option for this study. Of the questionnaire respondents, ten people initially signed up to be potential interviewees – five locals, two domestic tourists, and three international tourists. However, one potential interviewee had difficulty matching her schedule with mine and the other four could not be contacted at all. This is illustrated in Figure 2.9 where blue represents locals, yellow domestic tourists, and pink international tourists.

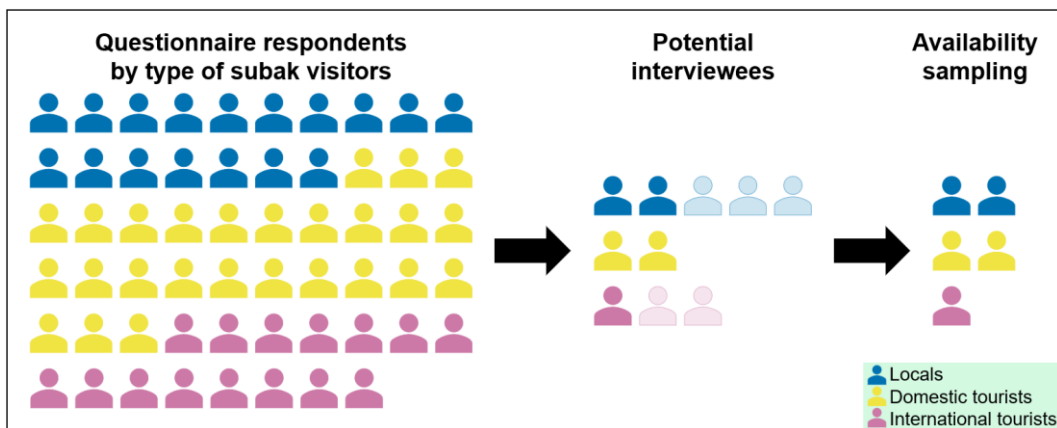


Figure 2.9 Availability sampling had to be used to select the interviewees.

At the end of April 2022, I conducted five interviews for this research, which consisted of individual interviews with two locals, two domestic tourists, and one international tourist. All interviews ended up being carried out online following the preferences of the interviewees – four via Zoom and one via WhatsApp call. The audio of each interview was recorded – one via WhatsApp call with Sony ICD-PX312 IC Recorder and the rest via Zoom recording – and transcribed afterwards for analysis. The five interviews I conducted lasted between 39 minutes and 58 minutes, with an average of 48 minutes. Interviews with locals included Ni Luh and I Made, who were both in their mid-20s at the time of the interview. These individual interviews were conducted on the 22nd and 24th of April 2022, respectively. Interviews with domestic tourists included Pertiwi – who was in her mid-20s – and Arief – who was in his late 20s at the time of the interview. These individual interviews were conducted on the 22nd and 23rd of April 2022, respectively. The interview with an international tourist included Seo-yeon, who was in her 40s at the time of the interview, which was conducted on the 27th of April 2022.

2.4.3 Participant Observations

For participant observations, the observer-as-participant type was selected for this study to maintain a balance for me as the researcher of this study between insider

and outsider roles in the field. A series of participant observations were carried out for one week from the 14th to the 20th of March 2022. Due to the ongoing pandemic situation in Indonesia at the time, the Balinese government had just reopened Bali and allowed tourists to enter the island – I was one of the first waves of visitors to Bali since the island was locked down for almost two years. Consequently, there were not as many subak visitors as expected. This resulted in there being not only a low number of observed participants, but I was also the only participant in two of the twelve activity sessions. To help me record what occurred in the field with a fresh memory, I wrote field notes immediately after each observation. Since none of the participants was willing to answer further questions, data collection for this method only focused on field notes. Figure 2.10 pinpoints the locations of the study sites. The following subsections describe the data collected at the Jatiluwih Rice Terraces and during museum visits.

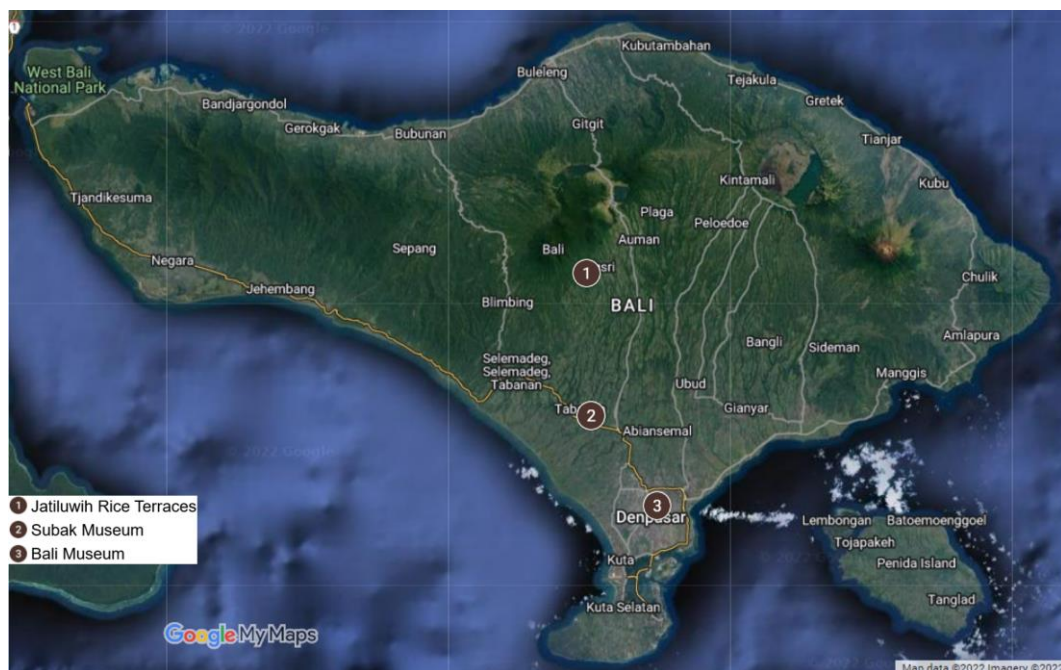


Figure 2.10 Map of Bali with numbers in brown circles pinpointing the locations where I conducted participant observations.

2.4.3.1 At Jatiluwih Rice Terraces

Outdoor recreational activities that I tried in the subak area included walking, trekking, cycling, breathing exercise, plant observation, and landscape photography. I conducted participant observations in two different activities per day and each activity twice over a one-week period in March 2022, with a variety of routes and total minutes spent per visit, as well as different times of the day, i.e., one in the morning and the other in the afternoon. Table 2.5 presents a summary of each participant observation and includes the temperatures at the time – the minimum temperature was the lowest that occurred at night, the maximum

temperature was the highest occurred during the day, and the RealFeel temperature⁷ was what visitors actually felt during the fieldwork. Figure 2.11 illustrates a simplified version of the tracks available in Jatiluwih Rice Terraces.

Table 2.5 A series of participation observations I conducted on the study site

Date	Temperature (Min. – Max.; RealFeel)	Outdoor recreational activity in the subak	Total minutes spent	Chosen route	Number of participant (excluding myself)
14-03-2022	26°C – 32°C; 38°C	Cycling	90	#5	1
		Plant observation	90	#2	3+2+2
15-03-2022	26°C – 32°C; 38°C	Trekking	135	#4	2+2
		Landscape photography	120	#1, half of #3	5+2
16-03-2022	27°C – 32°C; 39°C	Breathing exercise	45	#1	0
		Walking	120	#2	2
18-03-2022	26°C – 31°C; 37°C	Plant observation	45	#1	2
		Trekking	150	#1, #3	3+2
19-03-2022	24°C – 29°C; 36°C	Landscape photography	60	#4	2
		Breathing exercise	45	half of #1, half of #2	1
20-03-2022	24°C – 31°C; 37°C	Walking	60	#1	2+2
		Cycling	60	Surrounding areas	0

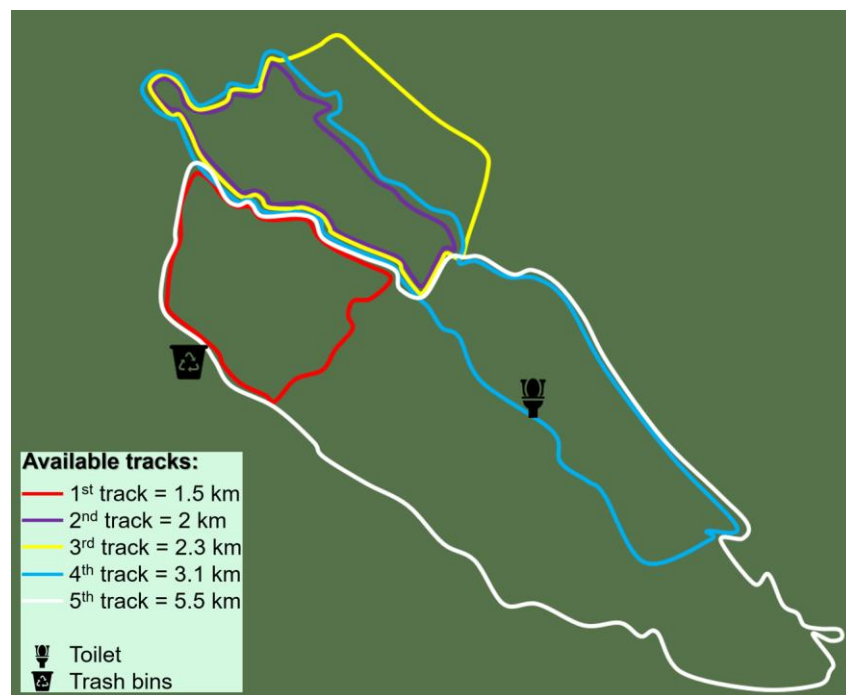


Figure 2.11 A simplified version of the tracks available in Jatiluwih Rice Terraces.

During the first walking activity, I walked along the second track and observed two other participants who walked with me for a while. For the second one, I walked along the first track in the study site (see Figure 2.12) and observed a total of four other participants – two each did the activity with me at different times. Figure 2.13 illustrates the routes I took for the walking activity at Jatiluwih Rice Terraces.



Figure 2.12 When I was walking on the shortest track in Jatiluwih Rice Terraces.



Figure 2.13 The routes I took for the walking activity at Jatiluwih Rice Terraces.

During the first trekking activity (see Figure 2.14), I trekked along the fourth track in the study site and observed a total of four other participants who did the activity together with me for a while – two each at different times. For the second one, I trekked along both the first and third tracks on the study site and observed a total of five other participants – three and two people at different times. Figure 2.15 illustrates the routes I took for the trekking activity at Jatiluwih Rice Terraces.



Figure 2.14 When I was trekking on the fourth track in Jatiluwih Rice Terraces.



Figure 2.15 The routes I took for the trekking activity at Jatiluwih Rice Terraces.

During the first cycling activity (see Figure 2.16), I cycled along the longest track in the study site, observing only one other person – who was a guide – doing the activity with me the entire time. The tour package should have included bike and helmet rental, insurance, a bottle of water, a cold towel at the end of the tour, and a certified guide explaining about Jatiluwih Rice Terraces in detail. For the second one, I decided not to join any tours. At the time, the only tour available was from the same company and with the same guide; no other tours were available as the

Balinese government had just allowed tourists to enter Bali. I rented a bicycle instead and cycled by myself in the surrounding areas of the study site. Unfortunately, I could not find anyone else doing this activity. Figure 2.17 illustrates the routes I took for the cycling activity at Jatiluwih Rice Terraces.



Figure 2.16 When I was cycling along the longest track in Jatiluwih Rice Terraces.

During the first breathing exercise activity⁸, I carried it out along the first track in the study site, but did not find anyone else doing this activity. For the second one, I did it along half of the first and half of the second tracks in the study site and observed one other participant do it for about thirty minutes. Figure 2.18 illustrates the routes I took for the breathing exercise activity at Jatiluwih Rice Terraces.



Figure 2.17 The routes I took for the cycling activity at Jatiluwih Rice Terraces.

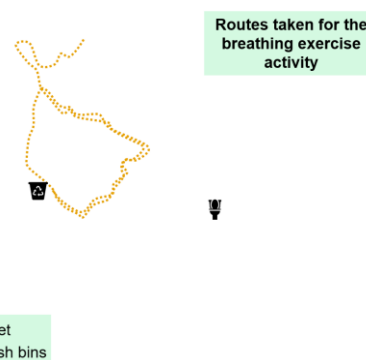


Figure 2.18 The routes I took for the breathing exercise activity at Jatiluwih Rice Terraces.

During the first plant observation activity, I observed the plants along the second track in the study site and observed a total of seven other participants who did the activity together with me for a while – the first three people and then two each at different times. For the second one (see Figure 2.19), I carried it out along the first

track in the study site and observed two other participants. Figure 2.20 illustrates the routes I took for the plant observation activity at Jatiluwih Rice Terraces.



Figure 2.19 One of the pictures I took when I was doing the plant observation activity on the shortest track in Jatiluwih Rice Terraces.

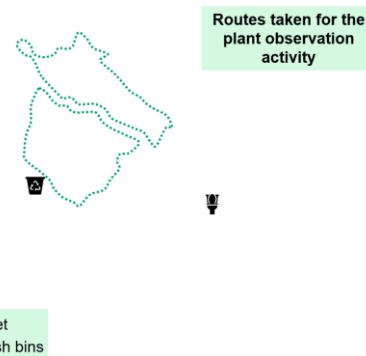


Figure 2.20 The routes I took for the plant observation activity at Jatiluwih Rice Terraces.

During the first landscape photography activity (see Figure 2.21), I carried it out along the first and half of the third tracks in the study site and observed a total of seven other participants who did the activity together with me for a while – the first five people and then another two at different times. For the second one, I carried it out along the fourth track in the study site and observed two other participants. Figure 2.22 illustrates the routes I took for the landscape photography activity at Jatiluwih Rice Terraces.



Figure 2.21 One of the pictures I took when I was doing the landscape photography activity on the shortest track in Jatiluwih Rice Terraces.

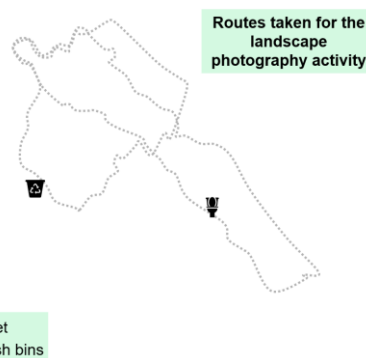


Figure 2.22 The routes I took for the landscape photography activity at Jatiluwih Rice Terraces.

2.4.3.2 During Museum Visits

Participant observations during a 2-hour visit each at the Subak Museum and Bali Museum was carried out on the 17th of March 2022. Right after I paid the entrance fee, the Subak Museum assigned two staff to guide me through the whole area. During the visit to the Bali Museum, I was accompanied by a non-certified guide who was not employed by the museum but was constantly wandering around the

area offering their services to museum visitors. Although none of the information from the guides nor exhibition descriptions was found to be relevant to this study, i.e., no information about outdoor recreational activities in the cultural landscape subak nor the relationship of the subak to human health and well-being, I could still determine how much information the public received on the topic from both museums, which is none.

2.5 Data Analysis

This section describes the methods used to analyse the collected data, which include statistical analysis for the quantitative questionnaire, as well as TA and auto-ethnography for the in-depth interviews and participant observations. To maintain the focus of this study, only significant results from the quantitative part and are interrelated with results from the qualitative part are presented in Chapter 3. Figure 2.23 illustrates the methodological structure and research questions of this study.

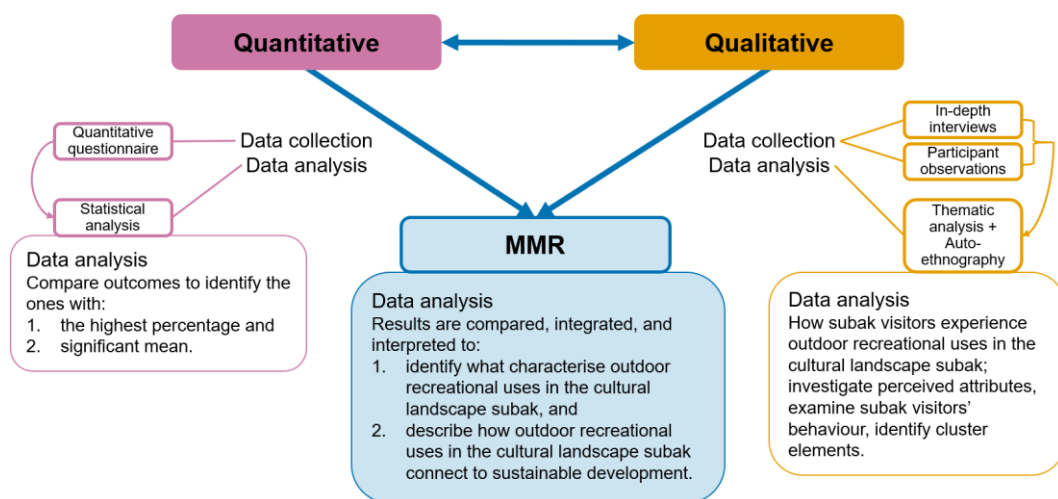


Figure 2.23 Methodological structure and research questions of this study.

2.5.1 Statistical Analysis

The SPSS software was used for analysing the study participants of the quantitative questionnaire, obtaining their background information, and calculating the average scores for Likert scale questions. Only relevant statistical tests are presented in the analysis to maintain the focus of this study. As presented in Subsection 2.3.1 earlier, the first step of this method was to analyse the study participants and their background information, including the number of respondents (N) and the demographics of the respondents, e.g., gender identity, age (i.e., mean, mode, minimum and maximum age), the highest level of education obtained, and number of respondents by type of subak visitors.

The next step was to analyse the average score (mean) for Likert scale questions in the questionnaire. I then created a scoring range for the average score obtained to determine its significance level (see Table 2.6). The scoring range was made based on adaptations from previous studies (see Sözen & Guven, 2019 and Zolfagharian et al., 2012) and hence, significance levels of ‘Moderate’, ‘High’, and ‘Very High’ were the ones considered significant for this study.

Table 2.6 Scoring range of Likert Scale of the questionnaire (adapted from Sözen & Guven, 2019 and Zolfagharian et al., 2012)

Likert Scale	Value range	Significance level
1 Strongly Disagree / Unimportant	1.00 – 1.80	Very Low
2	1.81 – 2.60	Low
3	2.61 – 3.40	Moderate
4	3.41 – 4.20	High
5 Strongly Agree / Very Important	4.21 – 5.00	Very High

2.5.2 Thematic Analysis

By using psychologists Virginia Braun and Victoria Clarke’s TA method (2006, 2019) to analyse the qualitative data of this study, I was able to combine both personal and theoretical knowledge, i.e., from the study participants, myself, and the existing literature. Data analysis was conducted through deductive TA and appropriate clustering to obtain recurrent elements, as well as cross-analysis of the reported relevant behaviours that emerged during in-depth interviews and participant observations. The deductive approach was used because I already had a set of themes from the research questions that I expected to generate from the collected data. Consequently, instead of calling the patterns *themes*, I referred to them as *cluster elements* during this process.

Accordingly, I adhered to the six-phase process of this approach, which is illustrated in Figure 2.24. First, I started by *familiarising myself with the data obtained*. During this process, I transcribed the interviews verbatim, read and re-read the data obtained from interviews and participant observations, then wrote down initial ideas to familiarise myself with the contents. Second, I created *succinct codes* to pinpoint notable features of the data that might be pertinent to answering the research questions of this study and collated data relevant to each code. Third, I generated *initial cluster elements* that could answer the research questions. This process involved examining the codes and collating data to identify potential themes, then collating data relevant to each possible cluster element. Fourth, I *reviewed the cluster elements* by checking the possible cluster elements against the dataset from interviews and participant observations, then determining whether the cluster elements answer the research questions. Fifth, I *defined and named the cluster elements*. In this step, I structured the scope and focus of each cluster

element, developed a detailed analysis of each cluster element, and determined an informative name for each cluster element. Sixth, I *produced this thesis*. During this process, I presented the findings by compiling the analytical narratives and data extracts from the transcriptions and field notes, as well as contextualising the analysis to the existing literature.

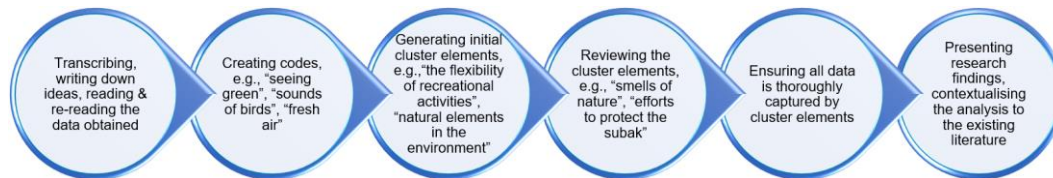


Figure 2.24 Process and examples during the six-phase TA for this study.

2.5.3 Autoethnography

I used the autoethnography method for the qualitative part as a form of self-reflection. This method was performed by analysing and writing to explore my relevant personal experiences – which made the method particularly beneficial during participant observations – before relating these to broader cultural, social, and political meanings and understandings. Through this method, I realised that it was indeed a herculean task to adequately capture the grandeur and complexity of the cultural landscape subak. Since I already knew about the subak to some extent even before this study, it was more challenging to investigate it without including my own biases and to explain to others who knew nothing about the subak while I already had a set of knowledge about this intricate phenomenon. Although this method was applied as a complement, another obvious advantage was the ease of access to the data since the source was myself who called and reflected on my own experiences, which in turn resulted in a comprehensive perspective and thereby richer data. This method also allowed me as a researcher to write first-person accounts and consequently provided me with the outsider-to-insider transition in this study.

2.5.4 Mixed Methods Analysis

The MM analysis was carried out through *side-by-side comparisons* of *joint displays* where I compared, integrated, and interpreted the results from quantitative and qualitative data in order to arrive at final inferences and thereby generate new insights to answer the research questions. *Side-by-side comparisons* was selected because this was the most suitable type for the context of this study. This procedure is highly recommended to integrate the results from MMR (Bradt et al., 2015; Finley et al., 2013; Guetterman et al., 2015; Haggerty et al., 2012; Shaw et al., 2013; Vaughan Dickson et al., 2011).

Since RQ1 was to identify what characterises outdoor recreational activities in the cultural landscape subak, only significant results from quantitative and cluster elements from qualitative were interpreted as the final inferences to answer RQ1 (see Figure 2.25). This was because the interrelations validate both sides of the data.

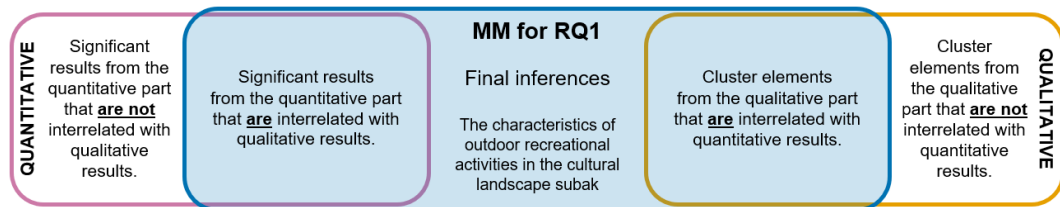


Figure 2.25 Side-by-side comparisons of joint displays were used to obtain the final inferences to answer RQ1.

For RQ2, all significant results from quantitative and cluster elements from qualitative were compiled and interpreted as the final inferences to answer RQ2 (see Figure 2.26). While this was partly due to the fact that connections to SDG 3, SDG 11, and SDG 12 were already expected from the start, this was also because RQ2 was aimed to describe how outdoor recreational activities in the cultural landscape subak connect to sustainable development.

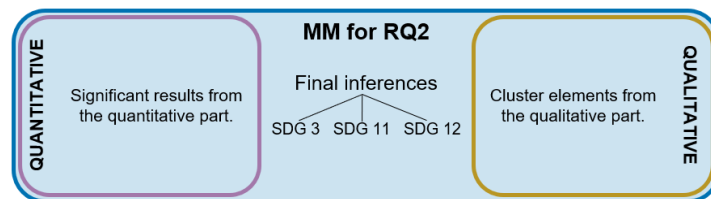


Figure 2.26 Side-by-side comparisons of joint displays were used to obtain the final inferences to answer RQ2.

2.6 Ethical Considerations

The study was performed in compliance with the Swedish Act regarding the Personal Data Act (SFS, 1998:204), the Ethical Review of Research Involving Humans (SFS, 2003:460), as well as the Law of the Republic of Indonesia No. 11 of 2008 on Electronic Information and Transactions and its revised version No. 19 of 2016.

All study participants were informed about the study and its purpose, that their participation is voluntary, how the data will be used, and that their responses are completely anonymous and confidential. In addition to being informed through the questionnaire, I also created a more comprehensive consent form about this study for the in-depth interviews – in English for the interviewee whose interview was conducted in this language (see Appendix D) and in Indonesian for the rest of the interviewees (see Appendix E). Through the form, the interviewees were also

notified about the interview procedures and potential risks – where they may feel uncomfortable thinking about and answering questions about their experiences. The form was distributed to each interviewee and then signed by both the interviewee and me as the interviewer; each party received a copy. Just before each interview started, I also reminded the interviewees again about all these to assure that both parties were on the same page. Upon completion of the interview, each interviewee received a voucher worth 100.000,- IDR (± 72 SEK⁹) which could be donated to organisations that support humans living in harmony with nature. It was up to the interviewees whether they wished to donate anonymously and to which organisation, e.g., World Wildlife Fund (WWF) Indonesia, Greenpeace Indonesia. This was done as a way of showing appreciation to the interviewees for their contribution to this study.

Necessary steps were also taken to maintain the confidentiality of the material, such as altering the name of all participants even since field notes and interview transcriptions. All names of the participants mentioned in field notes, interview transcriptions, and this thesis were also altered; all names are pseudonyms. Some field notes were written on paper and some others were stored on my personal laptop which only I had the access to. I also enabled the ‘Anonymous’ option in Netigate before distributing the questionnaire, making the Internet Protocol addresses – or I.P. addresses in short – of the respondents could not be identified. I also used a Virtual Private Network – or VPN in short – to hide my location on the internet to keep my files safe. Real names and sensitive contact details submitted by questionnaire respondents, i.e., to sign up for the interview, were omitted to maintain anonymity.

Another important aspect that was also taken into consideration was how I adhered to Indonesian cultural norms, including the Balinese ones. For example, I did not wear short pants above the knees as this is how women are expected to dress in Indonesia. Some examples from the Balinese cultural norms include the fact that it is also prohibited to step on or step over the *canang sari* offerings, curse during a traditional ceremony, and urinate in places other than the toilet. During *Nyepi* – the Balinese Day of Silence – it is also forbidden to go out of our own accommodation, start a fire, and turn on the lights. Because of this, I deliberately arranged for me to arrive after this celebration as it would have been extremely difficult to do anything, i.e., no restaurants would be open and no transportation would be operated. In Bali, women are also not permitted to enter sacred places if they are on their period. Although all these practices sound like a lot, I already knew all of them by heart since they were my daily practices during my upbringing in Indonesia, except the Balinese ones that I only practised when I visited Bali. By learning and practising local norms, I did not inadvertently alienate my potential study participants.

“Nature holds the key to our aesthetic, intellectual, cognitive, and even spiritual satisfaction.”

– Edward Osborne Wilson, biologist

Chapter 3. Results

This chapter presents the results generated in the different parts of the study. Section 3.1 delivers results to identify what characterises outdoor recreational activities in the cultural landscape subak and thereby answer RQ1, while Section 3.2 provides results to describe how outdoor recreational activities in the cultural landscape subak connect to sustainable development and thus answer RQ2. In each section, data are compared, integrated, and interpreted using quantitative and qualitative analyses to answer the research question.

3.1 RQ1: What Characterises Outdoor Recreational Activities in the Cultural Landscape Subak?

This section is divided into three subsections where the results for answering RQ1 are carried out individually – quantitatively and qualitatively – before finally being described through side-by-side comparisons of joint displays.

3.1.1 Results From the Quantitative Part

Table 3.1 presents the analysis of radio button and checkbox questions with significant results relevant to RQ1. A clear majority of the respondents ($n = 56$, 96.55%) preferred to do outdoor recreational activities in the subak with their travel companions. The most common outdoor recreational activities in the subak area that had been tried by the respondents included walking ($n = 56$, 96.55%), plant observation ($n = 43$, 74.14%), hot spring therapy ($n = 29$, 50%), trekking/hiking ($n = 24$, 41.38%), and yoga/meditation/breathing exercises/T'ai chi/aromatherapy ($n = 16$, 27.59%). The most preferred outdoor recreational activities in the subak included hot spring therapy ($n = 18$, 31.03%), walking ($n = 13$, 22.41%), and plant observation ($n = 12$, 20.69%).

Table 3.2 presents the analysis of Likert scale questions with significant results relevant to RQ1. The highest level of significance for ‘Very High’ resulted from four questionnaire statements, including ‘It is important that I can do the outdoor recreational activities offered in the subak area with my travel companion(s)’, ‘Doing outdoor recreational activities in the subak area has a high impact on my

ability to recover from or reduce stress’, ‘I enjoy outdoor recreational activities more than indoor ones’, and ‘The prices of doing outdoor recreational activities in the subak area are affordable’. The third level of significance for ‘Moderate’ resulted from three questionnaire statements, including ‘The outdoor activities in the subak area that I prefer to do are the ones I have tried before’, ‘The outdoor activities in the subak area that I prefer to do are the ones I have never tried before’, and ‘It is important that I can do the outdoor recreational activities offered in the subak area by myself’.

Table 3.1 Analysis of radio buttons and checkboxes questions with significant results relevant to RQ1

Questionnaire question	n	%
Preferred companion when doing outdoor recreational activities in the subak:		
Travel companion(s)	56	96.55
The most common outdoor recreational activities in the subak area that had been tried:		
Walking	56	96.55
Plant observation	43	74.14
Hot spring therapy	29	50.00
Trekking/hiking	24	41.38
Yoga/meditation/breathing exercises/T'ai chi/aromatherapy	16	27.59
The most preferred outdoor recreational activities in the subak:		
Hot spring therapy	18	31.03
Walking	13	22.41
Plant observation	12	20.69

Table 3.2 Analysis of Likert scale questions with significant results relevant to RQ1

Questionnaire statement	Mean	Significance level
It is important that I can do the outdoor recreational activities offered in the subak area with my travel companion(s).	4.67	Very High
Doing outdoor recreational activities in the subak area has a high impact on my ability to recover from or reduce stress.	4.22	Very High
I enjoy outdoor recreational activities more than indoor ones.	4.21	Very High
The prices of doing outdoor recreational activities in the subak area are affordable.	4.21	Very High
The outdoor activities in the subak area that I prefer to do are the ones I have tried before.	3.36	Moderate

The outdoor activities in the subak area that I prefer to do are the ones I have never tried before.	3.03	Moderate
It is important that I can do the outdoor recreational activities offered in the subak area by myself.	3.03	Moderate

3.1.2 Results From the Qualitative Part

Data analysis aims to compare and integrate cluster elements with perceived attributes, the behaviour of subak visitors, and ultimately the characteristics of outdoor recreational activities in the cultural landscape subak. This result section consists of ten cluster elements that can help identify the characteristics of outdoor recreational activities in the cultural landscape subak. These cluster elements were identified in the analysis of the participants’ descriptions and field notes.

As the subak location was rather secluded¹⁰, the area offered a space without any anthropic noises. From participant observations, I noticed that the sounds of nature in the subak area came from three sources, i.e., animals, water, and wind. Noticeable animal sounds were from birds, frogs, cicadas, and water buffalos. The sound of water from the irrigation trenches, creeks, and brooks. The sound of the wind could be heard as it blew through the rice paddies and tree leaves. The participants were seemingly paying attention to birds and water buffalos, especially when these animals made a sound. The participants regarded this soundscape of the cultural landscape subak as the enjoyment of the sounds of nature that followed them during their outdoor recreational activities. Such a soundscape allowed them moments of relaxation and peace, in whichever activity the participants were engaged in.

Yes, it’s refreshing to hear the sound of the birds in the subak. Well, the scenery in the subak is refreshing too; it’s just the bird sounds that make me feel relaxed and peaceful. So, whether I go there for a walking activity with my friends, or with my mother to observe the plants, it just brings me joy to hear the sounds of nature like birds like that. (Ni Luh, personal communication, April 22, 2022)

Embodied from the Hindu THK philosophy practised by the Balinese, the subak area offered unique experiences that made doing outdoor recreational activities there exceptional. From participant observations, I noted that every activity carried out by the participants was always associated with local Balinese traditions in the form of locations, choice of activities, and colours. Surrounded by nature and green open spaces, the subak locations were always connected to how subak management was carried out. The choice of activities was always linked to Balinese culture and religious practices, e.g., by having canang sari offerings, cili, and palinggih all over the subak area. Aside from the clear greenness of the area, the colours were also influenced by the variety of colours of the canang sari offerings or the yellow-green

colour of cili. The participants attributed this characteristic to a sense of pride in Indonesia's cultural heritage, which made them not only feel better about themselves but also connected to history and more aware of Balinese culture.

I'm proud too. Even though I've been to the subaks so often, it's still just wow! The scenery is always different depending on which subak I'm visiting. ... It's so cool to have scenery like this in Indonesia. ... I just feel more like as part of Bali, you know. ... Visiting the subak so often makes me feel part of the history here, you know, especially since it became the UNESCO (World Heritage) Site, it's like being part of the history, and I also get more aware of the culture because, before I moved to Bali, I didn't know any of this. So, it just makes me feel better about myself and I'm just really proud of this, you know, as an Indonesian. (I Made, personal communication, April 24, 2022)

From participant observations, I immediately spotted two main colours from nature, i.e., green and blue. The cultural landscape subak provided an immense green setting from the vegetation, i.e., the rice paddies, grass, and trees. The contrasting blue colour was from the sky, especially since the subak is located in a country with a tropical climate. The participants referred to these colours from nature as one of the essential elements to relieve their feelings of tension when or after doing outdoor recreational activities in the area.

I just love to see something green (outdoors). So, I mean, maybe because of the colour. The colour, I think, makes me feel... it's like all the tension from my everyday life, from my work, it's all gone, well at least for that moment. (Pertivi, personal communication, April 22, 2022)

I detected several different smells from nature during participant observations. The subak area facilitated outdoor recreational activities surrounded by the natural smells of grass, soil/mud, wood, and flowers. The participants reflected on these elements as refreshers from their daily lives, making them feel in a better mood and less stressed or recover from stress. They mentioned this helped them to be more assertive when they returned to their daily activities. The participants admitted that the smells of nature while doing outdoor recreational activities in the subak area made them feel fresh and cool. In other words, the subak areas provided a well-needed break from the polluted cities the respondents normally lived in, and thus helped them experience a closer and healthier connection with nature. This was further underlined by two participants who had minor health problems – one with allergic rhinitis and the other with cold urticaria – because they both normally reside in highly polluted cities. The participants also explained that the natural smells of all the elements made them feel proud of the wealth of natural resources in the area.

Maybe because I usually live in a very polluted city, so, when I go to a place with natural scenery, natural fresh environment like the subak, I definitely feel a very big difference. It's more refreshing. Every time I take a breath while doing something in the subak, the freshness of nature can very easily be smelled. ... Hm... I think my mood is also better. I mean obviously, preparing to go to Bali with my friends is exciting. But with all the stress I have, I can feel a big difference when doing activities there. ... I just feels less stressed with everything in my life. (Arief, personal communication, April 23, 2022)

I think those kinds of (the good) smells from the subak remind me of the richness of the natural resources in Indonesia. It's really a shame that there are still people who are just up to no good with all these resources, but I'm proud of how much nature we have. (I Made, personal communication, April 24, 2022)

From participant observations, I became aware that the subak area was kept as natural as possible; no barriers, e.g., handrails or fences, were installed on the tracks. All tracks allowed direct access to nearby vegetation, e.g., mostly rice paddies but also trees, grass, and flowers. All of this helped to create a sense of freedom for outdoor recreational activities in this wide and open space. Because the area provided freedom of exploration, it allowed the participants to freely roam around the area in different directions, i.e., participants did not need to stay on the same track throughout their entire visit and could also combine multiple tracks while doing the recreational activities. They also attributed this characteristic coupled with the different elevations of the picturesque terraced landscape to the unique experience of being in another world, making them feel immersed in nature. This feeling ultimately evoked a sense of appreciation of and fascination with nature while also making the participants feel more reflexive in their lives.

It's like the place screams green and it's so big too. I just feel relaxed and calm. I think I also feel it's really special because it's only in Bali. ... I don't know, maybe it's because of the difference in elevation of the landscape, so it's like I'm in a whole new world, or maybe it's because the area is so big and I'm so small in comparison, so it feels like...maybe immersing myself in nature, like 'wow I really have to appreciate all of this while I can'; it just makes me think a lot about life. (Seo-yeon, personal communication, April 27, 2022)

At the time of the study, I took notice that all activities could be carried out at no additional cost other than the entrance fee to Jatiluwih Rice Terraces itself unless one decided to join a tour and do outdoor recreational activities in the subak area as part of the tour. Although there was a small fee to enter the subak area, it was affordable for the general public. The entrance fee of entering the tourist village of Jatiluwih, for example, was 15.000,- IDR (± 12 SEK) for domestic tourists and

40.000,- IDR (± 29 SEK) for international tourists. Most outdoor recreational activities were free of charge, and those with some fees were relatively affordable; the tour package for the first cycling activity cost 210.000,- IDR (± 160 SEK) and the bike rental for the second cycling activity 50.000,- IDR (± 40 SEK). The participants underlined the importance of affordable prices as a way to encourage them to do outdoor recreational activities in the subak area. Amenities around the area were also affordable, including items from local restaurants and warungs – conventional Indonesian kiosks. The participants claimed they felt less anxious during the activities as they knew they could find affordable amenities on the premises, i.e., they could have affordable lunch immediately after or in between activities. Without this possibility, the participants would have to spend between one to three hours to find a restaurant in the nearest town – depending on which subak they visited.

Because they (the Bali government) said they wanted to build a helicopter pad in the Subak CAB. But then it depends on the market segment they want to target. Because if you take a helicopter (to go to the subak), then it's definitely not for the lower-middle class. So then access to go to the subak will only be much easier and more available for the upper class actually. Then maybe the entrance ticket price will be increased so much. It would be very tough for me if the price wasn't what it is now, as it would also be for many others in the lower-middle class. I mean, that's one of the factors that makes me go there so often, because, with how it is now, I don't need to think or feel anxiety about the price; just go there and enjoy. (I Made, personal communication, April 24, 2022)

In my opinion, facilities in the subaks in general are really good. I was worried at the beginning: 'Oh no, if I want to look for anything, if I want something, like I want to eat or drink, maybe it will be really difficult to find it'. But it turned out not at all. ... If I am doing an activity like that in the subak, at least some food must be available to be eaten there, or at least some other things (snacks, water). ... So that... people don't get confused, like where to look for; that makes people less anxious during the event. (Pertiwi, personal communication, April 22, 2022)

From participant observations, I noted that the subak area had a wide variety of animal and plant species. During plant observation activities, the richness of plant species was even more obvious. Two of the most common flowers in the area included the crown-of-thorns (*Euphorbia milii*) and shoeblack plants (*Hibiscus rosa-sinensis*). There were noticeably lots of banana trees (*Musa sapientum*), champak trees (*Magnolia champaca*), sea figs (*Ficus superba*), rasamala (*Altingia excelsa*), red-tipped ru (*Casuarina junghuhniana*), and jack trees (*Artocarpus heterophyllus*). A few weeping figs (*Ficus benjamina*) and white figs (*Ficus virens*) also existed in the area. Besides water buffalos (*Bubalus bubalis*), various types of

birds were also evident. All of this suggests that this characteristic may allow the exploration of different colours, textures, and smells in the dry and monsoon seasons. This was also supported through exploratory behaviour during participant observations displayed by the participants who were seemingly paying more attention to the ones unique to the subak, e.g., rice paddies, banana trees, jack trees, crown-of-thorns, and water buffalos. Although a variety of animal and plant species appeared to be important, the accessibility and proximity of plant species along the tracks – the possibility for participants to touch them – appeared to be more necessary than of animal species. The rice paddies and surrounding trees were the key elements that the participants highlighted as important to see and touch when carrying out outdoor recreational activities in the area.

Usually we just walk around for an hour for the view, but usually we also like collecting banana tree trunks, which are growing really a lot in the subak area. As you know, banana tree trunks are usually used as vegetables in Bali, so it's nice to see lots of banana trees in the subak; it's nice to touch the trees, and even nicer when we can find available banana tree trunks we can bring home. But the (banana) trees themselves smell good too, just so fresh. ... I'm also happy to see the rice paddies because from afar it looks green and neat, and then when I look closer, they look more detailed. (Ni Luh, personal communication, April 22, 2022)

From participant observations, it was clear that the cultural landscape subak allowed the participants to engage in outdoor recreational activities with their travel companions, i.e., family members or friends. Doing activities with travel companions was what the participants liked the most. In fact, they preferred when the activities could be performed with their travel companions. The participants considered their bonds and ties to be strengthened by carrying out the activities together with their travel companions in the subak area. Doing the activities like this also created a sense of safety and comfort because the participants were already familiar with the people with whom they shared their experiences. The participants also regarded this experience as a way to improve concentration and learning because they felt less anxious than if they had to do it alone or with complete strangers. Experiencing all this with people they are familiar with, the terraced landscape of subak offered a place for the participants to be themselves while also, noted from field notes, allowing for social silence from other subak visitors and sometimes even from their travel companions. The participants attributed this to improving their ability to connect with themselves and their travel companions on a meaningful level. In addition, the possibility to have conversations, i.e., share knowledge, with local residents emerged from this study. The participants felt this experience increased their personal confidence and knowledge by listening to the local residents and exchanging knowledge about their backgrounds and information about the subak. Such conversations were made possible either by talking to local

guides, farmers the participants passed by during the activities, or staff at local restaurants or warungs while the participants took a break from the activities.

Normally when doing activities like that in the subak, I prefer to do it together with some friends, so at least we're together. But maybe just two or three (friends); I don't really like it if more than that, it feels too crowded. ... First, because I'm a woman and, second, I'm super afraid of insects. So, if the activities there are performed together like that, I just feel safer. ... Then it's also possible to get to know them (the friends) better. ... Because then I feel safe, so then I can just focus on the activities I am doing; I mean rather than having to do it alone or with complete strangers. (Pertiwi, personal communication, April 22, 2022)

Actually, what I like the most about the activities in the subak is that I can meet local residents, because then I can talk to them. ... Even if I don't know them. ... So, for example, it is possible to ask what commodities are planted (types of rice), how the conditions are related to production, for example, ups and downs in production; things like that. Because it has something to do with my educational background. So, I get more relevant knowledge, right? So, it makes me more confident with my knowledge in relation to my education. (I Made, personal communication, April 24, 2022)

The ten identified cluster elements from the qualitative analysis include sounds of nature, unique experiences, colours of nature, smells of nature, wide open area, access to food and water, affordable activities, rich species, togetherness, as well as safety.

3.1.3 Results From MM Analysis

Through side-by-side comparisons of joint displays, the results from the previous analyses were then compared, integrated, interpreted, and thereby identify what characterises outdoor recreational activities in the cultural landscape subak. Figure 3.1 illustrates the overarching results of RQ1 were answered through the MM analysis of this study.

Significant results from the quantitative part 'Preferred activities are the ones that have been tried before' and 'Preferred activities are the ones that have never been tried before', as well as cluster element from the qualitative part 'Access to food and water', were not interrelated with each other quantitatively/qualitatively and therefore are not interpreted as the identified characteristics of outdoor recreational activities in the cultural landscape subak. This is because these results do not validate both sides of the data.

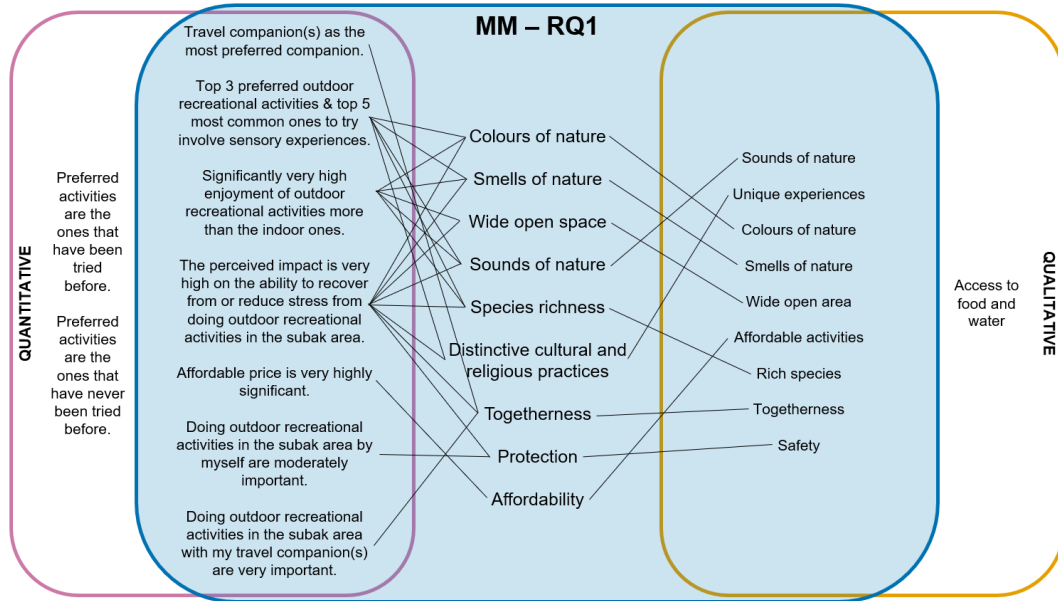


Figure 3.1 The overarching results of RQ1 were obtained through the MM analysis.

The perceived impact is very high on the ability to recover from or reduce stress from doing outdoor recreational activities in the subak area. This significant result is interpreted to be interrelated to eight cluster elements from the qualitative part, i.e., *sounds of nature*, *unique experiences*, *colours of nature*, *smells of nature*, *wide open area*, *rich species*, *togetherness*, and *safety*. The same applies to the result of significantly very high enjoyment of outdoor recreational activities more than the indoor ones, which is interpreted to interrelate to five cluster elements from the qualitative part, i.e., *sounds of nature*, *colours of nature*, *smells of nature*, *wide open area*, and *rich species*. Accordingly, the top three preferred outdoor recreational activities and top five most common ones to try involve sensory experiences, which, in the context of this study, are interpreted to be interrelated to five cluster elements from the qualitative part, i.e., *sounds of nature*, *unique experiences*, *colours of nature*, *smells of nature*, and *rich species*. The significant results of travel companions as the most preferred companion while doing outdoor recreational activities in the subak and the importance of being able to do these activities with travel companions are interpreted to interrelate to the cluster element *togetherness*. Affordable price is very highly significant, and therefore interrelates to the cluster element *affordable activities*. The possibility of doing outdoor recreational activities in the subak area by myself was moderately significant, which is interpreted to interrelate with the cluster element *safety*, that is, the social silence part in the previous qualitative analysis. In the final inferences, the names of some of the potential characteristics from the cluster elements were re-formulated to better capture the characteristics of outdoor recreational activities in the cultural landscape subak based on the analyses from both sides. The cluster elements *unique experiences*, *affordable activities*, *rich species*, and *safety* were changed to be *distinctive cultural and religious practices*, *affordability*, *species richness*, and

protection, respectively. Although the names of these cluster elements appeared sufficient for the qualitative part, they no longer appeared to capture the characteristics of outdoor recreational activities in the cultural landscape subak as a whole after being interrelated with the significant results from the quantitative part.

Accordingly, the nine identified characteristics of outdoor recreational activities in the cultural landscape subak include (1) colours of nature, (2) smells of nature, (3) wide open space, (4) sounds of nature, (5) species richness, (6) distinctive cultural and religious practices, (7) togetherness, (8) protection, as well as (9) affordability.

3.2 RQ2: How Do Outdoor Recreational Activities in the Cultural Landscape Subak Connect to Sustainable Development?

This section is divided into three subsections where the results for answering RQ2 are carried out individually – quantitatively and qualitatively – before finally being described through side-by-side comparisons of joint displays.

3.2.1 Results From the Quantitative Part

Table 3.3 presents the analysis of Likert scale questions about SDG 3 with significant results relevant to RQ2. The highest level of significance for ‘Very High’ resulted from one questionnaire statement, namely ‘The air quality is good when I do outdoor recreational activities in the subak area’. The second highest level of significance ‘High’ was also resulted from one questionnaire statement, namely ‘I do not hear any disturbing noise when I do outdoor recreational activities in the subak area’. The third level of significance for ‘Moderate’ resulted from two questionnaire statements, including ‘No one is smoking when I visit the subak area’ and ‘I know what to do in the event of natural disasters when I visit the subak area’.

Table 3.4 presents the analysis of radio buttons questions about SDG 11 with a significant result relevant to RQ2. The majority of the respondents ($n = 42$, 72.41%) used car as a mode of transportation to reach the subak from their accommodation in Bali. Another significant result to point out is that almost none of the respondents used environmentally friendly modes of transportation; 13 respondents reached the subak by motorcycle (22.41%) and 3 by walking (5.17%).

Table 3.5 presents the analysis of Likert scale questions about SDG 11 with a significant result relevant to RQ2. The second highest level of significance ‘High’

resulted from one questionnaire statement, namely ‘I feel safe when doing outdoor recreational activities in the subak area’.

Table 3.3 Analysis of Likert scale questions about SDG 3 with significant results relevant to RQ2

Questionnaire statement	Mean	Significance level
The air quality is good when I do outdoor recreational activities in the subak area.	4.40	Very High
I do not hear any disturbing noise when I do outdoor recreational activities in the subak area.	4.03	High
No one is smoking when I visit the subak area.	2.81	Moderate
I know what to do in the event of natural disasters when I visit the subak area.	2.71	Moderate

Table 3.4 Analysis of radio buttons questions about SDG 11 with a significant result relevant to RQ2

Questionnaire question	n	%
Usually used mode of transportation to reach the subak from the respondents’ accommodation in Bali:		
By car	42	72.41

Table 3.5 Analysis of Likert scale questions about SDG 11 with a significant result relevant to RQ2

Questionnaire statement	Mean	Significance level
I feel safe when doing outdoor recreational activities in the subak area.	3.97	High

Table 3.6 Analysis of Likert scale questions about SDG 12 with significant results relevant to RQ2

Questionnaire statement	Mean	Significance level
I am satisfied with the noise level while doing outdoor recreational activities in the subak area.	4.31	Very High
I am satisfied with the quality of the air while doing outdoor recreational activities in the subak area.	4.29	Very High
I do not smell any waste while doing outdoor recreational activities in the subak area.	4.24	Very High
There are facilities (such as: trash bins) where I can easily and safely dispose of my trash during my visit to the subak area.	3.16	Moderate

Table 3.6 presents the analysis of Likert scale questions about SDG 12 with significant results relevant to RQ2. The highest level of significance for ‘Very High’ resulted from three questionnaire statements, including ‘I am satisfied with

the noise level while doing outdoor recreational activities in the subak area', 'I am satisfied with the quality of the air while doing outdoor recreational activities in the subak area', and 'I do not smell any waste while doing outdoor recreational activities in the subak area'. The third level of significance for 'Moderate' resulted from one questionnaire statement, namely 'There are facilities (such as: trash bins) where I can easily and safely dispose of my trash during my visit to the subak area'.

3.2.2 Results From the Qualitative Part

Data analysis aims to compare and integrate cluster elements with perceived experiences for sustainable development, the behaviour of subak visitors, and ultimately the connection between outdoor recreational activities in the cultural landscape subak and sustainable development. This result section consists of twelve cluster elements that can help describe how outdoor recreational activities in the cultural landscape subak connect to sustainable development. These cluster elements were identified in the analysis of the participants' descriptions and field notes.

The participants associated the good natural air quality making them feel fresh and cool after doing recreational activities in the subak.

The natural air quality is good. Good, fresh, definitely different from my daily life. One of the things that makes me want to do activities there is precisely because the air quality is still much more environmentally friendly. Feels very different. The air is also cooler. ... It makes me feel getting some kind of freshness and cool feelings after doing activities there. (Arief, personal communication, April 23, 2022)

From participant observations, I noticed that there were only two trash bins available at the study site, both overloaded and not emptied for a whole week. One bin was marked for non-recyclable items and the other for recyclable items. Both bins were located at the same location, further away from where outdoor recreational activities were carried out. Although the participants did not smell the waste itself during the activities, many local residents burnt trash, including plastic waste, in the subak area where the participants did outdoor recreational activities. The participants found this experience interfering with their recreational activities, especially as they looked forward to breathing in the fresh air that the cultural landscape subak had to offer.

But yeah, I'm very upset (also) by the smell of burning trash. Because it's normal for the people living in the subak area to burn the trash; it's usually plastic waste that is burnt. ... I mean it's quite interfering with my activities because I go there to breathe fresh air, but instead I smell the smell of burnt plastic. (Arief, personal communication, April 23, 2022)

Efforts to reduce waste generation through waste management efforts, i.e., prevention, were demonstrated in this study. From participant observations, I became aware that trash bins were available at the study site, although only two. The local warungs were selling recyclable plastic bottles for cold water. The participants did such efforts while doing recreational activities in the subak by bringing their own bottles of cold water if they lived in the subak area or buying cold water packaged in recycled bottles. They attributed these efforts to giving them a warm feeling and a sense of respect for nature when they engaged in PEB that helped preserve the subak while doing recreational activities there.

Well I mean it's impossible to bring cold water from my accommodation to there (the subak) because it's usually quite far away, so it's better to just buy it there at a, what do you call that, kiosk? Or something like that. ... Luckily so far, the bottles being sold at the local kiosk that I bought are recyclable. I mean, I think we should show some respect for nature. So, when I buy recyclable materials like that, it shows respect for nature and I think in a way it also helps preserve the subak. ... Hm... I feel my heart warm when I do this kind of thing. I know it's just a small thing, but it's a nice thing to feel. (Seo-yeon, personal communication, April 27, 2022)

The participants visited the subaks either by car (mostly) or motorbike, and on foot if they lived or rented an accommodation in the area. From participant observations, I could not find sustainable modes of transportation such as carpooling, car sharing, public buses, and green vehicles. Several subaks, including the study site, offered a sustainable mode of transportation, i.e., electric bikes, but only to explore the area itself and not as a means of transportation to reach the subak from the visitors' accommodation in Bali. The participants cited this connection as a relief because of the simplicity and flexibility in doing the recreational activities on their own schedule.

From home, I usually ride a motorbike to the subak. It's quite far from my house. There's no way really to go there other than by a car or motorbike. (Ni Luh, personal communication, April 22, 2022)

Usually, I prefer to bring my own car there. Even if there are people who ride a bicycle, they usually join the tour and there is a tour guide, right? I don't think there's public transportation that reaches any subak. ... Yeah, it's more relieving if I don't have to join a tour because it's simpler; I just need to match my schedule with a few friends or family members who want to join me. So, it's better to set the schedule with my very small circle only. (Arief, personal communication, April 23, 2022)

During outdoor recreational activities, the participants did not throw their trash in the subak area even though they had difficulty finding trash bins throughout the area. In Indonesia, potable water cannot be obtained from tap water. As a result, I

spotted many subak visitors who purchased and brought at least one bottle of cold water which was usually sold at a local warung. Since trash bins were difficult to find while doing recreational activities, many participants carried their empty bottles with them until they finished their activities. The participants also threw their trash into the available trash bins in the subak area for recyclable items. They attributed these efforts to increasing pleasant feelings and a sense of community as they helped to keep the subak clean.

There really isn't a trash bin when it's in the middle of activity out there. That's why I usually carry my trash in my bag. Then when I'm done with my activity, I return to the main road where there is a trash bin. Even though many other visitors don't care (to keep the subak clean), at least I am happy to help keep the subak clean. Even if I'm not Balinese, well I don't even live in the area either, at least I can help that way; it gives me a sense of the community, you know. (Pertwi, personal communication, April 22, 2022)

From participant observations, I noticed that local warungs were already selling recyclable plastic bottles for cold water. However, they always handed out plastic bags to carry items purchased by subak visitors, of which these visitors just accepted, i.e., instead of refusing the unnecessary plastic bags or using their own bags. I also spotted a lot of visible litter (e.g., cigarette butts, plastic bottles, face masks, plastic wraps, plastic bags) in the subak. The participants attributed all this to their deteriorating mood to some extent and feeling a little upset during and after their activities.

Because maybe sometimes, sometimes maybe if they (subak visitors) are really in the middle of doing their activities in the middle of the subak, they might not be patient to hold back on throwing out their trash until when they reach the end of the road again after their activities are finished. So, they just litter right away, right? I mean, the subak is always covered with all the greenness and plants and all that. It's very rare to have any empty area in the middle of all that. So maybe people think others won't see the litter anyway because it's not very visible, so they just litter the subak. They probably don't want to wait to throw it away at the end of their activity. ... It's just a bit upsetting to see all the litter. (Pertwi, personal communication, April 22, 2022)

From participant observations, I became aware that there were a few signs that gave instructions to subak visitors on how to behave during their visit, namely not to enter the tracks using a motorbike or car unless they were local farmers, not to litter, not to damage rice plants, to explore only following the available tracks, and not to enter the local temples (see Figure 3.2). These signs were available in both Indonesian and English. Nevertheless, 'no smoking' signs could not be found.

While doing recreational activities in the subak, the participants felt disturbed and irritated by other subak visitors who polluted the air through cigarettes.

[T]he smell of cigarettes; it's definitely there. ... [T]here is always a smell of cigarettes from the surrounding residents, and especially the tourists – almost all of them are smoking. So then I became a passive smoker because of them. ... Actually, the most annoying thing is when I start to smell cigarette smoke in there; it's really not good, is it? (Arief, personal communication, April 23, 2022)



Figure 3.2 One of the signs at Jatiluwih Rice Terraces that gives instructions to subak visitors on how to behave during their visit.

Although the participants felt safe while doing the activities in the subak, there was a lack of road safety on the longest track of the study site, especially for the cycling activity. From participant observations during the first cycling activity, I never received the cold towel, any insurance detail, nor any explanation at all about the study site from the guide – all of which should have been included in the tour. However, it was still a wise decision for me to take the tour and had the guide with me. It turned out that the longest track consisted of various roads that were very dangerous as they were surrounded by narrow, slippery, and steep cliffs. There was no sign about the dangers ahead nor fences or anything similar to ensure that subak visitors could do the activity safely on the longest track. It was the guide who warned me right before each turn during this activity and informed me that most of the visitors who cycled there had accidents during the activity, especially when they did not listen to their guide. Although none of the participants from the interviews

mentioned the same or similar experience, it appeared that I was not the only one who felt unease and thought the track was perilous.

From participant observations, I recognised an inclusivity effort from the affordable price for the general public, i.e., the entrance fee, as well as the fee for joining a tour and gratuities for the guide when applicable. Participants linked this effort with the results of fostering a sense of belonging to Balinese culture. Nonetheless, the cultural landscape subak did not provide universal access to an inclusive and accessible area, especially for children, the elderly, and persons with disabilities. The tracks at the study site, for example, were difficult to access even for physically fit people. Apart from the longest perilous track from the study site, the overall surface area of any subak was uneven and muddy, which was even more challenging during or after the rain. The participants knew that they would not be able to bring a travel companion in any of the categories (i.e., children, the elderly, and persons with disabilities) as it would be difficult for these people to carry out any recreational activities in the current settings of the subak area. The participants anticipated how they would have felt more enjoyment if this was not the case, e.g., if they could engage in recreational activities with their physically unfit grandparents because they might be able to have quality time together in the subak.

I think it's great when everyone can afford it because at least for me, it makes my sense of belonging to the culture here grow. (I Made, personal communication, April 24, 2022)

For children, I think it's possible, but it also depends on how small they are. But people with disabilities don't seem to be able to go there. ... For the elderly, it might be a bit difficult too. ... Well, at least from the children who are old enough, to people who are in their early 50s, or 55 maybe at the oldest; they're usually still pretty strong. ... It's still possible depending on which subak they visit because a few subaks also have some kind of wooden handles. For example, when a subak has a ladder with handles, even I also feel safer, compared to the subaks without such things. ... Actually, it would be nice if I could, for example, bring my grandmother; we can have quality time together, maybe get some wisdom too from her. It's just that since most subaks have surfaces like that and my grandmother is also very old, how can I even bring her to a subak that has ladders and handles? (Pertwi, personal communication, April 22, 2022)

Signs indicating where to evacuate or what to do in the event of a natural disaster could not be found in the subak area during participant observations, which was also confirmed by the participants who visited either the study site or other subak areas. The participants knew a few basic things to do if a natural disaster occurred while doing outdoor recreational activities in the subak, e.g., to stay away from

trees in the event of an earthquake. However, the participants showed little or very little indication of concern about such a situation – they expressed their concern but did not appear to be overly concerned about it.

I don't know in detail what I should do (if a natural disaster occurs during my activities in the subak). At the very least, I know if it's an earthquake, then I need to find a place away from the trees. Usually, when facing an earthquake, people tend to avoid buildings or trees because trees will fall or buildings will collapse, so I have to avoid being crushed by the trees or buildings. At least that's it. (Ni Luh, personal communication, April 22, 2022)

Well worried or not, I think I'm more inclining not to worry if there's a natural disaster. I mean, if there's a natural disaster during my activities in the subak, God willing, well what to do? There's nothing to do, right? No one knows where and when a natural disaster will occur. So, if that happens, then yeah, what to do? I mean if there's some kind of Statement of Procedure in the subak area that is made by the local government, like in case of emergency, like 'In case of emergency, one needs to do this and that', then yes, of course, I will follow it, but in the subak there's no such information. So, for me, it won't be like, 'Oh my God, I'm afraid that if I go to this area, I'm afraid of this and that; there'll be a landslide or an earthquake'. So, it's not like that. ... Moreover, in Indonesia there are so many types of natural disasters, so, if I'm worried, it's useless. (Arief, personal communication, April 23, 2022)

The identified cluster elements from the qualitative analysis include good natural air quality, waste generation problems, efforts to reduce waste generation through prevention, waste management efforts, lack of sustainable modes of transportation, efforts to protect the subak, lack of awareness and willingness of sustainable lifestyles, need for tobacco control, lack of road safety on the longest track, inclusivity effort through affordable price, inclusivity and accessibility issues, and need for risk management.

3.2.3 Results From MM Analysis

Through side-by-side comparisons of joint displays, the results from the previous analyses were then compared, integrated, interpreted, and thereby describe how outdoor recreational activities in the cultural landscape subak connect to sustainable development. Figure 3.3 illustrates the overarching results of RQ2 were answered through the MM analysis of this study.

In the 2030 Agenda for Sustainable Development, several targets in the context of this study appear in more than one SDG, e.g., air quality. In order to maintain focus, these targets are only described in one of the SDGs that is considered most relevant in the context of this study. Results regarding the absence of anthropic noises in the

subak (the dash-dot lines in Figure 3.3) are not presented here because noise pollution is not clearly included in the SDGs, i.e., RQ2 does not aim to point out what is missing in the goals and targets of the 2030 Agenda, but rather to find and describe the connection between outdoor recreational activities in the cultural landscape subak with sustainable development. Since connections to SDG 3, SDG 11, and SDG 12 were expected from the start, the MM analysis was more about compiling the significant results from quantitative and cluster elements from qualitative, then dividing these connections by type of connection – positive or negative (see Figure 3.4).

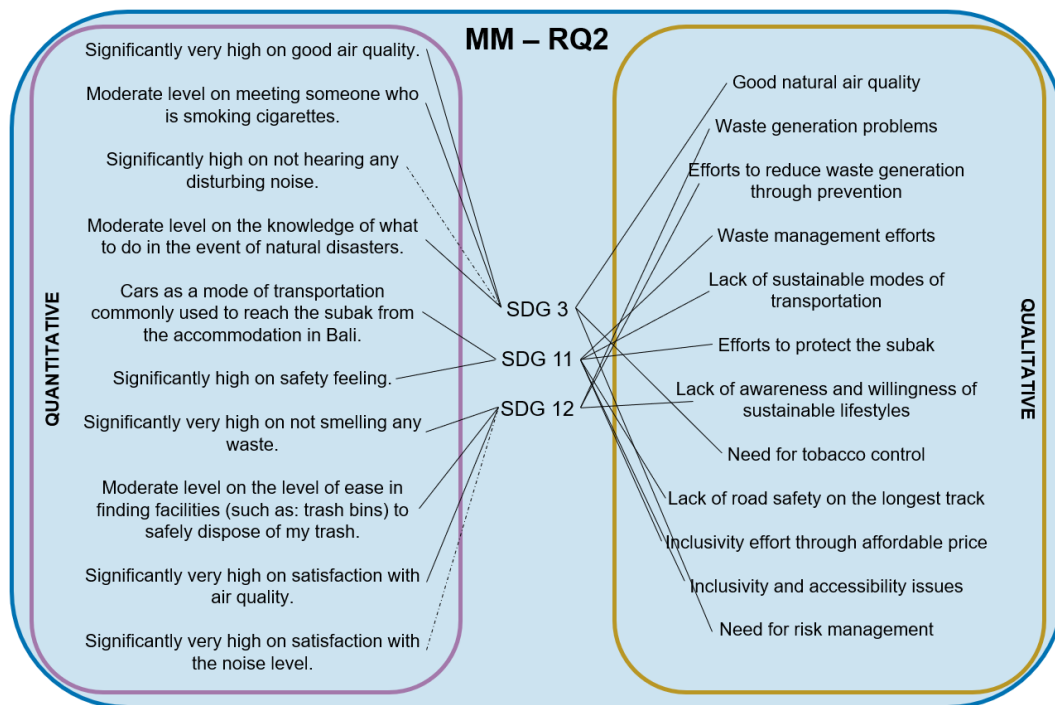


Figure 3.3 The overarching results of RQ2 were obtained through the MM analysis.

In relation to SDG 3, the outdoor recreational activities in the cultural landscape subak had a *positive* connection with sustainable development through the good natural air quality in the area. The *negative* connections were signified through the need for tobacco control and risk management in the subak area. When it comes to SDG 11, *positive* connections between outdoor recreational activities in the cultural landscape subak and sustainable development were recognised through existing efforts for waste management and to protect and safeguard the subak as the world’s cultural and natural heritage. *Negative* connections were shown through the lack of sustainable modes of transportation, lack of road safety on the longest track, as well as inclusivity and accessibility issues. For SDG 12, efforts to reduce waste generation through prevention were the *positive* connection between the outdoor recreational activities in the cultural landscape subak and sustainable development. *Negative* connections were demonstrated through waste generation problems as well as the lack of awareness and willingness for sustainable lifestyles.

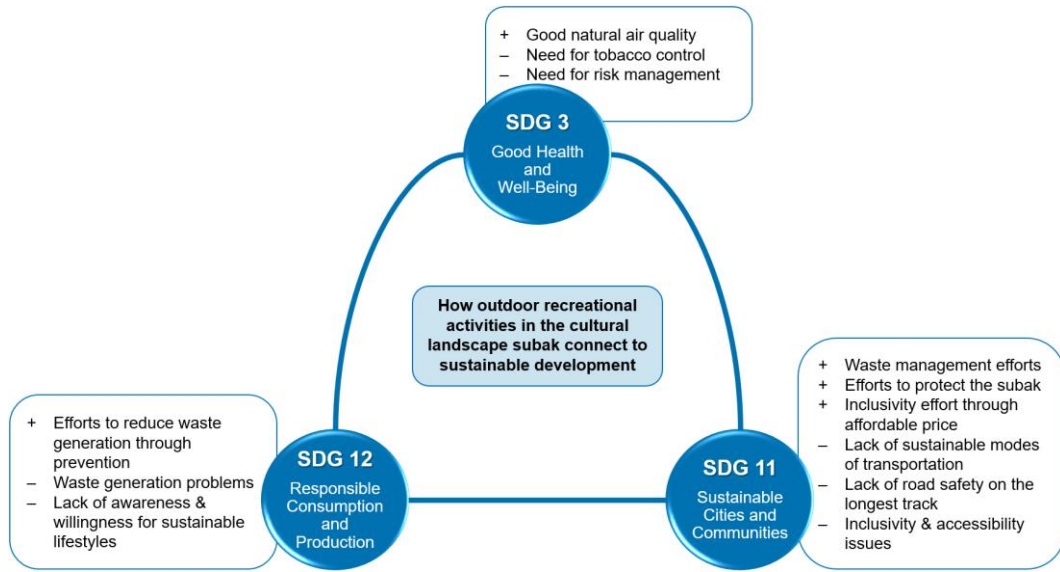


Figure 3.4 Positive and negative connections between outdoor recreational activities in the cultural landscape subak and sustainable development.

“Look deep into nature, and then you will understand everything better.”

– Albert Einstein, Nobel laureate in Physics

Chapter 4. Discussions

This chapter discusses the results of this study and contextualises them in relation to implications and future research, as well as method reflections. Section 4.1 discusses outdoor recreational activities in the cultural landscape subak as NBIs, Section 4.2 the role of the cultural landscape subak for NBIs, Section 4.3 outdoor recreational activities in the cultural landscape subak as a way to adopt PEB, and Section 4.4 method reflections.

4.1 Outdoor Recreational Activities in the Cultural Landscape Subak as Nature-Based Interventions

There is a wide variety of outdoor recreational activities offered in the subak cultural landscape, which makes it possible to attract a diverse range of subak visitors. This makes sense – each individual has their own background and thus may have different preferences of outdoor recreational activities to do in the subak. Walking as one of the most popular outdoor recreational activities in the subak, for example, was unexpected. The largest study ever conducted on human movement revealed that Indonesians are the least active people in the world when it comes to walking (Althoff et al., 2017). Surely the participants of this study on the subak included international visitors, and therefore the type of subak visitors might affect the results of the popularity of this activity. However, it still raised the question, what is it about the recreational activity itself that makes it one of the most preferred to be carried out in the cultural landscape subak?

This study itself did not aim to investigate why the participants preferred certain recreational activities over others; this was not a comparative study. From this study, however, we can determine whether outdoor recreational activities in the subak themselves have unique characteristics that are imbued with specific elements of the cultural landscape, and therefore these activities themselves serve as NBIs for the participants. It appeared that for the participants, doing outdoor recreational activities in the subak provided a platform for them to (re)connect not only with themselves (i.e., through social silence) but also with other people (i.e., their travel companions, guides, local residents) and the natural environment itself (i.e., plants, animals, soil/mud). These (re)connections may be associated with the

present (i.e., when the participants carried out the activities) and the past (i.e., when they feel connected to history and more aware of local cultural and religious practices). The participants then reaped the benefits of these connections, such as improved cognitive (e.g., by learning about Balinese traditions and how to be more reflexive, examining plants and animals in the subak) and social skills (e.g., by socialising with the local residents or guides, having their ties and bonds with their travel companions be strengthened), as well as an enhanced state of health and well-being (e.g., by feeling safe, feeling increased levels of self-confidence and less stressed or recovering from stress). All of this is consistent with previous research showing that outdoor recreational activities facilitate participants to connect with themselves and the natural environment (Finnie et al., 2022; Rosa et al., 2019) as well as with others within outdoor environments (Carpenter & Harper, 2018). Further investigation should be conducted to examine whether and how the specific background of visitors (e.g., age, gender identity, country of origin) affects outdoor recreational activities in the cultural landscape subak as NBIs. In addition, studies comparing each outdoor recreational activity in the cultural landscape subak should be carried out to determine whether a particular activity provides better health and well-being for visitors. Future research is also needed to investigate whether subak visitors prefer outdoor recreational activities in the cultural landscape subak over the urban environment and how they perceive it, as well as what the most efficient nature dose is for subak visitors to reap the most benefit from doing the activities there, especially when these activities are not carried out consistently.

4.2 The Role of the Cultural Landscape Subak for Nature-Based Interventions

This study did not aim to merely examine the environmental characteristics of the cultural landscape subak either. From Section 1.3 of Chapter 1 earlier, we learnt that greenspaces have the ability to improve human health and well-being, which should also be the case for the subaks. Nevertheless, we can learn the role of the cultural landscape subak settings for NBIs. This role can vary widely depending on the visitors and their backgrounds. Although this study did not aim to merely examine the environmental characteristics of the cultural landscape subak for NBIs, this study denoted that the cultural landscape subak was a suitable environment that enabled restoration, and therefore outdoor recreational activities in the subak can be regarded as restorative activities. The participants confirmed this – highlighting that outdoor recreational activities surrounded by the smells of nature in the subak (i.e., from the grass, soil/mud, wood, and flowers) made them feel in a better mood and less stressed or recover from stress. Through the experiences of the participants using the subak settings for NBIs, this study facilitated the cognitive, emotional,

and behavioural changes in the participants. Some examples included when the participants were learning about the wealth of natural resources in the subak and changing in thoughts through reflexivity (i.e., cognitive), feeling refreshed and in a better mood (i.e., emotional), as well as being more assertive when returning to daily activities (i.e., behavioural). All of this corresponds to previous research in many countries using forest landscapes for NBIs (Oh et al., 2020).

There were no guidelines on how subak visitors should use the cultural landscape subak for NBIs when carrying out outdoor recreational activities there. Anyone could engage in outdoor recreational activities in the subak any way they want. The only forms of guidance were signs indicating available tracks in the subak and instructions on how subak visitors should behave during their visit (i.e., not to enter the tracks using a motorbike or car unless they are local farmers, not to litter, not to damage rice plants, to explore only following the available tracks, and not to enter the local temples). Local guides only served to narrate the history of the cultural landscape subak, or help visitors explore the subak safely in certain perilous terrain. Nonetheless, this study revealed that subak visitors could still reap benefits from utilising the cultural landscape subak for NBIs, regardless of whether they undertook the activities by themselves or with local guides who were not NBT practitioners. Regardless of the environment in which NBT is conducted (e.g., forest settings, rehabilitation gardens), sessions or programs may be guided by NBT practitioners, such as some in Japan (see Clarke et al., 2021), South Korea (see Shin & Shin, 2020), Denmark (see Sidenius et al., 2017), Sweden (see Grahn & Pálsdóttir, 2021), United Kingdom, Germany, Israel, Italy, Spain, and the United States (see Naor & Maysel, 2021). Further investigation is needed to examine whether it is more effective for subak visitors to reap the benefits of outdoor recreational activities in such a landscape if these activities are guided by NBT practitioners.

Whether there is a need for NBT practitioners to guide the subak visitors to experience the better effectiveness of outdoor recreational activities in the cultural landscape subak for NBIs, this study showed a clear indication that the environmental settings of this landscape provided nature affordances that allowed restorations to its visitors. Future research should be carried out to assess the different attributes of this picturesque landscape, such as by using Hartig et al.'s Perceived Restorativeness Scale (PRS in short) (1996, 1997) and/or Grahn & Stigsdotter's Perceived Sensory Dimensions (PSDs in short) (2010). Future studies should also examine more specific focal points, e.g., by focusing on people who have been depleted of daily demands, on animal-assisted interventions in the subak (e.g., water buffalos), or on particular elements (e.g., the soundscape of the subak).

Weather conditions affected the use and choice of outdoor recreational activities in the cultural landscape subak to a certain extent, e.g., the visitors would avoid doing the cycling activity on the longest track in Jatiluwih Rice Terraces especially during or after rain. Further research should investigate the association between weather conditions in the cultural landscape subak and outdoor recreational activities after adjustment for age, gender identity, and socioeconomic status. Moreover, it appeared that outdoor recreational activities and location preferences in the subak were influenced by seasonal factors. Unlike countries in temperate zones (e.g., Sweden, South Korea), Indonesia only has two seasons – dry (April to September) and monsoon (October to March). Although crops grown in the subaks are not affected in the same way in a temperate climate, not all subaks grow the same rice variety and not all rice varieties grown in Bali have the same harvest times. Some local Balinese rice varieties, such as brown rice Aek Sibundong, can be harvested in about four to six months¹¹ (Indonesian Agency for Agricultural Research and Development, 2006). Following the local awig-awig, all krama of Subak Jatiluwih are obliged to plant this iconic variety on the Jatiluwih Rice Terraces (“Padi beras merah,” 2021). This means, sometimes, the cultural landscape subak there will not be as green as when this study was conducted, where the yellow colour can mix with the green scenery of grass, trees, and forests. This raised another question about how the dominance of yellow-green colours in the cultural landscape subak will affect visitors’ experiences of doing outdoor recreational activities for NBIs. Accordingly, future studies should also investigate case studies based on specific subak locations as each subak may have different rice varieties and thus different harvest times. Figure 4.1 shows Bubur Bali Betutu Beras Merah – made from Aek Sibundong brown rice – which is an iconic culinary experience at Jatiluwih Rice Terraces as this dish can only be found there.



Figure 4.1 Bubur Bali Betutu Beras Merah – made from brown rice Aek Sibundong – is an iconic culinary experience at Jatiluwih Rice Terraces as this dish can only be found there.

4.3 Outdoor Recreational Activities in the Cultural Landscape Subak as a Way to Adopt Pro-Environmental Behaviour

In addition to the 17 goals in the 2030 Agenda, there are 25 targets that are primarily related to health and well-being; some of which are related to this study. From these targets and the results of this study, this study elucidated possible implications that underlined outdoor recreational activities in the cultural landscape subak as a way to adopt PEB – “actions that contribute to the preservation and/or conservation of the environment” (Axelrod & Lehman, 1993, p. 153) – and thereby helped improve human health and well-being, protect the subak environment, as well as achieve the SDGs in the context of this study.

Although the cultural landscape subak was perceived by the participants to provide good natural air quality, this study demonstrated the need for tobacco control in the area. Previous research revealed that environmental tobacco smoke produces fine particulate matter, which is the most harmful element of air pollution for health, making the air pollution emitted by cigarettes ten times greater than that of diesel car exhaust (Invernizzi et al., 2004). The toxic chemicals in the residue seep into the soil and waterways, causing soil and water pollution, respectively (World Health Organization, 2022). Cigarette products also add to the accumulation of plastic pollution, i.e., through the filters that are made of plastic. Tobacco use is a major risk factor for non-communicable diseases, e.g., chronic respiratory disease, heart disease, cancer, stroke, and diabetes (Centers for Disease Control and Prevention, 2021). All of this makes it evident that tobacco control is essential in the subak cultural landscape, not only to enhance the experience of the subak visitors doing outdoor recreational activities there but also to protect the environment. Tobacco smoke from some visitors polluted the air, forcing other subak visitors to become passive smokers during outdoor recreational activities in the subak. In addition to this, cigarette butts were found all over the subak, littering the environment. A possible implication would be to have clearer laws prohibiting smoking in greenspaces such as the cultural landscape subak. The Indonesian government has enacted a law that authorises local governments to determine which areas are included in the Non-Smoking Zones, or Kawasan Tanpa Rokok in Indonesian (henceforth KTR) (Ministry of Health of the Republic of Indonesia, 2009). Following this, the Balinese government enacted a regional regulation stating that KTR must include public places such as tourist attractions and recreational areas in Bali (Bali Provincial Government Legal Documentation and Information Network, 2011). Based on this, the cultural landscape subak should already have been included as KTR. However, ‘no smoking’ signs could not be found in the subak and there were still many subak visitors who smoked cigarettes

during their visit, making other visitors passive smokers. Based on all of this, all subaks should have ‘no smoking’ signs and the Balinese government should enforce stricter smoking bans, e.g., with significantly higher fines. It is also possible to tackle this issue by setting up at least one smoking booth in each subak. Placing smoking booths in public places (see Figure 4.2) has proven to be an effective strategy for reducing passive smokers in South Korea, emphasising the rights of the general public to breathe clean air (Kim, 2018; “흡연자 인권 생각한,” 2013) and thus can present a good solution for subak visitors to be more comfortable doing outdoor recreational activities in the subak and the environment of the cultural landscape subak itself. Target 3.4 of the SDGs – to “reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being”, as well as Target 3.a – to “strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate” (United Nations General Assembly, 2015, p. 16) can then be attained through these implications.



Figure 4.2 A self-purifying smoking booth in South Korea. (전자신문 ETNews, 2013)
<https://bit.ly/3RfkWkY>

This study also showed that many subak visitors had practised PEB during outdoor recreational activities in the cultural landscape subak. These visitors helped protect the subak by carrying their empty bottles with them until they finished their activities in an effort to keep the environment clean. Nonetheless, there were still many other visitors littering the area. Warning signs so that subak visitors do not litter were already available. Although the difficulty of finding trash bins in the subak was an apparent problem, this non-environmental behaviour still occurred, which signified the lack of awareness and willingness of these visitors for sustainable lifestyles. A possible implication to address this issue is to implement the Swedish recycling system for plastic bottles. This so-called *pant system* is a deposit system that enables people to receive some money back when they recycle bottles and cans by inserting them in the pant machine. This system has proven to

be effective in tackling climate change – 89% of cans and 86.4% of PET bottles were recycled in 2021 alone (Pantamera, n.d.). If the pant system is implemented in Indonesia and particularly in the cultural landscape subak, it can encourage all visitors not to litter when doing outdoor recreational activities there. Figure 4.3 shows a plastic bottle with the pant barcode is being inserted into the pant machine. Another possible implication is to draw inspiration from the Swedish non-profit organisation Keep Sweden Tidy Foundation, or Håll Sverige Rent. In order to combat littering and promote recycling, this organisation has initiated awareness campaigns and environmental education throughout the country, for example through the *plockar skräp* movement – where local residents gather to voluntarily pick up litter in public places – and *skräpplockardagarna* – literally translated ‘the litter picker days’ (Håll Sverige Rent, n.d.). These activities can also be implemented in Indonesia and particularly in the cultural landscape subak. These activities can be promoted to schools where school children in Bali and other provinces in Indonesia can go on field trips to the cultural landscape subak and help pick up litter. If this awareness can be deeply embedded in the minds of citizens as early as possible, the habit of not littering can be more easily practised as they grow older. Target 11.4 of the SDGs – to “strengthen efforts to protect and safeguard the world’s cultural and natural heritage”, Target 12.5 – to “substantially reduce waste generation through prevention, reduction, recycling and reuse”, as well as Target 12.a – to “support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production” (United Nations General Assembly, 2015, pp. 22–23) can then be achieved through these possible implications.



Figure 4.3 A plastic bottle with the pant barcode is being inserted into the pant machine in Sweden.

Based on all this, future research should measure the extent to which subak visitors adopt behaviours that minimise their impact on the natural environment of the cultural landscape subak. Possible tools for doing this are those of Milfont and Duckitt (2004, 2010) and Zhao et al. (2014) because both are conventional measures of PEB that capture good citizenship behaviour and green consumer behaviour.

4.4 Method Reflections

The fieldwork of this study was indeed an arduous journey and this study in general was very challenging for the second cycle level because of its complexity. It took much more time and energy to analyse all the data obtained. The qualitative part alone would have generated thick data, and therefore combining this study with the quantitative part made it even more of a demanding MMR project. Nevertheless, the questionnaire distributed electronically was my way of getting possible interviewees and this was especially beneficial considering the severity of the COVID-19 pandemic situation in Indonesia at the time. While the interviews and participant observations offered personal and sensory experiences on how to understand the phenomenon of outdoor recreational activities in the cultural landscape subak, the questionnaire complemented these findings with quantifiable data. As such, using the MMR design for this study resulted in a more robust research design, more valid and reliable findings, and inadequacies of individual methods, i.e., quantitative or qualitative, were minimised. This is in line with previous research, which also means that credibility is enhanced and threats to internal validity are realised and addressed (Creswell & Plano Clark, 2018; Gorard, 2010; Johnson & Onwuegbuzie, 2004). Other ways to assure validity are through thick description and reflexivity (Creswell & Creswell, 2018), which were also carried out throughout this study through the instruments of a quantitative questionnaire, in-depth interviews, and a series of participant observations. Reliability procedures such as acknowledging potential biases in ongoing reflection of methods (Sandelowski, 1993), keeping a log of every step taken during the fieldwork through field notes, and double-checking the transcriptions to avoid mistakes made during the transcription process (Gibbs, 2007) were also embraced in this study.

It should also be noted that the data collection was conducted in the months of March and April 2022, at which time tourism in Indonesia in general, and more specifically in Bali, had only just begun to reopen after a total lockdown for almost two years. Before the COVID-19 pandemic, the study site had approximately 1,000 tourists per day, while during the pandemic only 20 people per day and sometimes none at all (Ministry of Tourism and Creative Economy of the Republic of

Indonesia, 2022). It was only in May of the same year that the number of visits gradually increased to 500 tourists per day. The results and discussions of this study were, consequently, heavily affected by the ongoing pandemic at the time of the study.

Despite all limitations, the results of this study are expected to provide transcendent perspectives in relevant fields that can be the starting point for emphasising outdoor recreational activities with characteristics that can improve health and well-being, as well as inspire change and usher in concrete actions and solutions to address threats to the UNESCO World Heritage Site – the cultural landscape subak. As such, this study expectantly sheds light on an understudied phenomenon by generating results that can be mainstreamed and used for future research – not only in Indonesia but also the rest of the world.

At last, I would like to underline that we need to remember that nature can survive without humans; it is us humans who cannot survive without nature. We cannot simply expect and demand nature to contribute to our health and well-being; we must first preserve and conserve nature. Just as nature positively affects our health and well-being, we humans need to preserve and conserve it in the first place – not only for ourselves but also for future generations.

Notes

- 1 One of the requirements to get the MFS scholarship was to have a contact person in Indonesia. A contact person from the developing country where the study was conducted was supposed to assist the MFS scholarship recipient with logistical issues, including helping to introduce the student to people who might be able to assist with the research, as well as informing her/him of the necessary arrangements and updates, e.g., the security situation in the project area and COVID-19 pandemic situation. I ended up doing almost all these myself as I am fluent in Indonesian. Almost all other MFS scholarship recipients needed such assistance from their contact persons as they usually do not speak the local language. Since the contact person was part of the scholarship requirements, and not directly established by myself for this study, I decided not to write further about my contact person.
- 2 While I experienced living in some cities in Indonesia when I was younger (i.e., Bekasi, Jakarta, Jambi, and Yogyakarta), I never lived in Bali (see Figure 5.1). However, I always did enjoy the many visits I made to Bali – mostly for personal purposes with my genetic family and a few times for medical conferences I attended.



Figure 5.1 Map of Indonesia showing where I had resided during my upbringing.

- 3 Apart from this MSc in the Environmental Psychology of Landscape Architecture, my other educational backgrounds include medicine – general practitioner, medical anthropology, creative arts therapy, dance choreography, and computer music composition. Since 2005, most of the

projects I have undertaken have been on the topics of health promotion, ageing and health, sustainable nature-based therapy, sexual and reproductive health, national sex education, HIV/AIDS, music and dance movement therapy, as well as the dangers of drugs, tobacco, and alcohol. While most of these projects were/are not necessarily parts of my previous or current education, I consider them as parts of my learning process which has undeniably also had an impact on the way I observed and perceived things for this study.

- 4 I am aware that most questionnaires in English would have listed ‘non-binary’ – or *hen* in Swedish – as the third gender option. However, this could be a complex matter in Indonesia. Even though there are only two nationally recognised genders, i.e., male and female (Population and Civil Registration Agency of Indonesia, 2021), more than two genders are recognised in some areas in the country. For example, for the Bugis – an ethnic group in South Sulawesi – there are five recognised genders, including *makkunrai* – ‘female women’, *oroani* – ‘male men’, *calalai* – ‘female men’, *calabai* – ‘male women’, and *bissu* – ‘transgender priests’ (Davies, 2010). Because of this, I decided to put ‘other’ as an option in the questionnaire.
- 5 *Allergic rhinitis*: Commonly known as hay fever, this disease occurs when the immune system overreacts to airborne allergens, e.g., from pollens, dust mites, animal danders, or moulds (Simon et al., 2020). Symptoms and signs may include sneezing, nasal discharge or congestion, itching, red watery eyes, and swelling around the eyes.
- 6 *Cold urticaria*: A disorder in the form of large red welts on the skin after exposure to a cold stimulus (Burge et al., 2016). Symptoms and signs may include itching, swelling of the hands or lips when exposed to cold objects, as well as swelling of the tongue and throat.
- 7 *RealFeel temperature*: An equation that takes into account many different factors to determine how the temperature actually feels outside (AccuWeather, 2014). Multiple factors such as humidity, cloud cover, winds, sun intensity, and the angle of the sun, are taken into consideration to determine how hot and cold feels. Daily temperature was checked on the mobile application I used as a premium user to ensure accuracy.
- 8 For the breathing exercise activity, I did some of the breathing exercises I received during my Pencak Silat and Ju-jutsu trainings. I earned black and orange belts in these Indonesian and Japanese martial arts, respectively.

- 9 The IDR currency was converted to SEK because the university where I pursued my second Master's degree was located in Sweden.
- 10 After completing the mandatory quarantine upon arrival in Jakarta due to the COVID-19 pandemic, I took a two-hour flight to Ngurah Rai Airport in Bali. The location of the study site was quite far from the airport because it took an additional three hours by car to get there. Although the remote location made the fieldwork quite challenging due to the difficulty of getting internet access, it was clear that the study site offered a space without any anthropic noises.
- 11 This includes the starting time from the preparation of planting brown rice Aek Sibundong until it is finally harvested (Indonesian Agency for Agricultural Research and Development, 2006).
- 12 According to the seventh edition of the American Psychological Association (APA) citing style – which is used for this thesis, interviews are not to be included on the References as they are not recoverable information. However, I decided to include this from my learning process during my first Master's degree where “ethnology lives and breathes its empirical materials” (Hagström, 2018). Although this study is not exactly in the field of ethnology, I do agree that the statement also applies to the fields of environmental psychology and landscape architecture. Several other APA guidelines, e.g., double spacing, were not followed as the Department of People and Society at the Swedish University of Agricultural Sciences has modified these.

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Software

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Informal Talks with the Guides

- 01- Informal talk with I Gede. (2022, March 14). Bali, Indonesia.
- 02- Informal talk with Janitra. (2022, March 17). Bali, Indonesia.
- 03- Informal talk with Awahita. (2022, March 17). Bali, Indonesia.
- 04- Informal talk with I Ketut. (2022, March 17). Bali, Indonesia.


Semi-Structured In-Depth Interviews

- 01- Interview with Pertiwi. (2022, April 22). Jakarta, Indonesia. *Performed and transcribed by Kei Nilsson.*
- 02- Interview with Ni Luh. (2022, April 22). Bali, Indonesia. *Performed and transcribed by Kei Nilsson.*
- 03- Interview with Arief. (2022, April 23). Jakarta, Indonesia. *Performed and transcribed by Kei Nilsson.*
- 04- Interview with I Made. (2022, April 24). Bali, Indonesia. *Performed and transcribed by Kei Nilsson.*
- 05- Interview with Seo-yeon. (2022, April 27). Seoul, South Korea. *Performed and transcribed by Kei Nilsson.*

Observations and Field Notes

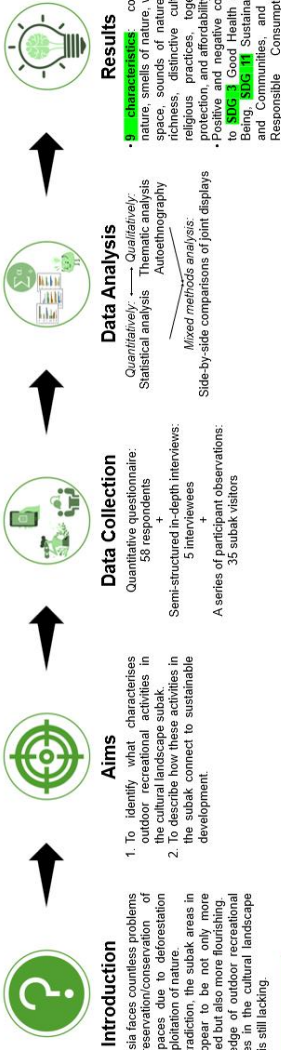
- 01- Observation during a 90-minute cycling activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 14).
- 02- Observation during a 90-minute plant observation activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 14).
- 03- Observation during a 135-minute trekking activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 15).
- 04- Observation during a 120-minute landscape photography activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 15).
- 05- Observation during a 45-minute breathing exercise activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 16).
- 06- Observation during a 120-minute walking activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 16).
- 07- Observation during a 120-minute visit to the Subak Museum, Bali, Indonesia. (2022, March 17).
- 08- Observation during a 120-minute visit to the Bali Museum, Bali, Indonesia. (2022, March 17).
- 09- Observation during a 45-minute plant observation activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 18).
- 10- Observation during a 150-minute trekking activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 18).
- 11- Observation during a 60-minute landscape photography activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 19).
- 12- Observation during a 45-minute breathing exercise activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 19).
- 13- Observation during a 60-minute walking activity in Jatiluwih Rice Terraces, Bali, Indonesia. (2022, March 20).
- 14- Observation during a 60-minute cycling activity in Jatiluwih Rice Terraces and surrounding areas, Bali, Indonesia. (2022, March 20).

Popular Science Summary: Poster



www.slu.se

Outdoor Recreational Activities in Bali, Indonesia: The Cultural Landscape Subak as a Respite



Introduction

- Indonesia faces countless problems of environmental conservation of green spaces due to deforestation and exploitation of nature.
- In contradiction, the subak areas in Bali appear to be not only more protected but also more flourishing.
- Knowledge of outdoor recreational activities in the cultural landscape subak is still lacking.

Aims

- To identify what characteristics of outdoor recreational activities in the cultural landscape subak
- To describe how these activities in the subak connect to sustainable development.

Data Collection

Quantitative questionnaire: 58 respondents
+
Semi-structured in-depth interviews: 5 interviewees
+
A series of participant observations: 35 subak visitors


Data Analysis

Quantitatively: Statistical analysis
Thematically: Thematic analysis
Autoethnography: Autoethnography

Mixed methods analysis:
Side-by-side comparisons of joint displays

Results

- Characteristics: colours of nature, smells of nature, wide open spaces, sounds of nature, species richness, distinctive cultural and religious practices, togetherness, protection, and affordability.
- Positive and negative connections to **SUG 3** Good Health and Well-being, **SUG 11** Sustainable Cities and Communities, and **SUG 12** Responsible Consumption and Production.



A part of the Subak Landscape of Catur Angga Bakulu, Lulluwih Rice Terraces in Penebel District of Tabanan Regency, Bali, Indonesia by Kei Nilsson can be reused under the CC BY-NC-ND 4.0 license

Conclusions

Outdoor recreational activities in the subak areas have yielded benefits:

- Improved cognitive and social skills, as well as
- an enhanced state of health and well-being.

The role of the subak areas in facilitating these activities has shown cognitive, emotional, & behavioural changes in the study participants.

These activities in the subak areas have fostered a more environmentally conscious mindset that helps improve human health and well-being.


Just as nature positively affects our health & well-being, we humans need to preserve & conserve it in the first place – not only for ourselves but also for future generations.

Kei Nilsson

[She/her]

- BSc in General Medicine (General Practitioner)
- MA in Applied Cultural Analysis (Medical Anthropology)
- MSc in the Environmental Landscape Architecture
- Certification in Creative Art Therapy (Dance/Movement & Music Therapies)


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Appendix A: Questionnaire



Introduction

Outdoor Recreational Activities in Bali, Indonesia: The Cultural Landscape Subak as a Respite



Photo: [Imacim](#)

Hello,

My name is Kei. I am a Master's student with a major in the Environmental Psychology of Landscape Architecture at the Swedish University of Agricultural Sciences (SLU).

The following questionnaire is intended to study outdoor recreational activities of the cultural landscape subak and their relation to sustainable development. What is meant by subak areas, in this case, are the paddy fields, rice terraces, rice terrace landscapes, terraced paddy landscapes, terrace farming in Bali, and/or Balinese water management/irrigation system and surrounding areas.

If you choose to participate in this study, you will be asked to complete a brief questionnaire, which should take approximately 10-15 minutes.

Your participation is anonymous and entirely voluntary. There is minimal risk associated with your participation. This risk can occur if you feel uncomfortable when thinking about and answering questions about your experiences while doing outdoor recreational activities in the cultural landscape subak. You can withdraw permission at any time by contacting me via e-mail. You can at any step in this questionnaire cancel your participation and no data will be stored. Your responses will only be accessed by me and stored for 6 months from the examination date. If you submit your contact details to indicate your interest in being a possible interviewee, these will be removed when this study is completed.

Data is being collected via the online platform Netigate, and your IP address will not be recorded. To address any concern you may have about the confidentiality of data collected in this manner, please see Netigate's Data Privacy Policy [here](#).

Completion of this survey signifies your voluntary consent to participate in this study and that you are at least 18 years of age.

If you have any questions regarding this study, please do not hesitate to contact me.

Kind regards,

Kei Nilsson
 kinn0002@stud.slu.se
 Outdoor Environments for Health and Well-Being, MSc programme
 Swedish University of Agricultural Sciences (SLU)
 Department of People and Society
 Slottsvägen 5, 230 53 Alnarp, Sweden

By agreeing to participate in this study, you acknowledge that:

1. You are at least 18 years of age.
2. You have visited at least one subak area in Bali at least once.

- Yes



Background

What is your gender identity?

- Man
- Woman
- Other

Please specify your age: *Type your answer in number*

The highest level of education I have received:

- Didn't finish high school
- Senior high school graduation certificate
- Associate's degree (such as: AE, AS, AN)
- Bachelor's degree (such as: BDes, BA, BS)
- Master's degree (such as: MA, MS, MBA)
- Doctorate degree or equivalent (such as: PhD, JD, MD)

I am ...

- a local (Balinese, or from another part of Indonesia but living and working in Bali)
- a domestic tourist (from another region in Indonesia who have been / am currently travelling to Bali)
- an international tourist (from another country who have been / am currently travelling to Bali)

Please make a stand on the following statements:	Strongly Disagree				Strongly Agree
My general state of health is good.	①	②	③	④	⑤
I consider myself religious.	①	②	③	④	⑤
I enjoy outdoor recreational activities more than indoor ones.	①	②	③	④	⑤
I do physical activity regularly.	①	②	③	④	⑤
Where I live regularly, I have easy and safe access to outdoor recreational activities.	①	②	③	④	⑤
Where I live regularly, I am satisfied with the greenspaces available (such as: public parks).	①	②	③	④	⑤

Your visit to the subak area in Bali

How many times have you visited the subak area, including this time?

- 1-2 times
- 3-5 times
- More than 5 times

On average, how many minutes do you spend doing outdoor recreational activities per visit in the subak area? The activities **do not have to be intense** such as jogging and running; these can include **simple ones** such as plant observation and walking. *Type your answer in number*

How do you usually reach the subak area from your accommodation in Bali?

- By walk
- By bike
- By motorcycle
- By car (either own or rental)
- Other: *type your answer*

With whom do you prefer to do outdoor recreational activities in the subak area?

- By myself
- With my travel companion(s)
- With new people



Which outdoor recreational activities have you tried in the subak area? (Select all that apply)

- Walking (including Nordic walking)
- Jogging / trail running
- Trekking / hiking
- Cycling
- Yoga / meditation / breathing exercises / T'ai chi / aromatherapy
- Hot spring therapy
- Art and/or pottery classes
- Plant observation
- Other: type your answer

Which outdoor recreational activity do you enjoy **the most** while visiting the subak area?

- Walking (including Nordic walking)
- Jogging / trail running
- Trekking / hiking
- Cycling
- Yoga / meditation / breathing exercises / T'ai chi / aromatherapy
- Hot spring therapy
- Art and/or pottery classes
- Plant observation
- Other: type your answer (specify only one activity)

Please make a stand on the following statements:	Strongly Disagree				Strongly Agree
The outdoor activities in the subak area that I prefer to do are the ones I have tried before.	①	②	③	④	⑤
The outdoor activities in the subak area that I prefer to do are the ones I have never tried before.	①	②	③	④	⑤
Doing outdoor recreational activities in the subak area has a high impact on my ability to recover from or reduce stress.	①	②	③	④	⑤
The prices of doing outdoor recreational activities in the subak area are affordable.	①	②	③	④	⑤
I am worried about possible natural disasters (such as: earthquakes, tsunamis, flooding, volcanic eruption) that can happen while doing outdoor recreational activities in the subak area.	①	②	③	④	⑤
SDG3 – Good Health and Well-Being					
The air quality is good when I do outdoor recreational activities in the subak area.	①	②	③	④	⑤
No one is smoking when I visit the subak area.	①	②	③	④	⑤
I do not hear any disturbing noise when I do outdoor recreational activities in the subak area.	①	②	③	④	⑤
I know what to do in the event of natural disasters when I visit the subak area.	①	②	③	④	⑤
SDG11 – Sustainable Cities and Communities					
A sustainable transportation system (such as: walking, cycling, car-sharing) is easily available for me to reach the subak location.	①	②	③	④	⑤
I feel safe when doing outdoor recreational activities in the subak area.	①	②	③	④	⑤
The subak location is safe and accessible for everyone, including women, children, older persons, and persons with disabilities.	①	②	③	④	⑤
I am pleased to know that a helicopter pad will be built in the Cultural Landscape of Bali Province (subak Catur Angga Batukaru) as this will provide easier access to the site.	①	②	③	④	⑤



SDG12 – Responsible Consumption and Production					
I do not see any waste while doing outdoor recreational activities in the subak area.	①	②	③	④	⑤
I do not smell any waste while doing outdoor recreational activities in the subak area.	①	②	③	④	⑤
There are facilities (such as: trash bins) where I can easily and safely dispose of my trash during my visit to the subak area.	①	②	③	④	⑤
I am satisfied with the quality of the air while doing outdoor recreational activities in the subak area.	①	②	③	④	⑤
I am satisfied with the noise level while doing outdoor recreational activities in the subak area.	①	②	③	④	⑤

Please indicate how much it is important for you:	Unimportant				Very important
That I can do the outdoor recreational activities offered in the subak area by myself.	①	②	③	④	⑤
That I can do the outdoor recreational activities offered in the subak area with my travel companion(s).	①	②	③	④	⑤
That I can meet new people when I do outdoor activities offered in the subak area.	①	②	③	④	⑤

Contact form

- I am also interested in being interviewed.

Name:

Phone/WhatsApp:

Email:

The preferred language during the interview:

- English
- Indonesian
- Swedish
- Korean

Depending on the COVID-19 pandemic situation, the interview will be held either face-to-face, or via an online meeting platform such as Zoom, Skype, or WhatsApp call at a time that is most convenient for you. The interview will only be conducted once for about an hour. Upon completion of the interview, you will receive a voucher of 100.000,- IDR which can be donated to an organisation that supports humans living in harmony with nature, such as World Wildlife Fund (WWF) Indonesia or Greenpeace Indonesia.

Thank you for your participation!

Thank you for filling out this questionnaire. If you have any questions or comments, feel free to email me.

To improve further studies, I welcome any feedback. If you would like to leave a comment, but wish to remain anonymous, feel free to write below. Please do not include any identifying information.

Thank you!

Appendix B: Kuesioner



Kata Pengantar

Aktivitas Rekreasi di Ruang Terbuka di Bali, Indonesia: Lanskap Budaya Subak Sebagai Waktu/Tempat Istirahat



Foto: [Imacim](#)

Halo,

Nama saya Kei. Saya seorang mahasiswa Magister dengan jurusan Psikologi Lingkungan Arsitektur Lanskap di Swedish University of Agricultural Sciences (SLU).

Kuesioner berikut ini dimaksudkan untuk mempelajari aktivitas-aktivitas rekreasi di alam terbuka di lanskap budaya subak dan hubungannya dengan pembangunan berkelanjutan. Yang dimaksud dengan kawasan subak dalam hal ini adalah persawahan, sawah terasering, pertanian terasering, lanskap sawah bertingkat, pertanian terasering di Bali, dan/atau kawasan sistem pengelolaan air/irigasi di Bali.

Jika Anda memilih untuk berpartisipasi dalam studi ini, Anda akan diminta untuk mengisi kuesioner singkat, yang akan memakan waktu sekitar 10-15 menit.

Partisipasi Anda bersifat anonim dan sepenuhnya bersifat sukarela. Ada risiko minimal yang terkait dengan partisipasi Anda. Risiko tersebut mungkin terjadi jika Anda merasa tidak nyaman ketika memikirkan dan menjawab pertanyaan tentang pengalaman Anda saat melakukan aktivitas-aktivitas rekreasi di alam terbuka di kawasan lanskap budaya subak. Anda dapat menarik izin yang telah Anda diberikan kapan saja dengan menghubungi saya melalui email. Anda dapat pada setiap langkah dalam kuesioner ini membatalkan partisipasi Anda dan tidak ada data yang akan disimpan. Tanggapan Anda hanya akan diakses oleh saya dan disimpan selama 6 bulan sejak tanggal sidang tesis. Jika Anda mengisi detail kontak Anda untuk menunjukkan minat Anda untuk menjadi orang yang mungkin diwawancarai, ini akan dihapus ketika studi ini selesai.

Data dikumpulkan melalui platform online Netigate, dan alamat virtual Anda tidak akan dicatat. Untuk mengatasi masalah apa pun yang mungkin Anda miliki tentang kerahasiaan data yang dikumpulkan dengan cara ini, silakan lihat Kebijakan Privasi Data Netigate [di sini](#).

Penyelesaian kuesioner ini menandakan persetujuan sukarela Anda untuk berpartisipasi dalam studi ini dan bahwa Anda berusia minimal 18 tahun.

Jika Anda memiliki pertanyaan tentang studi ini, silahkan menghubungi saya via email.

Salam Hormat,

Kei Nilsson

kinn0002@stud.slu.se

Outdoor Environments for Health and Well-Being, program Magister sains

Swedish University of Agricultural Sciences (SLU)

Department of People and Society

Slottsvägen 5, 230 53 Alnarp, Swedia

Dengan menyetujui untuk berpartisipasi dalam studi ini, Anda mengkonfirmasi bahwa:

1. Anda berusia minimal 18 tahun.
2. Anda telah mengunjungi setidaknya satu kawasan subak di Bali minimal satu kali.

- o Iya



Latar belakang

Apa identitas gender Anda?

- Pria
- Wanita
- Lainnya

Usia Anda: jawab dalam bentuk angka

Tingkat pendidikan tertinggi yang pernah saya terima:

- Tidak tamat SMA
- Tamat SMA
- Gelar Diploma (misal: D1, A.Ma., A.Md.Bid.)
- Gelar S1/Sarjana (misal: S.Psi., S.Ked., S.Pd.)
- Gelar S2/Magister (misal: M.Epid., M.H.Kes., M.Ked.Trop.)
- Gelar S3/Doktor atau setara (misal: dr., Dr.)

Saya adalah ...

- orang lokal (orang Bali, atau dari daerah lain di Indonesia tapi tinggal dan kerja di Bali)
- wisatawan nusantara / wisnus (dari daerah lain di Indonesia yang pernah/sedang jalan-jalan ke Bali)
- wisatawan mancanegara / wisman (dari negara lain yang pernah/sedang jalan-jalan ke Bali)

Silahkan pilih seberapa besar Anda setuju atau tidak setuju:	Sangat Tidak Setuju				Sangat Setuju
Kondisi kesehatan saya secara umum baik.	1	2	3	4	5
Saya menganggap diri saya religius.	1	2	3	4	5
Saya menikmati aktivitas rekreasi yang dilakukan di alam terbuka lebih daripada di dalam bangunan.	1	2	3	4	5
Saya melakukan aktivitas fisik secara teratur.	1	2	3	4	5
Di tempat saya biasanya tinggal, saya memiliki akses yang mudah dan aman ke aktivitas rekreasi yang dilakukan di alam terbuka.	1	2	3	4	5
Di tempat saya biasanya tinggal, saya merasa puas dengan area hijau yang tersedia (misal: taman umum).	1	2	3	4	5

Kunjungan Anda ke kawasan subak di Bali

Sudah berapa kali Anda mengunjungi kawasan subak, termasuk kali ini?

- 1-2 kali
- 3-5 kali
- Lebih dari 5 kali

Rata-rata, berapa menit yang Anda habiskan untuk melakukan aktivitas rekreasi di alam terbuka per kunjungan di kawasan subak? Aktivitasnya **tidak harus intens** seperti jogging dan lari; ini dapat mencakup **aktivitas sederhana** seperti pengamatan tanaman dan berjalan kaki. Jawab dalam bentuk angka

Bagaimana Anda biasanya mencapai kawasan subak dari akomodasi Anda di Bali?

- Dengan berjalan kaki
- Dengan sepeda
- Dengan sepeda motor
- Dengan mobil (baik mobil sendiri atau sewa)
- Lainnya: ketik jawaban Anda

Dengan siapa Anda lebih suka melakukan aktivitas rekreasi di alam terbuka di kawasan subak?

- Sendiri
- Dengan orang seperjalanan saya (misal: keluarga, teman)
- Dengan orang baru (belum pernah bertemu sebelumnya)



Aktivitas rekreasi di alam terbuka apa yang pernah Anda coba di kawasan subak? (Pilih semua yang berlaku)

- Berjalan (termasuk berjalan Nordik)
- Joging / lari trail
- Trekking / hiking
- Bersepeda
- Yoga / meditasi / latihan pernapasan / T'ai chi / aromaterapi
- Terapi mata air panas
- Kelas seni dan/atau tembikar
- Pengamatan tanaman
- Lainnya: ketik jawaban Anda

Aktivitas rekreasi di alam terbuka apa yang paling Anda nikmati saat mengunjungi kawasan subak?

- Berjalan (termasuk berjalan Nordik)
- Joging / lari trail
- Trekking / hiking
- Bersepeda
- Yoga / meditasi / latihan pernapasan / T'ai chi / aromaterapi
- Terapi mata air panas
- Kelas seni dan/atau tembikar
- Pengamatan tanaman
- Lainnya: ketik jawaban Anda (sebutkan hanya satu aktivitas)

Silahkan pilih seberapa besar Anda setuju atau tidak setuju:	Sangat Tidak Setuju				Sangat Setuju
Aktivitas di alam terbuka di kawasan subak yang lebih saya sukai adalah yang sudah pernah saya coba sebelumnya.	1	2	3	4	5
Aktivitas di alam terbuka di kawasan subak yang lebih saya sukai adalah yang belum pernah saya coba sebelumnya.	1	2	3	4	5
Melakukan aktivitas rekreasi di alam terbuka di kawasan subak berdampak tinggi pada kemampuan saya untuk pulih dari atau mengurangi stres.	1	2	3	4	5
Biaya melakukan aktivitas rekreasi di alam terbuka di kawasan subak terjangkau.	1	2	3	4	5
Saya khawatir dengan kemungkinan bencana alam (seperti: gempa bumi, tsunami, banjir, letusan gunung berapi) yang dapat terjadi saat melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	1	2	3	4	5
SDG3 – Kesehatan yang Baik dan Kesejahteraan					
Kualitas udaranya bagus saat saya melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	1	2	3	4	5
Tidak ada yang merokok ketika saya mengunjungi kawasan subak.	1	2	3	4	5
Saya tidak mendengar suara yang mengganggu ketika saya melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	1	2	3	4	5
Saya tahu apa yang harus saya lakukan jika terjadi bencana alam ketika saya mengunjungi kawasan subak.	1	2	3	4	5
SDG11 – Kota dan Komunitas yang Berkelanjutan					
Sistem transportasi yang berkelanjutan (seperti: jalan kaki, bersepeda, car-sharing) mudah tersedia bagi saya untuk mencapai lokasi subak.	1	2	3	4	5
Saya merasa aman ketika melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	1	2	3	4	5
Lokasi subak aman dan dapat diakses oleh semua orang, termasuk perempuan, anak-anak, orang tua, dan penyandang disabilitas.	1	2	3	4	5
Saya senang mengetahui bahwa landasan helikopter akan dibangun di Lanskap Budaya Provinsi Bali (subak Catur Angga Batukaru) karena ini akan memberikan akses yang lebih mudah ke lokasi tersebut.	1	2	3	4	5



SDG12 – Konsumsi dan Produksi yang Bertanggungjawab					
Saya tidak melihat adanya sampah saat melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	①	②	③	④	⑤
Saya tidak mencium bau sampah saat melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	①	②	③	④	⑤
Terdapat fasilitas (seperti: tempat sampah) di mana saya dapat dengan mudah dan aman membuang sampah selama kunjungan saya ke kawasan subak.	①	②	③	④	⑤
Saya puas dengan kualitas udara saat melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	①	②	③	④	⑤
Saya puas dengan tingkat kebisingan saat melakukan aktivitas rekreasi di alam terbuka di kawasan subak.	①	②	③	④	⑤

Silahkan pilih seberapa penting hal berikut ini bagi Anda:	Tidak Penting				Sangat Penting
Bahwa saya dapat melakukan sendiri aktivitas rekreasi di alam terbuka yang ditawarkan di kawasan subak.	①	②	③	④	⑤
Bahwa saya dapat melakukan aktivitas rekreasi di alam terbuka yang ditawarkan di kawasan subak dengan orang seperjalanan saya.	①	②	③	④	⑤
Bahwa saya bisa bertemu orang baru ketika saya melakukan aktivitas di alam terbuka yang ditawarkan di kawasan subak.	①	②	③	④	⑤

Kontak formulir

- Saya juga tertarik untuk diwawancarai.

Nama:

No. HP/WhatsApp:

E-mail:

Bahasa yang dipilih selama wawancara:

- Bahasa Inggris
- Bahasa Indonesia
- Bahasa Swedia
- Bahasa Korea

Tergantung pada situasi pandemi COVID-19, wawancara akan dilakukan secara tatap muka, atau melalui platform pertemuan online seperti Zoom, Skype, atau WhatsApp call pada waktu yang paling nyaman bagi Anda. Wawancara hanya akan dilakukan satu kali selama sekitar satu jam. Setelah wawancara selesai, Anda akan menerima voucher senilai Rp 100.000,- yang dapat disumbangkan ke organisasi yang mendukung manusia untuk hidup selaras dengan alam, seperti World Wildlife Fund (WWF) Indonesia atau Greenpeace Indonesia.

Terima kasih atas partisipasinya!

Terima kasih telah mengisi kuesioner ini. Jika Anda memiliki pertanyaan atau komentar, jangan ragu untuk mengirim saya email.

Untuk meningkatkan studi selanjutnya, saya menerima masukan. Jika Anda ingin memberikan komentar, tetapi ingin tetap anonim, silahkan untuk menanggapi di bawah ini. Mohon tidak menyertakan informasi diri apa pun.

Terima kasih!

Appendix C: Interview Guide

Background

1. How old are you?
2. Where are you from?
3. What do you do? If retired, what did you do before you retired?
4. Tell me about your health (e.g., health problems, medications).

Outdoor recreational activities in the cultural landscape subak

5. Why do you do outdoor recreational activities in the subak?
6. Which outdoor recreational activities do you usually do when you visit the subak?
7. Why do you like doing outdoor recreational activities in the subak?

SDGs

8. How do you think and/or feel about the environment of the subak when doing outdoor recreational activities there? (e.g., of what you see, smell, hear)

General

9. Tell me if you have questions or other comments.

Appendix D: Informed Consent



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of People and Society
Faculty of Landscape Architecture, Horticulture,
and Crop Production Science

2022-01-18

Informed Consent

TITLE OF STUDY

Outdoor Recreational Activities in Bali, Indonesia: The Cultural Landscape Subak as a Respite

MASTER'S STUDENT / RESEARCHER

Kei Nilsson
Outdoor Environments for Health and Well-Being, MSc programme
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SUPERVISORS

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Mats Gyllin, PhD
Head of Department, Senior Lecturer
mats.gyllin@slu.se

PURPOSE OF STUDY

You are being asked to take part in a study for a Master's degree level. Before you decide to participate in this study, it is important that you understand why the study is being done and what it will involve. Please read the following information carefully. Please ask the Master's student/researcher if there is anything that is unclear or if you need more information.

The overarching aim of this project is to study outdoor recreational activities of the cultural landscape subak and their relation to sustainable development. What is meant by subak areas, in this case, are the paddy fields, rice terraces, rice terrace landscapes, terrace farming in Bali, and/or Balinese water management/irrigation system and its surrounding areas.

STUDY PROCEDURES

To participate in this study, you will be asked questions relevant to the aim of this study in an interview which should take one session of approximately an hour. During the interview, you may decide to use any of these languages – English, Indonesian, Swedish, or Korean – as the Master's student/researcher is familiar with these languages. Depending on the COVID-19 pandemic situation, the interview will be conducted either face-to-face, or via an online meeting platform such as Zoom, Skype, or WhatsApp call. The interview will be audio recorded and the material used in a Master's thesis and in future education, research, and publications. In all further analysis and presentation of interview material, your name will be replaced so your identity remains confidential.

RISKS

There are minimal risks associated with your participation. The risk may be more likely if you are uncomfortable thinking about and answering questions about your experiences when doing outdoor recreational activities in the cultural landscape subak area. Should this be the case, you may decline to answer any or all questions, and you may terminate your involvement at any time.

BENEFITS

There will be no direct benefit to you for your participation in this study. However, upon completion of the interview, you will receive a voucher of IDR 100.000,- which can be donated to an organisation that supports humans living in harmony with nature, such as

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Informed Consent

World Wildlife Fund (WWF) Indonesia or Greenpeace Indonesia. It is up to you to decide whether or not to donate anonymously. Furthermore, the information obtained from this study is expected to contribute to the existing literature on sustainable development, as well as inspire change and usher in concrete actions and solutions to deal with threats to the cultural landscape subak. The knowledge acquired from this study should not be exclusive to Indonesia, but also to the rest of the world.

CONFIDENTIALITY

Your responses to this interview will be anonymous. Every effort will be made by the Master's student/researcher to preserve your confidentiality including the following:

- Assigning code names for participants that will be used on all research notes and documents.
- Keeping notes, interview transcriptions, and any other identifying participant information in the personal possession of the Master's student/researcher.

Participant data will be kept confidential except in cases where the Master's student/researcher is legally obligated to report specific incidents. These incidents include, but may not be limited to, incidents of abuse and suicide risk.

CONTACT INFORMATION

If you have questions at any time about this study, or you experience adverse effects as the result of participating in this study, you may contact the Master's student/researcher whose contact information is provided on the first page.

DATA HANDLING

The study is performed in compliance with the Swedish Act regarding the Personal Data Act (SFS, 1998:204), the Ethical Review of Research Involving Humans (SFS, 2003:460), as well as the Law of the Republic of Indonesia No. 11 of 2008 on Electronic Information and Transactions and its revised version No. 19 of 2016.

If you have further questions about how your information is handled, you can reach the Data Protection Officer (DPO) at SLU via e-mail dataskydd@slu.se or by phone at +4618672090. If you are unsatisfied with the answer provided by SLU, you can contact the Swedish Authority for Privacy Protection (IMY) via e-mail imy@imy.se or by phone at +4686576100.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will sign this consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the Master's student/researcher. You can withdraw permission at any time by contacting the Master's student/researcher via e-mail.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature* _____ Date _____

Participant's initials: _____

Master's student/researcher's signature* _____ Date _____

*Electronic signatures are valid.

Appendix E: Persetujuan Tindakan



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

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Faculty of Landscape Architecture, Horticulture,
and Crop Production Science

2022-01-18

Persetujuan Tindakan

JUDUL STUDI

Aktivitas Rekreasi Luar Ruangan di Bali, Indonesia: Lanskap Budaya Subak Sebagai Tempat/Waktu Istirahat

MAHASISWI PASCASARJANA / PENELITI

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PEMBIMBING

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Ketua Jurusan, Dosen Senior
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TUJUAN STUDI

Anda diminta untuk mengambil bagian dalam studi untuk tingkat gelar Magister. Sebelum Anda memutuskan untuk berpartisipasi dalam studi ini, penting bagi Anda untuk memahami mengapa studi ini dilakukan dan apa yang akan terlibat. Mohon informasi berikut dibaca secara saksama. Silakan bertanya kepada mahasiswi pascasarjana/peneliti jika ada yang kurang jelas atau membutuhkan informasi lebih lanjut.

Tujuan utama dari proyek ini adalah untuk mempelajari aktivitas-aktivitas rekreasi di alam terbuka di lanskap budaya subak dan hubungannya dengan pembangunan berkelanjutan. Yang dimaksud dengan kawasan subak dalam hal ini adalah persawahan, sawah terasering, petak sawah terasering, pertanian terasering di Bali, dan/atau sistem pengelolaan air/irigasi dan sekitarnya di Bali.

PROSEDUR STUDI

Untuk berpartisipasi dalam studi ini, Anda akan ditanyai pertanyaan-pertanyaan yang relevan dengan tujuan studi ini dalam satu sesi wawancara yang akan memakan waktu sekitar satu jam. Selama wawancara, Anda dapat memutuskan untuk menggunakan salah satu bahasa ini – Bahasa Inggris, Bahasa Indonesia, Bahasa Swedia, atau Bahasa Korea – karena mahasiswi pascasarjana/peneliti bisa bahasa-bahasa ini. Tergantung pada situasi pandemi COVID-19, wawancara akan dilakukan secara tatap muka, atau melalui platform pertemuan online seperti Zoom, Skype, atau WhatsApp call. Audio wawancara akan direkam dan bahan ini akan digunakan dalam tesis dan di pendidikan, penelitian, dan publikasi di masa depan. Dalam semua analisis dan penyajian materi lebih lanjut dari wawancara ini, nama Anda akan diganti sehingga identitas Anda tetap rahasia.

RESIKO

Ada resiko minimal yang terkait dengan partisipasi Anda. Resiko tersebut mungkin terjadi jika Anda tidak nyaman memikirkan dan menjawab pertanyaan tentang pengalaman Anda saat melakukan aktivitas rekreasi alam terbuka di kawasan lanskap budaya subak. Jika demikian halnya, Anda dapat menolak untuk menjawab salah satu atau semua pertanyaan, dan Anda dapat menghentikan keterlibatan Anda kapan saja.

MANFAAT

Tidak akan ada manfaat langsung bagi Anda atas partisipasi Anda dalam studi ini. Namun, setelah wawancara selesai, Anda akan menerima voucher senilai Rp 100.000,- yang dapat disumbangkan ke organisasi yang mendukung manusia untuk hidup selaras dengan alam, seperti World Wildlife

Halaman 1/2

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Persetujuan Tindakan

Fund (WWF) Indonesia atau Greenpeace Indonesia. Terserah Anda untuk memutuskan apakah akan menyumbang secara anonim atau tidak. Lebih lanjut, informasi yang diperoleh dari studi ini diharapkan dapat berkontribusi pada literatur yang ada tentang pembangunan berkelanjutan, serta menginspirasi perubahan dan mengantarkan tindakan dan solusi nyata untuk menghadapi ancaman terhadap lanskap budaya subak. Ilmu yang didapat dari studi ini tidak hanya untuk negara Republik Indonesia, tetapi juga untuk seluruh dunia.

KERAHASIAAN

Tanggapan Anda terhadap wawancara ini adalah anonim. Setiap upaya akan dilakukan oleh mahasiswa pascasarjana/peneliti untuk menjaga kerahasiaan Anda termasuk yang berikut:

- Menetapkan nama kode untuk peserta wawancara yang akan digunakan pada semua catatan dan dokumen studi ini.
- Menyimpan catatan, transkripsi wawancara, dan informasi lain yang bisa mengungkapkan identitas peserta wawancara dalam kepemilikan pribadi mahasiswa pascasarjana/peneliti

Data peserta wawancara akan dijaga kerahasiaannya kecuali dalam kasus di mana mahasiswa pascasarjana/peneliti diwajibkan secara hukum untuk melaporkan insiden tertentu. Insiden ini termasuk, namun tidak terbatas pada, insiden pelecehan dan resiko bunuh diri.

KONTAK INFORMASI

Jika Anda memiliki pertanyaan kapan saja tentang studi ini, atau Anda mengalami efek samping sebagai akibat dari keikutsertaan dalam studi ini, Anda dapat menghubungi mahasiswa pascasarjana/peneliti yang kontak informasinya tersedia di halaman pertama.

PENANGANAN DATA

Studi ini dilakukan sesuai dengan Undang-Undang Swedia tentang Undang-Undang Data Pribadi (SFS, 1998:204), Tinjauan Etis Penelitian yang Melibatkan Manusia (SFS, 2003:460), serta Undang-Undang Republik Indonesia No. 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik dan revisinya Nomor 19 Tahun 2016.

Jika Anda memiliki pertanyaan lebih lanjut tentang bagaimana informasi Anda ditangani, Anda dapat menghubungi Petugas Perlindungan Data (DPO) di SLU melalui e-mail dataskydd@slu.se atau melalui telepon di +4618672090. Jika Anda tidak puas dengan jawaban yang diberikan oleh SLU, Anda dapat menghubungi Otoritas Swedia untuk Perlindungan Privasi (IMY) melalui e-mail imy@imy.se atau melalui telepon di +4686576100.

PARTISIPASI SUKARELA

Partisipasi Anda dalam studi ini bersifat sukarela. Terserah Anda untuk memutuskan apakah akan mengambil bagian dalam studi ini atau tidak. Jika Anda memutuskan untuk mengambil bagian dalam studi ini, Anda akan menandatangani formulir persetujuan ini. Setelah Anda menandatangani formulir persetujuan ini, Anda masih bebas untuk membatalkan partisipasi Anda setiap saat dan tanpa memberikan alasan. Pengunduran diri dari studi ini tidak akan mempengaruhi hubungan yang Anda miliki, jika ada, dengan mahasiswa pascasarjana/peneliti. Anda dapat menarik izin kapan saja dengan menghubungi mahasiswa pascasarjana/peneliti melalui e-mail.

PERSETUJUAN

Saya telah membaca dan saya memahami informasi yang diberikan dan telah memiliki kesempatan untuk mengajukan pertanyaan. Saya mengerti bahwa keikutsertaan saya bersifat sukarela dan saya bebas untuk mengundurkan diri setiap saat, tanpa memberikan alasan dan tanpa biaya. Saya mengerti bahwa saya akan diberikan salinan formulir persetujuan ini. Saya secara sukarela setuju untuk ikut serta dalam studi ini.

Tanda tangan peserta* _____ Tanggal _____

Inisial peserta: ____

Tanda tangan mahasiswa pascasarjana/peneliti* _____ Tanggal _____

*Tanda tangan elektronik sah.

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