

UTILIZING FOREST CITY AS A FORM OF THERAPY TO CREATE A WORLD CITY FOR ALL IN INDONESIA'S NEW CAPITAL

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ABSTRACT

A literature review that proposes forest therapy is presented in this study. The Indonesian government is creating a forest city as its new capital city, in which this therapy is being explored. If integrated into the forest city in the new capital city, forest therapy offers a variety of physical and psychological health benefits. It is anticipated that the forest city would not only improve the health of the capital's residents but will also bring about the realization of a world city for all.

Keywords: Forest City, Capital City, Physical Therapy, Psychological Therapy

INTRODUCTION

Indonesia's capital and largest city are Jakarta. Jakarta City is situated on Jakarta Bay, an inlet of the Java Sea, which is on the northwest coast of Java Island. Many factors contribute to the significant environmental load this city must face. According to official statistics, the area of the city of Jakarta is 662 km² (256 sq mi) on land and 6,977 km² (2,694 sq. mi) at sea. The population of Jakarta has grown from 8.3 million in 2000 to 10.56 million in 2020. Along the Jakarta Bay shore, subsidence rates range from 9.5 cm/year to 21.5 cm/year. Groundwater extraction is one of the main factors contributing to soil degradation. Increased economic activity and rapid population growth can both lead to an increase in water consumption, which might lead to soil deterioration. [4]. The percentage of Jakarta inhabitants who own their homes is 47.12%, while the percentage who live under a rental contract is 36.36%, according to Badan Pusat Statistik (Central Bureau of Statistics) DKI Jakarta (2019). In Jakarta, a house's floor area ranges from 20 to 49 m² [5]. The reclamation project in Jakarta Bay, meantime, actually led to complaints and marginalization of the local community.

Joko Widodo, the president of Indonesia, said in 2019 that the country would move its capital from Jakarta to eastern Kalimantan. He emphasized the danger posed by

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climate-related calamities, overpopulation, and overburden in the current capital city. Jakarta is a global metropolis that provides a wide range of national and local services, including commerce, banking, and trade. Climate change has caused several environmental disasters in the city, including flooding, land subsidence, high heat, pollution, and water shortages. Pollution is the most significant and pervasive environmental problem. [7].

There are several factors or benefits to moving the capital to eastern Indonesia, including 1) its more strategic location in the middle of Indonesia; 2) its relatively complete infrastructure; 3) its proximity to two developed supporting cities, Samarinda and Balikpapan; 4) the availability of sufficient government-controlled land for the development of the capital city, and 5) its low risk of natural disasters [8]. Both Penajam Paser Utara and Kutai Kartanegara Regencies have the portions of the new capital city. With a land size of roughly 256,142 hectares and a seawater area of roughly 68,189 hectares, it is situated north of Balikpapan City and south of Samarinda City. [9]. In addition, this region contains 108,364.48 hectares of forest with a variety of habitat types. The Forest City concept is used to carry out urban planning intended to support sustainable development in the capital city [10]. As a new approach to urban planning, forest city significantly accelerates the rate of greening by increasing the number of plants, particularly trees. The planning of the development is based on a vertical forest [11]. A forest city is often an urban complex ecosystem that is dominated by forest flora, allowing the forest to be used for a variety of purposes and with a variety of benefits. [12]. This term is related to urban forestry, which is commonly understood to be the art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, aesthetic, and social benefits. [13].

This paper aims to develop forest therapy as an embedded part of the urban planning of the capital city. This is in line with one of the basic principles of human resource development in the capital city, namely health. According to the WHO constitution, "Health is a condition of complete physical, mental, and social well-being and not only the absence of disease or disability,". This definition has a crucial implication that mental health encompasses more than just the absence of mental illnesses or disabilities [14].

Forest therapy is defined as engaging in a variety of therapeutic activities in a forest environment to enhance one's health and wellness [15]. A type of "preventative treatment through exposure to natural stimuli that render a state of physiological relaxation and improve the deficient immune capabilities to prevent diseases" [16]. Walking is the main activity in forest therapy [17, 18]. People who walk in forests are thought to find their concentration and focus again experience psychological improvements and feel freer and at relaxed [19–21].

Researchers from Stanford University tracked the smartphones of 717,000 people in 111 countries as part of the largest-ever study on human movement. It was discovered that Indonesia has the world's most sedentary population, especially when compared to Hong Kong, where residents walk an average of 6,880 steps per day. When compared to Indonesians, who only took an average of 3,513 steps per day [22], this amount is significantly higher. Jakarta is the "city where nobody wants to walk," according to The New York Times [23].



Nature therapy, Forest Therapy, and Its Benefits

Nature therapy was defined by Miyazaki, Song, and Ikei as “a set of practices aimed at achieving ‘preventive medical effects’ through exposure to natural stimuli that render a state of physiological relaxation and boost the weakened immune functions to prevent diseases”. Nature therapy focuses on the "restorative benefits" of nature (forests, flowers, etc.), where there is a hypothesis of improvement in "physiological relaxation" and "immune function recovery" responses, notwithstanding individual variances [24]. According to Kaplan and Kaplan, the parasympathetic nervous system is directly affected by exposure to naturally occurring stimuli (all five senses), which increases awareness and induces calm[25]. Additionally, nature treatment aims to strengthen immune systems, avoid infections, and maintain and advance health. (Figure 10) [25, 26]

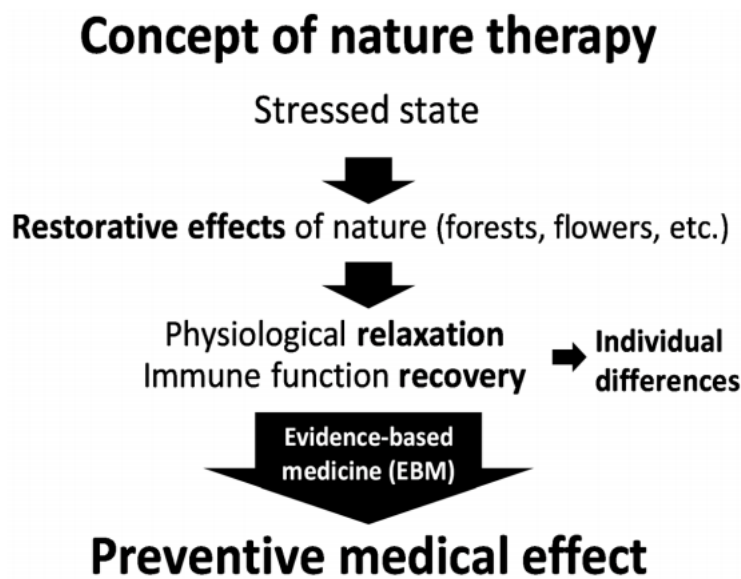


Figure 1. Concept of nature therapy [24].

Forest Therapy is one type of nature therapy according to Song, Ikei, and Miyazaki's classification. The forest environment can be used to promote health and serve as a location for recreation. Other forms of natural treatment include plant therapy, wooden material therapy, and urban green space therapy [27]. Forest therapy is also called forest bathing and it also has some terms in several countries in Asia, like Senlinyu in China, Shinrin-yoku (森林浴) in Japan or “immersion in the forest”, and Sanlimyok in South Korea [28]. Generally, forests play a big part in meeting the demand for natural settings. A forest environment has favorable effects on mental health [29, 30], psychosocial health [31], physical and psychological health [32, 33], and physical and psychological well-being [34, 35]. lessen sadness [35], anxiety [30], and stress [34, 35]. Medical research has demonstrated that being in a forest setting has benefits, including



lowering blood pressure, heart rate, and sympathetic nerve activity, enhancing natural killer (NK) cell activity and reducing salivary cortisol concentrations of stress chemicals. [36-39].

In terms of treating specific health conditions, forest therapy is beneficial for conditions like depression and anxiety disorders, diabetes, ADHD, various infectious diseases, cancer, recovery from surgery, obesity, birth outcomes, cardiovascular disease, musculoskeletal complaints, migraines, respiratory disease, etc. [40]. To stop the spread of COVID-19, the local government and Gadjah Mada University collaborated to create The Quarantine House in Indonesia's Wanagama Forest. The results showed that 91% of the 166 patients tested negative after quarantine. [41].

According to several research [42–48], the phytoncides that trees emit may be partially responsible for the elevated NK activity. Antimicrobial volatile organic molecules released from plants are known as phytoncides. Greek words for "plant" and "cide" signify exterminating. To assist plants to defend themselves against harmed insects and microorganisms, phytoncides are created. From a chemical perspective, the primary make-up of phytoncides is quite similar to essential oils made from plants. [49].

Forest Therapy in Urban Forest

Many Asian nations have created forest treatment that is integrated with forest cities and/or urban forestry. In China, Zhang, Wang, Gao, and Ye carried out various comparative studies using an urban forest environment as the experimental setting and an urban environment as the control. The sample for this study consists of 12 places. With a cycle of 2–7 days, the participants ranged from 20 to more than 200. They discovered that spending time in a green and healthy environment can improve people's health and well-being and act as a preventive and alternative therapy for coping with stress. [50].

Lee, Son, Kim, and Lee investigate and describe the therapeutic benefits of the urban forest on middle-aged women by looking at their participation in an urban forest treatment program. In Seocho-gu, Seoul Metropolitan City, South Korea, a citizen's forest called Yangjae was used for this study. Generally, the Seocho district, which is a part of the larger Gangnam area and is situated in the southern part of Seoul, has 60% of its total area designated as green space. They discovered that some participants' psychological changes were brought on by the therapy program. [51].

A study was conducted by Jung, Woo, and Ryu to determine the effect of a forest therapy program and regular exposure to the outdoors on the stress levels of employees in Korea. The 211 respondents were chosen based on how frequently they used the forest environment. They discovered that participants in the forest therapy program experienced less psychosocial stress and were less anxious than those who used the forest environment rarely. [52].

The portrait of the new capital city as the world city

On a weekday morning in 2025, a large number of people may be observed making their way along various walking paths to various offices. These people are employees and officials who have made it a practice to walk from their homes, which are only one to



three kilometers away. The usage of ecologically friendly transportation is an alternative for people who reside more than three kilometers away, though they must walk to their offices from each station. The usage of two-wheeled and four-wheeled vehicles is limited because it is healthier to walk short distances.

The walking path has been created with pedestrians in mind, with features like a horizontal road without breath-taking ramps, a road made for barefoot walking, a dense canopy of trees producing enough fresh air, flying birds making melodious sounds, several nearby plants emitting healing aromas, some rivers flowing or altered to produce the sound of natural water, and at some point a place to stop and rest (tea, rosella, moringa, etc.). The future capital city's authorities and staff will receive free forest therapy by participating in these activities during the week.



Figure 2. Walking Track at Titik Nol Nusantara [53]

The new capital city area transformed to serve the larger community as a recreational and therapeutic place over the weekend. The new capital city area is open for visits by both domestic and foreign visitors. Those traveling by air can take a special bus that stops at a bus terminal before continuing on foot to the future capital city from the airports in Balikpapan or Samarinda. Those arriving by land from other parts of Kalimantan can also use this bus terminal. Special forms of quiet, ecologically friendly transportation are offered for children and individuals with impairments. Travelers are given psychoeducation about forest therapy before departure. Additionally, these visitors have the option of participating in forest therapy or turning into tourists. These two categories of travelers will receive various guide services.

The construction of a hospital with a focus on forest therapy, which is created so that patients can access the forest directly (forest bathing), is another social purpose of the future capital city. Through the sense of sight, the hospital is designed to take advantage of the forest landscape; through the sense of smell, the hospital is designed so that patients can breathe fresh air and smell as aromatherapy; through the sense of hearing, the hospital is designed to take advantage of the sounds of birdsong, river water, and waterfalls; and through the sense of touch, the hospital is designed to take advantage of trees for tree-hugging, sloping walking tracks, shallow rivers for wading; and through the



sense of taste of forest products, the hospital is designed to create healthy food and beverages. It also aims to realize the idea of a universal city.

Discussion

The biophilia hypothesis demonstrates that people have an innate desire to connect with nature and other life forms or to be attracted to living things. Erich Fromm, an American psychoanalyst of German descent, coined the term "biophilia" to describe the psychological orientation of being attracted to all that is alive. Later, Edward O. Wilson developed a theory in his books "On Human Nature" in 1978 and "Biophilia" in 1984, in which he emphasized that while people are capable of feeling emotions, they are also unconsciously connected to the natural world and other living things. Other significant items, such as plants and animals are completely rooted in biology and evolution [54].

In terms of the evolutionary history of the human race, humans have always been very close to nature. However, with the advent of technology in the 19th and 20th centuries, particularly when people began spending more time in homes and cars, people ultimately became more distant from nature. Additionally, there are worries that people disconnect from nature, particularly their severe disregard for fewer flora, animals, and wild areas may result in ecological degradation and species extinction. [54].

Therefore, it is important to start getting back in touch with nature and to take significant steps to protect against the harm that nature might cause. This is because engaging in biophilic activities and spending time in nature can improve the bond between people and the natural world, causing people to have a constant desire to go back in touch with it. For instance, the development of urban forests in the new capital city, which offers a lot of green open space in and around the city, has advantages like forest therapy, which can improve the healing of mind and body disorders and provide physical and psychological health. As a result, the biophilia hypothesis is a theory that explains why being in nature can be therapeutic and vice versa why being away from it can be psychologically and emotionally draining [55].

Conclusion

The development plan in Penajam Paser Utara and Kutai Kartanegara Regencies, Kalimantan Timur for the new capital city can integrate the forest therapy. For both preventive and curative purposes, the goal is to improve both the physical and psychological health of its citizens.

Recommendation

1. A walking campaign for citizens moving to the new capital city is required.
2. It is essential to establish a university with the exclusive purpose of researching the health benefits of foods and drinks made from forest products as well as the advantages of forest therapy.

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