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MEMPERTIMBANGKAN *DEEP ECOLOGY*

Sebuah Tanggapan Terhadap Isu Perubahan Iklim dari Perspektif Ensiklik Laudato Si Paus Fransiskus

Abstrak

Perubahan iklim merupakan salah satu tantangan global terbesar di zaman kita, yang membawa sejumlah implikasi signifikan bagi manusia dan lingkungan. Namun, sementara perubahan iklim bersifat global, efek negatifnya yang paling parah dirasakan oleh orang-orang miskin di negara-negara miskin yang bergantung pada sumber daya alam. Penelitian ini bertujuan untuk menanggapi isu perubahan iklim dengan mendalami kembali konsep *deep ecology* yang dikembangkan filsuf Norwegia, Arne Naess, dari perspektif ensiklik *Laudato Si* Paus Fransiskus. Penelitian ini menggunakan pendekatan kualitatif yang meliputi *review* literatur dan analisis kritis. Penelitian ini menunjukkan bahwa perubahan iklim adalah masalah kompleks yang berakar pada paradigma teknoratis dan antroposentrisme modern. Paradigma teknokratis memainkan peran penting dalam praktik konsumerisme dan sistem ekonomi neoliberal yang mengabaikan kebutuhan orang miskin dan menghancurkan lingkungan. Berbeda dari pemikiran Arne Naess, *Laudato Si* menawarkan perspektif baru *deep ecology* dengan beberapa prinsip pokok yang khas, yaitu nilai sakramental ciptaan, ketergantungan antarciptaan, *global common good*, solidaritas, dan egalitarianisme ekologis.

Keywords: Paus Fransiskus, *Laudato Si*, *deep ecology*, perubahan iklim, solidaritas.

RETHINKING THE DEEP ECOLOGY

A Response to Climate Change Discourse from the Perspective of Pope Francis' *Laudato Si*

Abstract

Climate change is one of the greatest global challenges of our time, with significant implications for human's life and the environment. However, while climate change is a global issue, its negative effects are most widely

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felt by the poor in developing countries that depend on natural resources. This research aims to elaborate on the issue of climate change by rethinking the deep ecology, a term coined by Norwegian philosopher, Arne Naess, from Pope Francis' perspective in his encyclical, *Laudato Si*. This study uses a qualitative approach, namely a literature review and critical analysis. The research indicates that climate change is a complex issue rooted in the modern technocratic and anthropocentric view of the relationship between humans and the environment. This technocratic paradigm plays an important role in consumerist practices and a neoliberal economic system that abandons the poor and damages the environment. In *Laudato Si*, Pope Francis offers a new perspective of deep ecology with several main principles, including the sacramental and intrinsic value of creatures, the interdependence and interconnectedness between humans and nature, the global common good, solidarity, and ecological egalitarianism.

Kata-kata kunci: Pope Francis, *Laudato Si*, deep ecology, climate change, solidarity.

INTRODUCTION

Scientists have warned that climate change, loss of biodiversity, changes in atmospheric composition, land degradation, water scarcity, and pollution are caused by the massive abuse and exploitation of natural resources (Adedeji et al. 2014)to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly. This overview deals with the concept of Global Climate Change, the associated terms, causes, consequences, solutions and its potential health impact. It shows the need to act urgently if we are to avoid an irreversible build-up of greenhouse gases (GHGs. Climate change is a crucial challenge whose effects extend beyond various components of ecological disciplines, environment, socio-politics, and socio-economics. The Intergovernmental Panel on Climate Change (IPCC) has warned about the threat of catastrophic climate change to both the human and non-human environment (Calvin et al. 2023).

Scientists have named this phenomenon the "Anthropocene epoch". This term refers to a recent period in the history of planet Earth when human activities significantly modified the character of the biosphere. The threat of climate change to the health and sustainability of the planet has caused disease, disability, and premature death (Keys et al. 2019).

While climate change is a global issue, its significant impacts are most widely experienced by poor societies that depend on natural resources and lack social security and accessible health facilities. The report by The Lancet Commissions shows that climate change threatens poor and vulnerable people, who are the population causing the least damage to the planet (Whitmee et al. 2015). On the other hand, multinational companies and industrialized countries, which are the main exploiters of natural resources, do not feel these significant impacts. Here, we can see the interconnection between climate change and the structure of the

global economy, which is based on short-term economic calculations. Thus, the challenge faced is not climate change on one hand and economic inequality on the other, but a complex problem where these dimensions are present simultaneously and affect each other.

Under the capital accumulation, the neoliberal economic system creates a tragedy that Marx called a "metabolic rift." It refers to the neglect of ecological values through excessive extraction of natural resources and the neglect of social justice through the exploitation of the living spaces of vulnerable people. Resource exploitation by extractive industries triggers major issues, including marginalization, degradation, control, hegemony, conflict, exclusion, identity, and subjugation (Crook and Short 2014). Now we can see that locally and globally, government policies in the fields of tourism, mining, and energy encourage excessive exploitation of the environment, culture, and the rights of local communities. Mbembe called the exploited territory "a contested frontier." Here, "frontier" refers to a conflict zone where valuable resources are contested, with the state supporting corporations and extractive industries (Mbembe 2013).

In the Indonesian context, in the name of investment, the government ignores scientific and ethical considerations regarding the devastating impacts of environmental exploitation, including climate change. This scandal is exacerbated by the loss of the moral voice of religions. Recently, the Jokowi regime granted mining licenses (IUP) to religious organizations through Government Regulation (PP) number 25/2024, article 38A, paragraph 1. Several religious organizations appreciated this "gift." However, this is inconsistent with the moral duty of religions to care for the environment. All extractive industries, regardless of their professional management, inevitably damage the environment, making religious organizations complicit in environmental destruction.

Kompas editorial writes that the sale of mining licenses to religious organizations will exacerbate climate change and social and health problems, triggered by the 8,000 mining licenses covering more than 10 million hectares of concession area across the nation today (Kompas Editorial 2024). The conflict of interest in mining management will also lead religious organizations into moral scandals, including corruption and the pursuit of self-benefit. As a result, religions become voiceless. Even the "sin" of extractive industries may be justified by religious doctrines, making these mining licenses politically charged. According to Setiawan, the government's rationale in providing equal opportunities and justice in the management of natural resources is flawed in both logic and legal reasoning (Setiawan 2024).

Various technical, scientific, and legal solutions to climate change issues are urgently needed and have proven beneficial in achieving effective results. For example, the reduction in chlorofluorocarbons as a result of the Montreal Protocol in 1989 led to decreased use of substances that can damage the ozone layer. Additionally, air pollution has been significantly reduced in Japan, the US, and the UK over the past five decades following the implementation of national clean air laws (Waidelich et al. 2024). Other studies highlight the need for a strategy to reduce

carbon emissions over the next 50 years. As declared in the Paris Agreement, controlling global warming to below 2°C could prevent about 4.5 million premature deaths, 1.5 million hospitalizations and health emergencies, the loss of 300 million workdays, 1.7 million cases of dementia, and 440 million tons of crop loss on a global scale (Davis & Huang 2024). These benefits can be achieved even if only one industrialized country, such as the US, or one of the most densely populated countries, such as China or India, reduces its emissions (Ivlev and Ivleva 2018). Since 2021, Indonesia has also committed to mitigating climate change with renewable energy resources projects, aiming to achieve Net Zero Emissions by 2060.

Although those solutions are important, this research considers them to be still reactive and insufficient to provide long-term guarantees for protecting the Earth and future generations. This research argues that long-term security requires solutions that go beyond specific threats; it calls for an integrated solution that addresses the root causes of the planetary, economic, and ecological justice crises. For the past three decades, postindustrial economic discourse has attempted to offer a new integrated theory in response to the environmental crisis and socio-economic inequality, known as the Green Economy theory.

A Green Economy is a global concept of economic equality and collective prosperity achieved by minimizing environmental damage (Adeleke and Josue 2019). The Green Economy encompasses five main principles: increasing social and economic welfare for the entire community, ensuring intergenerational equality, promoting economic development based on ecological concern, fostering sustainable consumption and production, and developing a robust and accountable system (Shiyammurti and Tjahjadi 2023). Recent studies on the Green Economy focus their analysis on sustainable development paradigms, including the sharing of clean energy, reducing CO2 emissions, increasing the human development index, and improving life expectancy at birth (Widayanto and Nurrahma 2022) However, these studies still offer a normative view of the relationship between the economy and the environment.

To address this gap in theory, this research offers a new perspective on the issue of climate change and its solutions by examining Pope Francis' thoughts (hereafter, Francis) in his encyclical entitled *Laudato Si* (2015). In this encyclical, Francis expresses his deep concern for the environment. He calls the earth "our common home," referring to the interconnectedness between nature, humans, spiritual life, and the ethical challenges of living in a global community (Silecchia n.d.). Regarding climate change, Francis proposes the idea of climate as a common good (LS, 22) (Francis and Church 2015). According to Francis, climate change has human roots, such as undermining the principles of the sanctity of creation, the interconnection and interdependence of all creatures, and the common good. While considering some pivotal recent scientific findings, Francis also reflects on an ethical duty for a profound environmental conversion, urging believers to change their lifestyle and paradigm about nature, from anthropocentrism to ecocentrism.

The concept of anthropocentrism

requires a nuanced and critical understanding. This research argues that Pope Francis, in *Laudato Si'*, does not reject anthropocentrism outright but rather critiques a traditional theological perspective that positions humans as the only creatures willed for their own sake, thereby justifying the exploitation of non-human life for human benefit. While *Laudato Si'* acknowledges humanity's distinct role in creation, it reframes this role not as a license for domination but as a responsibility to foster harmony within creation. The encyclical challenges the notion that non-human beings lack intrinsic value, asserting instead that all of creation possesses worth in itself. Thus, the uniqueness of *Laudato Si'* lies not in its dismissal of anthropocentrism, but in its rejection of an anthropocentrism that subordinates nature solely to human interests. Pope Francis calls for a renewed vision in which humans and the rest of creation coexist in a divinely ordained unity.

This theological framework is encapsulated in the concept of *integral ecology*, which redefines ecclesiology within Catholic theology. *Laudato Si'* advances an ecological reformulation of the Church, portraying the Church's relationship with its context as an interconnected ecosystem (Gruber 2017). By doing so, it provides a theological response to the contemporary socio-ecological crisis and urges the Church to take a definitive stance against environmental degradation (*LS* 1-16). Historically, biblical texts have been interpreted to justify human dominion over nature. However, *Laudato Si'* offers a reinterpretation that affirms the inherent equality among all creatures, positioning the Church as a defender of ecological integrity. From an ecclesiological and theological perspective, this research contends that Pope Francis' vision in *Laudato Si'* portrays the Church as a living, interdependent ecosystem, thereby fostering a discourse that integrates Catholic theology with ecological consciousness and ethics.

This view of paradigmatic and ethical transformation identifies *Laudato Si* as a deep ecology. Deep ecology is a term coined by the Norwegian philosopher Arne Naess. For Naess, deep ecology is about how a person understands nature, experiences the world, and acts (Dahlbeck and De Lucia Dahlbeck 2020). The metaphysical root of deep ecology is Spinoza's idea about substance, which includes three main things: intrinsic value, meaning everything in nature has its value that does not depend on its benefit to humans; biocentric egalitarianism, the view that all entities in nature, whether they are microbes, cells, animals, forests, humans, etc., are equal; and conatus (self-realization), the view that all natural entities have an innate inclination to continue to exist, maintain themselves, and realize their goals (Bender 2023). Similarly, Francis also reflects on three important things in *Laudato Si*: the intrinsic value of every creature, the human meaning of ecology, and the interconnectedness of everything on the planet.

This research aims to rethink deep ecology as a radical resolution to the problem of climate change from the perspective of Pope Francis' *Laudato Si*. Most previous studies on *Laudato Si* identified Francis' view as a model of integral ecology (Ferrara 2019). However, unlike integral ecology, deep ecology is an

environmental philosophy that promotes a paradigmatic and radical transformation in the way humans view nature. When Francis highlights human behavior as the main root of environmental damage, he proposes deep ecology, namely a change in human paradigms and ethics regarding viewing and treating nature.

This research employs a qualitative approach, specifically through literature review and content analysis. In philosophy, a literature review is seen as the principle of expression, involving a qualitative approach grounded in critical study and comprehensive hermeneutics. Specifically, this study will conduct a document analysis of *Laudato Si* to establish the theoretical framework.

This research progresses through three stages. The first stage involves data collection, distinguishing between primary and secondary literature. Primary literature includes key theoretical works within a specific scientific field. Data and information will be gathered from books and journal articles relevant to the research topic, including previous studies (Budiarto et al. 2023). It should be noted that the primary source for this research is the encyclical *Laudato Si* (2015), while secondary sources comprise journal articles from Google Scholar, ResearchGate, SINTA, Scopus, and DOAJ, which provide additional analysis and information on the encyclical, climate change, and deep ecology.

The second stage involves selecting references based on keywords, specifically *Laudato Si*, deep ecology, climate change, Pope Francis, and ecological crisis. The third stage encompasses data analysis. Data from the literature review, both primary and secondary sources, will be critically analyzed to compare and contrast the research focus on understanding deep ecology from the perspective of Francis' *Laudato Si*, juxtaposed with the issues and discourse surrounding climate change. This stage applies the principle of expression or content analysis grounded in critical hermeneutics.

CLIMATE CHANGE AND ITS THREAT TO ECOSYSTEM: AN OVERVIEW

Climate change is real. The IPCC report presents empirical evidence such as sea level rises, glaciers melting, changes in rainfall, and global warming. The IPCC shows that the current rate of greenhouse gas emissions will increase Earth's average temperature by 0.2°C annually, and by 2050 it will exceed the threshold of 2°C, which is much higher than the Earth's average temperature in the pre-industrial era (Calvin et al. 2023). Other scientific studies reveal alarming data about the consequences of climate change for ecosystems, including massive ice melt in Greenland and Antarctica; a sea level rise of around 0.19 meters since 1900, reaching 0.52 meters in 2017, and potentially 0.98 meters by 2100; an extraordinary rise in the Earth's average temperature; extreme rainfall in some areas and drought in others; and the loss of biodiversity, with gradual effects on ecosystems (Wu, Han, et al. 2024).

Climate change is a long-term shift in temperature or weather patterns. It can be triggered by natural factors such as volcanic

eruptions or changes in solar activity. However, since the 1800s, human activities such as burning fossil fuels (coal, oil, and gas) have been the main cause of climate change (Adedeji et al. 2014)to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly. This overview deals with the concept of Global Climate Change, the associated terms, causes, consequences, solutions and its potential health impact. It shows the need to act urgently if we are to avoid an irreversible build-up of greenhouse gases (GHGs. According to The Lancet Commission, burning fossil fuels in motor vehicles, households, agriculture, and manufacturing, as well as converting natural habitats into agricultural land and human settlements, has led to the growth of greenhouse gas emissions such as carbon dioxide, methane, nitrous oxide, and black carbon (Whitmee et al. 2015). Greenhouse gases act like a blanket, wrapping around the Earth, trapping the sun's heat, and raising temperatures.

There is no doubt that climate change is causing massive changes in the atmosphere, oceans, cryosphere, biosphere, and weather. Extreme weather changes have significant impacts, including crop failure and a decline in food production, especially for farmers who depend on regular rainfall for their farming. The decline in food production leads to malnutrition, hunger, and death (Feliciano et al. 2022). This particularly affects the poor in many developing countries in Africa, Asia, and South America. In NTT, for example, the food crisis in recent years has caused hunger and malnutrition, threatening children's futures and lives. Most people in NTT depend on land and rainfall. However, climate change anomalies are causing extreme drought, so farmers have cultivated only 40,000 hectares of the available 214,000 hectares of land, struggling to predict the right time to plant based on irregular rainfall.

These facts illustrate how global climate change creates crucial humanitarian problems for the poor who rely on natural resources. As reported by The Lancet Commission, the poor and marginalized in the poorest countries contribute the least to climate change but are the most climate-vulnerable. The IPCC report also emphasizes that the devastating impacts of climate change affect humans and nature, with historically vulnerable communities, including the poor in the poorest countries who contribute least to climate change, bearing disproportionate consequences (Calvin et al. 2023).

Based on data from various studies, the impact of climate change on ecosystems can be summarized as follows: First. damage to land, water, cryosphere, and coastal ecosystems. The Earth's temperature rise has caused the massive loss of several species on both land and water. Other impacts include changes in hydrology, glacier melting, and changes in mountain ecosystems (Wu, Gao, et al. 2024).

Second, Irregular rainfall and extreme drought. Irregular rainfall can reduce food security in some places, hindering global and national goals of collective prosperity. According to the IPCC and The Lancet Commission, this has been a serious issue for

the last 50 years, especially for poor farmers in tropical areas. Additionally, ocean warming and acidification negatively impact aquatic food systems and seashell farms in coastal zones. The IPCC report adds that half of the world's population currently experiences extreme water scarcity (Calvin et al. 2023). Globally, groundwater supplies around 50% of freshwater used for households, 40% for industry, and 20% for irrigation. However, the availability of fresh water is increasingly depleted due to massive deforestation. Since 2000, humans have logged 2.3 million square kilometers of primary forests (Hansen et al. 2013).

Third, health impacts. Extreme temperature rise has triggered many diseases, epidemics, and deaths in all regions. The Global Environment Look and the IPCC assessment have warned that climate change could threaten human health. For example, climate change can increase the mobilization of persistent organic pollutants mixed with harmful chemicals, threatening both the environment and humans. In some places, including Africa, Asia, and North America, people suffer from mental health disorders caused by temperature rise, coinciding with the loss of livelihoods and culture due to migration. Various studies also find that climate change and global warming have triggered the evolution and emergence of harmful pathogens, viruses, and infectious diseases, including malaria, Nipah, and Ebola (Ford et al. 2022). Other research suggests that the emergence and transmission of COVID-19 as a zoonotic pathogen was triggered by global warming (Khojasteh et al. 2022). In the future, humans will need a better understanding of the ecological mechanisms of disease.

In conclusion, climate change has caused massive damage to human life, spreading unequally across regions, systems, and sectors. In the economic sector, climate change has harmed agriculture, forestry, fisheries, energy, and tourism. It has also caused the loss of livelihoods for many people, especially the most vulnerable, further affecting income, food security, health, and even gender and social equality. In urban areas, climate change has had harmful effects on health, livelihoods, and key infrastructures, including clean water, sanitation, and energy systems.

CLIMATE CHANGE IN THE PERSPECTIVE OF *LAUDATO SI*

In 2015, Pope Francis released his second encyclical entitled *Laudato Si': On Care for Our Common Home*. Unlike his first encyclical, *Evangelii Gaudium* (*The Joy of the Gospel*), which was addressed solely to the Catholic community, *Laudato Si'* invites everyone, both Catholic and non-Catholic, to share concerns about the environmental crisis. As an ethical appeal, *Laudato Si'* is addressed to "every person living on this planet". *Laudato Si'* is a Latin phrase meaning "Praise be to You, My Lord," which is part of the hymn of St. Francis of Assisi, praising God for creating our beautiful Earth.

Laudato Si' is the most popular papal encyclical on the development of Catholic Social Teaching, receiving widespread responses. The Guardian named it the most astonishing and perhaps the most ambitious papal document of the past 100 years, as it is

addressed not just to Catholics or Christians, but to everyone on Earth. Time called it a document that will change the international conversation about climate change (Wilkins 2022). Environmentalists, including Bill McKibben, state that *Laudato Si'* is the most influential religious document, encouraging climate activists to listen to the ethical contributions of religious communities in dealing with the environmental crisis. Scientists argue that this encyclical can unite the empirical data of science with religious moral and theological appeals. encouraging data-based ecological education. Hans Joachim Schellnhuber, a German scientist, states that everything in *Laudato Si'* is in line with science. This encyclical even invites scientists to dialogue with religious communities about ecology to find an integral solution (Harun and Braun 2023).

In *Laudato Si,* Francis discusses several main themes, including the intimate relationship between poor people and the fragility of the Earth; the interconnectedness of everything on the planet; criticism of new paradigms and power modes triggered by technology and technocratism; an invitation to think of a better economic and progress system than neoliberalism; respect for the intrinsic value of every creature; the human meaning of ecology; the responsibility of international and local policies towards environmental sustainability; and changes in throwaway culture and new lifestyles (Landrigan et al. 2024).

Based on these main topics, it is clear that Francis places the ecological crisis—beyond scientific data—on some complex issues, including global economic inequality, the uncontrolled expansion of neoliberalism, the anthropocentric paradigm, and the crisis of ethics and ecological justice. *Laudato Si'* is thus different from previous Catholic social teachings, which discussed justice concerning poverty, social inequality, and the distribution of wealth. In *Laudato Si'*, Francis expands this understanding to include environmental issues (Pedrioli 2018). Since being elected as Pope in 2013, Francis has paid attention to three main and interrelated issues: inequality in the global economic system, poverty, and ecological problems. These issues are the main topics he examined in three encyclicals: *Evangelii Gaudium* (2013), *Laudato Si'* (2015), and *Fratelli Tutti* (2020).

Francis' thoughts on climate change and other environmental issues in *Laudato Si'* are related to his views on the practice of economic exclusion. The economy of exclusion is an economic and financial system that broadens not just the social inequality between rich and poor, and between industrialized and developing countries, but also accelerates massive destruction of the environment in the struggle for natural resources, supporting free market projects.

For Francis, the anthropological root of this issue is the concept of the modern subject, which fails to understand the interconnectivity and interdependence between humans and nature. As a result, the market liberalism approach to the common good undermines the principle of social justice for the poor and the principle of ecological justice for the environment (Capra 2019). Francis stated that "the cost of the damage caused by such

selfish lack of concern is much greater than the economic benefits to be obtained. Where certain species are destroyed or seriously harmed, the values involved are incalculable" (LS, 36) (Francis and Church 2015). Therefore, Francis suggests that global society needs an integral approach, integrating the principles of social justice, the common good, and environmental ethics (LS, 49) (Francis and Church 2015).

This research interprets Francis' perspective on climate change in the context of these issues. According to Francis, there is no private planet, because this Earth belongs to all, so "the climate is a common good, belonging to all and meant for all" (LS, 23). Under the ethical appeal "care for our common home," Francis explains that climate change is a global problem that has negative impacts on the environment, society, economy, trade, and politics (LS, 25), thus becoming one of the fundamental challenges of our humanity today. For Francis, amid the climate crisis, religious communities need to understand their faith's responsibility to care for the environment as a substantial value of living the faith, not just a secondary option (LS, 217) (Francis and Church 2015), because all ecological problems are humanitarian issues, especially concerning the weak and the poor.

Francis points out the mutual relationship between climate change, neoliberal economic expansion, and the weakness of the poor. For Francis, in the increasing global economic inequality, the negative impacts of climate change are most widely felt by the poor in the poorest countries (Imanaka 2017). Even though the poor depend on ecosystem services such as agriculture, fisheries, and livestock, they are also challenged by difficult access to health facilities, capital, and social security in facing the harmful impacts of climate change (LS, 48). Francis explained that many poor individuals fled from their living environments, which were damaged by climate change, global warming, and extractive industry activities. On the other hand, they became refugees without legal protection (LS, 25) (Francis and Church 2015). In his speech to oil and gas CEOs and investors gathered in the Vatican on June 14, Francis declared: "Faced with a climate emergency, we must take action accordingly, in order to avoid perpetrating a brutal act of injustice towards the poor and future generations" (Ferrara 2019).

Francis agrees with the IPCC that climate change is triggered by global warming, and global warming arises from greenhouse gases produced by human activities. Based on scientific findings, Francis explains how transportation, industrial fumes, fertilizers, insecticides, fungicides, etc., cause air, land, and water pollution. He also explains the impact of waste on climate change. According to him, the Earth is filled with various kinds of waste that cannot be decomposed biologically, including domestic, commercial, electronic, clinical, and industrial waste (LS, 21) (Francis and Church 2015). This is closely linked to the "throwaway culture," which receives less attention from society worldwide. It makes the Earth look like an immense pile of filth.

Francis elaborates an interesting comparison between the working system of natural ecosystems and the working system of humans concerning waste. For Francis, in natural ecosystems, plants collect various

materials and produce food for herbivores, and herbivores become food for carnivores that produce large amounts of organic waste, then that organic waste becomes fertilizer for new generations of plants. This natural cycle is mutually beneficial and does not accumulate waste. For Francis, our industrial system has not adapted to this natural cycle but instead produces large amounts of waste that cannot be recycled, destroying the environment (LS, 22) (Francis and Church 2015).

This natural working system inspires us about a culture of sharing. Francis once said: "Rivers do not drink their water; trees don't eat their fruit; the sun does not shine on itself and flowers do not spread their fragrance for themselves. Living for others is a rule of nature. We are all born to help each other" (Wilkins 2022). In contrast, the cycle of production and consumption in a capitalist economy is fraught with self-interest, raising the throwaway culture that damages the environment and the poor.

That analysis examines Francis' main argument about climate change. There is no doubt that physical and chemical factors are also the main factors causing climate change as analyzed by science. However, according to Francis, all of these factors are rooted in more fundamental factors, namely human paradigms and moral attitudes toward the environment (LS, 48). In *Laudato Si'*, Francis points out the human roots of climate change.

First, technocratic thinking. For Francis, technocratic thinking is undifferentiated and one-dimensional. Technocratic thinking is supported by the concept of a subject who can control and manipulate objects with technical, procedural, and rational abilities, and with the application of scientific methods (LS, 106) (Francis and Church 2015). In philosophy, technocratic thinking is instrumental thinking that views nature as objects that can be instrumentalized and manipulated for human needs. Technocratic thinking focuses on efficiency, productivity, and quantification, where the world is considered a collection of objects that can be exploited. Technocratic thinking grew with the rise of science and technology. The contemporary German philosopher Martin Heidegger understands that technocratic thinking is a way of thinking that organizes, traps, and controls nature (and other people), turning them into raw materials for production (Tan 2023).

Francis further views technocratic thinking as the logic of technology and power. He appreciates the development of technology and technoscience that helps humans: vaccines, medicines, water filters, solar panels, information and transportation technology, etc. Theologically speaking, technology is evidence of the creativity and intelligence that God has given to human beings. However, technology also grants "those with the knowledge, and especially the economic resources to use them, an impressive dominance over the whole of humanity and the entire world" (LS, 104). The dominance of technocratic thinking in technology brings suffering to human beings and the environment, including war, nuclear threats, biochemical weapons, and climate change (LS, 102-104) (Francis and Church 2015).

Technocratic thinking also appears in the idea of unlimited economic growth, which excites many economists, investors,

and technologists. They claim that economic growth driven by free markets will succeed in realizing greater inclusiveness and general prosperity (Ilo, 2019). However, for Francis, this claim is naive because the facts show that the free market economy is one of the roots of social injustice and the globalization of the silver bullet of indifference. Global capitalism and the technocratic system always spread the false notion that "an infinite quantity of energy and resources are available, that it is possible to renew them quickly, and that the negative effects of the exploitation of the natural order can be easily absorbed" (LS, 106-107) (Francis and Church 2015).

Second, global economic inequality and the expansion of neo-liberalism. Francis criticizes transnational companies and extractive industries in the mining and energy sectors as significant contributors to climate change, making large profits from natural destruction. Francis' economic view is practical and radical. It is practical because it addresses pivotal issues faced by many individuals and communities worldwide, especially the poor; and radical because, unlike most contemporary political economic thinking,

Francis' economic approach does not rely on one dominant ideology but rather on a fundamental ethical principle, namely the common good for all, especially the most vulnerable. Francis elaborates on the view that the growth of social justice requires more than just economic growth. Social justice needs an integral approach to the condition of the poor, beyond a narrow view of neo-liberal welfare (Susanti et al. n.d.). He also explains that a just economic system must serve humanitarian goals: general welfare, human dignity, equality and opportunity for all, meaningful work, ecological responsibility, and solidarity (Jr. 2022).

The economic rationality of neoliberalism considers economic projects as independent of all values (Landrigan et al. 2024). For Francis, an economic system without ethical values, including respect for the environment and solidarity with the poor, is wrong and dangerous. Francis stated, "As long as production is increased, little concern is given to whether it is at the cost of future resources or the health of the environment; as long as the clearing of a forest increases production, no one calculates the losses entailed in the desertification of the land, the harm done to biodiversity or the increased pollution" (LS, 195) (Francis and Church 2015). Francis' view can inspire us to evaluate our Indonesian context today, including the massive expansion of extractive industries that seize the land and nature of indigenous communities in many regions, supported by political policies and state military power.

Third, anthropocentrism. Anthropocentrism is a paradigm in which all values are centered on humans, and the existence of other creatures is recognized based on their benefit for humans (Kopnina et al. 2018). According to Francis, modernity is characterized by excessive anthropocentrism (LS, 116) (Francis and Church 2015). Modern anthropocentrism places a technical and instrumental mindset over nature, thereby failing to see the intrinsic value of creation. Climate change indicates many things about the role of modern anthropocentrism in environmental degradation.

Francis rejects the centrality of human beings in the structure of creation by reinterpreting the story of Creation in a new way. He objects to the view that thanks to the power of rationality, human beings can subjugate and instrumentalize other creatures for their goals. Quoting the Catholic Catechism, Francis argues that every creature has its goodness, perfection, and uniqueness, and thus, humans must respect their being beyond their benefit (LS, 69). According to Francis, God gives human beings reason and creativity not to control and manipulate other creatures for their interests but to maintain them (Capra 2019). Contrary to anthropocentric interpretations of the Creation story in the Bible, Francis proposes an ecocentric paradigm: the stories in the Bible symbolize the interconnectedness of all creation and the authentic relationship between humans and nature, based on the principles of justice, equality, fraternity, loyalty, and respect (LS, 70) (Francis and Church 2015).

RETHINKING THE DEEP ECOLOGY

Francis' thought that climate change is rooted in the anthropocentric paradigm and neoliberal economic practices indicates the need for reform at the paradigmatic level, specifically in how human beings perceive nature. In *Laudato Si*, Francis demonstrates the dialectic between theological, philosophical, and scientific arguments to produce a more ecocentric and radical paradigm regarding the essential relationship between humans and the environment. Thus, going beyond integral ecology, this research argues that *Laudato Si* offers a deep ecology, reflecting the nature of the relationship between humans and the environment. Through theological reflection, Francis shows that God liberates humans from sin and that this same God is the creator of the universe, which means that by nature, human beings and other creatures are the same. Destroying nature is the same as destroying human dignity (LS, 73) (Francis and Church 2015). This perspective identifies *Laudato Si* as a deep ecology.

To understand the concept of deep ecology in *Laudato Si*, it is necessary to first outline Naess's philosophy on deep ecology. According to Naess, deep ecology is an ecosophy, both a philosophy and an environmental movement, which holds that all creatures have intrinsic value that cannot be manipulated and that humans must reorganize their lives based on this principle.

Naess distinguishes between deep ecology and shallow ecology. Shallow ecology is a movement against climate change, pollution, global warming, and natural resource overexploitation, not for the good of the planet's ecosystem, but for the health and welfare of people in industrialized countries (Naess 2019). Shallow ecology is shallow not only in its goals but also in its moral assumption, namely that nature must be improved for the sake of human welfare because if nature is damaged, the human population is threatened (Kurniawan et al. 2023). This view is not ecological but anthropocentric because humans are the benchmark to measure other creatures. According to Naess, the approach of shallow ecology to the environmental crisis is too normative and, therefore, unable to change the

human paradigm towards nature. In contrast, deep ecology proposes fundamental changes in paradigms and attitudes towards nature. For Naess, deep ecology is a deeper paradigm that explores the principles of diversity, complexity, autonomy, decentralization, and egalitarianism (Guilherme 2011).

Naess provides practical examples of the differences between the shallow ecology and deep ecology approaches. For Naess, in the shallow ecology approach, technology is used to purify air and water and distribute pollution equitably. The Pollution Prevention Law limits pollution, and industries that cause pollution should be exported to developing countries. In contrast, in the deep ecology approach, pollution is evaluated from a biosphere perspective, not only focusing on its impact on human health but also on the ecosystem of the planet as a whole. Its goal is to eliminate the main factors of environmental damage (climate change, global warming, and pollution) which can provide a long-term benefit for the whole planet, not a short-term benefit for industrialized countries and the rich (Guilherme 2011).

So, shaping the way a person experiences the world, deep ecology emphasizes the transformation of humans' perception of the existence of the environment, where this perception change is not only a conceptual improvement or normative ethical revision but rather a natural admiration that brings out a sense of love and respect when looking at the environment around us. Therefore, deep ecology is not a philosophical theory or normative ethics but rather a social movement focused on the environment.

Naess develops seven main principles of deep ecology. First, deep ecology rejects the human-in-environment image, the view that human beings exist at the core of reality. In contrast, deep ecology recognizes the equal, intrinsic, and constitutive relationship between humans and nature, which means that nature and humans are not two separate entities but one and interdependent (Naess 2019). Without nature, human beings cannot survive, but deep ecology objects to the opposite: without humans, nature does not exist. For Naess, "nature is part of us," not "we are part of nature." "The river is part of me" (Naess 1980). The word "me" here is "the greater self, the ecological self" (Self with an "S"), which means our existence goes beyond our body, recognizing our dependence on the environment and identifying ourselves with nature. Nature is part of me, so if nature is damaged, it means that a part of me is damaged. It identifies the intrinsic unity between nature and humans. However, Naess argues that this relationship is not symmetrical: If the river is destroyed, then I am damaged, but if I am destroyed, nothing much happens to the river (Brennan 2013). Therefore, it is not "we are part of nature," but rather "nature is part of us."

Second, deep ecology develops the principle of biosphere egalitarianism, namely recognizing the other forms of life. Naess claims that every attempt to objectify nature will make human beings alienated from themselves because nature and humans have an intrinsic unity. This principle was developed based on Spinoza's metaphysics of substance. According to Spinoza, there is only one substance: Deus sive Natura (God or

nature). Everything is a modification of that substance. Nothing can exist outside of that substance, which means that the diversity and complexity of creations originate from this single substance, and therefore, all things in the world are equal (Bender 2023). Spinoza's metaphysics is the best picture of logical monism, the doctrine that the world as a whole is a single substance, so logically, there are no parts that are higher, more powerful, and can exist on their own (Russell 1967). Naess develops this metaphysics into the principle of biospheric egalitarianism, namely the view that all entities in nature, whether they are microbes, cells, animals, forests, humans, etc., have equal value (Dahlbeck and De Lucia Dahlbeck 2020). Biospheric egalitarianism is concerned with the rights of other species independent of their interactions with humans.

Third, deep ecology emphasizes the principles of diversity and symbiosis that recognize the uniqueness of other entities and support the growth of new forms of life. This principle understands the struggle of life as the ability to cooperate with other biosphere components, not the ability to kill and damage; it is not "Either you or I," but "Live and let live" (Naess 2019). Naess developed this principle from Spinoza's metaphysics of conatus (self-realization), namely the internal ability of each entity to maintain its existence. Conatus becomes a source of self-realization and the foundation of the intrinsic value of every creation. In other words, conatus is the elan vital (power of life) and the right of every component of the biosphere to exist, grow, and reach its goals. This right must not be corrupted or undermined because it is not created or given by humans.

Fourth, deep ecology objects to hierarchy and class domination in modern society, including the exploitation of industrialized countries over developing or poor countries, based on the principle of biospheric egalitarianism. In this case, deep ecology is also counter to the global economic system that encourages multinational companies and extractive industries to exploit and destroy natural resources in developing countries.

Fifth, the struggle against climate change, global warming, and damage to natural resources is not for the sake of human survival alone, but for the sustainability of nature (Naess 2019). Ecological ethics must be ecocentric, not an anthropocentric view.

Sixth, the principle of complexity, not complication. The principle of complexity emphasizes that the earth belongs to various components, but these components can cooperate for the sustainability of the whole ecosystem. In contrast, complication tends to emphasize the dominance of one component of the ecosystem, such as humans, which brings damage to the whole ecosystem. Climate change, pollution, depletion of natural resources, and the loss of biodiversity are signs of severe complications on this planet caused by human activities.

Seventh, the principle of autonomy and decentralization. It refers to welfare projects, using local resources and cultural wisdom. According to this principle, using local resources in social and economic development can reduce the excessive energy consumption that burdens the environment. It can overcome

the problems of climate change, pollution, and natural resource crises.

Reflecting on these principles, some key principles of deep ecology from the perspective of *Laudato Si* can be found, proposing a new paradigm in overcoming the ecological crisis, especially climate change.

First, the sacramental element of creation. According to Francis, every creation has intrinsic value because it was created by God. Human beings and nature are interconnected because they originate from the one Creator, namely God. While Naess proposes the idea of biosphere egalitarianism based on Spinoza's concept of a single substance, Francis proposes the idea of ecological egalitarianism based on the concept of The One God as Creator.

According to Francis, the story of Creation in the Bible is very important to revitalize the idea of interconnectedness between humans and nature, and to show how human sin destroys the balance of this relationship. Francis claims that human life is based on three fundamental and interrelated relationships: with God, with one's neighbor, and with the environment (LS, 66). If Marx said that there are only two histories, namely human history and natural history (Crook and Short 2014), for Francis, there is only one history, namely the history of God's creation.

Human beings are not the final destination of the historical process. All creatures are moving forward, with us and through us, towards a Telos which is God (LS, 83). However, recognizing the sacramental element of creation does not mean divinizing the creatures, but rather protecting, caring for, and being responsible for them. By caring for and protecting other creatures, humans can express a radical communion with nature. Thus, every act of cruelty towards any creature is "contrary to human dignity" (LS, 92). Regarding natural interconnectedness, Francis stated: "This is the basis of our conviction that, as part of the universe, called into being by one Father, all of us are linked by unseen bonds and together form a kind of universal family, a sublime communion which fills us with a sacred, affectionate and humble respect" (LS, 89) (Francis and Church 2015).

Second, consistent respect for human life extends to respect for all creation. Francis develops an integral ecology where the principle of distributive justice also reflects humans' relationship with nature (Haward 2022). Reflecting the principle of interconnectedness, nature cannot be considered a separate entity from the human world (LS, 139). The structures of society (politics, economics, culture, education, and religion) that organize human social relations also contribute to shaping human-nature relationships. Francis claims that "human ecology is inseparable from the notion of the common good" (LS, 156) so that social and ecological justice reflect each other. For Francis, today the global economic structure triggers social injustice in the form of deprivation of human rights (LS, 158). This deprivation extends to environmental exploitation, destroying environmental rights.

Francis advocates the need to reorganize the global economic system to be more respectful of the rights of the poor (TROPEA-GRAY 2017). For Francis, solidarity with the poor and recognition of environmental rights are interconnected. Francis' thought can inspire

government, academics, and contemporary society to revitalize the political ecology discourse. Political ecology is environmental politics and ethics that hold that public space is not only polis but also oikos (nature), which means every creature on earth has its rights that must be respected.

Third, a worldview affirming the ethical significance of global interdependence and the global common good. Francis shows that the unjust global economic system not only creates economic inequality but also encourages massive destruction of the environment (Ilo 2019). Francis offers the idea of global interdependence and the global common good. For Francis, the idea of global interdependence not only makes us understand the negative impacts of production, consumption, and lifestyle on poor communities but also encourages solutions with a global perspective (LS, 164). Francis stated: "Interdependence obliges us to think of one world with a common plan" (LS, 164) (Francis and Church 2015).

Fourth, an ethics of solidarity promoting cooperation and a just structure of sharing in the world community. For Francis, caring for the common good can strengthen and enrich solidarity. Solidarity emerges and grows on a shared history, heritage, and identity (LS, 232). In his third encyclical, *Fratelli Tutti* (2020), published when every country and territory around the world enforced lockdowns in response to the Covid-19 pandemic, Francis speaks about unconditional global solidarity and new politics, namely the politics of universal fraternity and community, to overcome humans' shared vulnerability. For Francis, market mechanisms and technocratic liberalism cannot provide this solidarity. In *Fratelli Tutti*, Francis presents a criticism of liberalism, both economic liberalism and the philosophical liberalism developed by the American political philosopher John Rawls. Promoting radical freedom, individualistic-technocratic liberalism forgets its roots in a shared narrative and history of a community. Liberalism perceives man simply as an unencumbered self, namely a self who is uprooted from a community, history, and tradition (FT, 163).

Francis' criticism of liberalism is in line with the thinking of American communitarian philosopher Michael Sandel. According to Sandel, liberal neutrality offers a perspective of rights without presupposing a concept of the good life, so the liberal economic system tends to ignore values. The result of this economic system is opposite to Rawls's theory of distributive justice because it benefits only the elite or ruling class (Sandel 2020).

Francis understands solidarity as a sacrifice for the suffering. Solidarity includes the responsibility to care for the common home, namely the earth, by realizing the common good and sharing it with the poor. Reflecting on this idea, Francis identifies the politics of solidarity as the politics of love, namely a politics that prioritizes the humanity of the poor and the marginalized (LS, 183-185) (Francis dan Church, 2015).

CONCLUSION

Climate change presents a significant challenge to the entire ecosystem and its sustainability

for future generations. This research has highlighted some effects of climate change based on scientific findings. Going beyond scientific data, it argues that climate change represents a complexity of fundamental problems. Based on Francis's perspective in *Laudato Si*, this research finds that climate change reflects global economic inequality, unbalanced power relations, consumerism, the ideology of technocratic liberalism, and anthropocentrism. Francis's views broaden and deepen our understanding of climate change as an ethical issue. He has repeatedly emphasized that the devastating impacts of climate change bring suffering and pain to the poor in developing countries that depend on natural resources.

This research further develops Francis's idea that climate change has its human roots, namely a technocratic and anthropocentric paradigm towards nature. Resisting anthropocentrism and technocratism, Francis develops the view of the sacramental value of creation, the intrinsic value of every creature, the interdependence and interconnectedness of all creatures, solidarity, and ecological egalitarianism. Therefore, this research identifies Francis's thought in *Laudato Si* as deep ecology. It can be concluded that overcoming climate change and other environmental degradation requires a deep approach. At this point, the ethical and theological contributions of religions become very important.

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