Charcoal Production in San Narciso, Quezon, Philippines and *Laudato Si*: An Ethical Consideration

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Abstract: It is commonly perceived that charcoal production is destructive to the environment and human life. Hence, this practice is challenging environmental ethics which calls for its cessation to save the planet from excessive greenhouse gas (GHG) emission. With issues on environment, the Catholic Church calls for the necessity of ethical stewardship and care for the earth whose natural resources are unstoppably abused and exploited. This call is clear in the encyclical letter *Laudato Si* of Pope Francis issued in 2015. Indeed, the encyclical is laudable because Pope Francis strongly argues with those in the scientific-technological community that global warming is mainly caused by human activities. However, not always that charcoal production is destructive to the environment. There are ways by which charcoal production can be sustainable to the environment, consumers, and producers. Specifically, certain charcoal producers who are poor and policy enforcers in San Narciso, Quezon have practiced a sustainable production of charcoal. They should be recognized in their good practice in protecting the environment and giving concern for those living in poverty. Hence, it is ethically important to recognize and applaud certain communities having a sustainable practice of charcoal production. It is also an imperative that the advocacy to safeguard the environment requires to have an ethical consideration for those whose practice of charcoal production is sustainable.

Key Words: Charcoal Production; Environmental Ethics; Environmental Sustainability; *Laudato Si*

Introduction

There is a common perception that charcoal production is absolutely destructive to the environment and human life. This research argues that such claim is not true at certain places; since there is community in certain area of the Philippines practicing a sustainable charcoal production. This practice of environmental sustainability is lived out by the poor farmers producing charcoal in San Narciso, Quezon Province. The poverty situation of the poor farmers in San Narciso, Quezon is given attention and priority by the encyclical *Laudato Si*. At the same, the sustainable practice of charcoal production is also encouraged. Therefore, such sustainable practice and poverty situation of the poor farmers in San Narciso, Quezon deserve importantly an ethical consideration how anyone should view charcoal production in relation to environmental issues.

Definition and Uses of Charcoal

Defining charcoal is hard to attain. Researches about charcoal have varied descriptions because of its several uses and the way it is produced. However, let it suffice what the American Chemical Society (M.J. Antal, Jr. and M. Gronli, 2003) describes: carbon (or charcoal) is a preferred product of biomass pyrolysis at moderate temperatures, with byproducts of carbon dioxide, water, methane, and traces of carbon monoxide. This description fits how the farmers produce charcoal in San Narciso, Quezon which will be described later how the charcoal is produced.

In Metro Manila, there is a high demand of charcoal in the market. Food businesses using charcoal are observable: *Mang Andoks, Mang Inasal, Seňor Pedro*, etc. These food businesses can be seen in Luzon, Visayas, and Mindanao. Not to mention the several other food businesses using charcoal and sprouting around the entire country, Thus, charcoal is widely used in the Philippines. In fact, a certain percentage of households still uses charcoal as fuelwood in cooking food despite advances in technology and other available sources of energy like electricity, kerosene, and LPG. Charcoal has always been a favorite fuel for cooking (J.M. Antal, Jr. and M. Gronli, 2003). Charcoal is used for cooking, smoking fish, and lime burning in Tondo and Malabon, for pottery and tile firing in nearby Pasig and Makati, and for brick making (D.F. Doeppers, 2007). Charcoal is also used for arts going back to ancient times 30,000 – 38,000 years ago until today (M.J. Antal, Jr. and M. Gronli, 2003). Charcoal is also useful in cement. It contributes to better cement quality (P.B. Onaji and R.V. Siemons, 1993). Charcoal also improves nutrient contents resulting to increase of maize yields (P.G. Oguntunde, et. al., 2004).

In the Philippines, the certain percentage of charcoal users has been determined in terms of household energy consumption by the National Statistics Office. Three surveys have been conducted in 1989 (32.1%), 1995 (38.5%), and 2004 (34.2%). Bensel and Remegio (2002) present an estimate report that there is 1–2 million metric tons per year (estimate range) and 1.2 million metric tons per year (best estimate) of household charcoal consumption. This is equivalent to 7.2 million metric tons of wood. This only shows that Filipinos still use charcoal despite advances in technology (electricity, LPG, and Kerosene). Obviously, charcoal is highly being demanded in the market; and as response it is produced with reasons despite the danger it can cause to the environment and human life.

The Practice and Techniques of Producing Charcoal and Its Producers in San Narciso, Quezon

Charcoal production is an ancient practice since time immemorial. Its production is basically due to high demand in the market. There are several methods

and techniques in producing charcoal. Charcoal producers use the traditional and modern methods. Traditionally, the most common methods are the use of oil drums as furnaces and the earth–pit (R.C.M Pinili, 2006). Oil drum as furnace is used for coconut shells which are put inside with fire and covered either banana leaves or metal sheets. Earth–pit is done; woodcuts are placed in it with fire to produce charcoal. It is then covered with either grass or soil. In San Narciso, Quezon, charcoal is produced through *binulkan* technique, from the term *bulkan* which literally means volcano, similar with those charcoal producers in nearby towns (Mulanay, Catanauan, San Andres, and Aurora). The kiln is made through piling the woodcuts in uniform length but different in diameter. Then, as it fires inside it is covered with grass and soil until the woodcuts are fully carbonized. The *binulkan* technique looks like a volcano releasing its smoke in the air with pungent smell. The fire is being controlled in the production of charcoal. Beneath the pile of woodcuts covered with grass or soil is a created small hole for the air ventilation and support the combustion and carbonization process inside the kiln. The time to complete the carbonization depends solely on the number of woodcuts. The charcoal producer keeps an eye and sees to it that the carbonization process does not create fire outside; or else the entire pile of woodcuts results to ashes. If ever there is a hole outside the kiln due to the deoxidation of the woodcuts, the producer must cover it each time with hay and soil to fully control the carbonization process to produce large amount of charcoal harvest. Charcoal is produced 7.7% as its efficiency rate in terms of weight (Inzon, et. al., 2016). This charcoal yield is almost similar with 7.5% computation of Nahayo, et. al. (2013). FAO (2017) provides data on kiln efficiencies; one can compare and realize how inefficient the *binulkan* technique is. See table 1.

Kiln Types and Efficiencies Found in the Literature (FAO, 2017)

Kiln type	Efficiency Range (%)
Earth-mound	9–30
Casamance	17–30
Earth-pit	12–30
Metal	20–38
Brick and orange	27–35
Drum	20–38
Retort	22–40

This implies that charcoal production in San Narciso, Quezon is low and needs improvement in technique. Charcoal producers need support for improvement due to lack of knowledge and skills since they employ only the *binulkan* technique.

Charcoal producers in San Narciso, Quezon follow certain policies implemented by the municipal local government. They cut certain trees as prescribed by the Municipal Environmental and Natural Resources Office (MENRO). These species of trees as wood sources for charcoal are known locally as *Ipil-ipil* (*Leucaena leucocephala*), *Tibig* (*Ficus nota*), *Binunga* (*Macaranga tamarius*), and *Kakawate* popularly known as *Madre de Cacao* (*Gliricidia sepium*). They also produce charcoal from fruit–bearing trees such as *Mangga*, *Santol*, and *Bayabas* especially if these are non–productive. In case of need, they cut trees (Acacia, Mahogany, Jimelina, Mangroove, Hanagdong) prohibited by the local government but they do not cut the entire tree. They practice coppicing (leaving the stump) and pruning (cutting off only the branches) especially if these trees hinder the proper growth of coconuts. This is to let the tree or stump grow again for a certain period (2–5 years) until the next harvest cycle. They also produce charcoal from fallen trees due to strong typhoons. This practice also supports them when their farm crops and livelihood are devastated by typhoons.

Charcoal producers in San Narciso, Quezon are mostly coming from the underprivileged farmer sectors who are truly left behind in their human and economic development. Relationship between poverty and charcoal production can truly be observed. In the Philippines, charcoal production are sources of fuel and income for the poor (M.B.Q. Inzon, et al., 2016). In the Democratic Republic of the Congo – one of the poorest countries in the world, around 85% of the households use wood and charcoal as cooking fuel (Food and Agriculture Organization of the United Nations, 2017).

Charcoal production supports both its producers as source of income and consumers for cooking purposes. Its practice needs an ethical consideration not only on the economic aspects. In San Narciso, Quezon, the charcoal producers follow the policies implemented by the local government. They practice coppicing and pruning which are not totally destructive to the environment. Their practice allows the trees to recover and regenerate within a certain period. The *binulkan* technique is not satisfactory in terms of charcoal yields. The producers must import knowledge and develop skills and techniques which increase charcoal yields. Only few of these charcoal producers had college education (M.B.Q. Inzon, et. al, 2016). This implies the necessity for financial resources to acquire knowledge and develop skills. Their poverty situation hinders them to fully and humanly develop themselves. Much more their human development is hindered when charcoal production is totally perceived as destructive to the environment. Hence, ethical consideration is necessary.

Impacts of Charcoal Production

One must affirm that charcoal production has negative impacts on environment and human life. Charcoal production is more likely to lead to the overexploitation of wood resources (FAO, 2017). Charcoal production could have major environmental consequences particularly if not controlled well (P. Girard, 2002).

In Asia, the major driver of forest degradation is timber logging which is about 82%; while fuelwood or charcoal is only less than 20% (Kissinger, Herold and De Sy, 2012). It does not mean that less than 20% has no major impacts on environment. Chidumayo and Gumbo (2013) estimated that:

> "Charcoal production was responsible for 540 hectares of deforestation in Oceania in 2009, 39,000 hectares in Central America, 240,000 hectares in South America, 510,000 hectares in Asia and 2,976,000 hectares in Africa; based on these estimates, Africa accounts for nearly 80 percent of the charcoal-based deforestation in the world's tropical regions."

The Food and Agriculture Organization (2017) provides a substantial data regarding worldwide charcoal production.

> "The global production of wood charcoal was estimated at 52 million tonnes (Mt) in 2015. More than half (62.1 percent) was produced in Africa, followed by the Americas (19.6 percent) and Asia (17 percent), with small quantities produced in Europe (1.2 percent) and Oceania (0.1 percent). FAO data indicate a clear trend of increasing global charcoal production – production increased by 19 percent in the ten years to 2015 and by 46 percent in the last 20 years (FAO, 2016a); most of the increase was in Africa. In 2015, the world's top ten charcoal-producing countries were (in descending order) Brazil, Nigeria, Ethiopia, India, the Democratic Republic of the Congo, Ghana, the United Republic of Tanzania, China, Madagascar and Thailand."

The demand for charcoal continues to increase. Thus, charcoal production brings with it a serious threat in human life and environment if uncontrolled. This truth necessitates serious attention to safeguard the environment. The condition is to control charcoal production. If uncontrolled, charcoal production precisely leads to environmental destruction. Global warming and climate change will come to its worst. FAO (2017) enlists the impacts of charcoal production on the environment.

Climate Change

Unsustainable wood harvesting, incomplete combustion, and inefficient charcoal production mainly increase and contribute to the impact of greenhouse gas emission (GHG) in the atmosphere. However, sustainable charcoal production can help controlling the GHG emission in the atmosphere. Thus, climate change can be mitigated. It is important to note that charcoal is a renewable energy source. Regenerating forests and trees can help capture carbon from the atmosphere (FAO, 2017; Rebugio, et. al., 2000).

Biodiversity

Uncontrolled charcoal production can cause great negative effects on forest. Deforestation and forest degradation can damage biodiversity. Habitats can be reduced and fragmented. Ecosystem may loss its proper function (Butz, 2013; Ndegwa, et al., 2016; Bailis, et. al., 2013).

On Water and Soil

Charcoal production does affect soil and water particularly because of forest degradation and deforestation. Rigorous cutting of trees for charcoal reduces forest and creates impacts on soil and water sheds (Beukering, et. al., 2007). Due to deforestation and forest degradation, soil reduces its fertility and river increases sedimentation which decreases the infiltration of water into the soil (Butz, 2013). However, charcoal production also creates biochar[1] which can have good effects on soil properties such as availability of nutrients and microbial activity (Hernandez–Soriano, et. al., 2016).

On Socio–Economic Outcomes

Majority of the charcoal producers are coming from the poor social sector. Poverty situation compels them to produce charcoal in either fitting or unfitting means. Some producers do sustainable charcoal production while others do the contrary. Charcoal production contributes to the livelihood of the poor producers. They supply the energy demands in rural and urban communities (Iiyama, et. al., 2014)

Nevertheless, one should also not forget that there are several factors contributing to the destruction of the environment. Charcoal production is not a major contributor (Kissinger, Herold and De Sy, 2012) in climate change seen as top global threat to human life (Carle, 2015). Indeed, such emphasis on the negative impacts has been considered by advocates for environmental protection. Universities and government sectors have responded to environmental crises. They participate in tree planting, waste segregation, coastal clean–up, and any other environmental action to care for the environment. In other words, climate change becomes almost everybody's concern. The Filipinos (72%) are worried of this global threat (Jill Carle, 2015).

[1] Biochar is defined by Verheijen et al. (2010) as charcoal for which, owing to its inherent properties, scientific consensus exists that its application to soil at a specific site is expected to sustainably sequester carbon and concurrently improve soil functions.

To summarize, it is commonly perceived that charcoal production is destructive to the environment and a threat to human life. It contributes to climate change, but not its great main contributor. It is observed that its threatening impact on the environment is due primarily to unbridled charcoal production. Hence, sustainable charcoal production is necessitated to supplement livelihood for the poor charcoal producers and meet the demands for charcoal in the urban and rural households. In this sense, the common perception on charcoal production should be put in the right perspective so that the ethical consideration takes place.

The Problem with Misconception on Charcoal Production

The Food and Agriculture Organization of the United Nations has sensed this misconception on charcoal production. FAO (2017, p. 2) points out that the World Leaders during the 2015 Paris Agreement to mitigate climate change have poorly understood the potential of charcoal value. FAO (2017) accuses the 2015 Paris Agreement that the opportunities for emission reductions in the charcoal sector are not well–reflected in the nationally determined contributions (NDC). FAO (2017) appreciates that charcoal greening is the "efficient and sustainable sourcing, production, transport, distribution and use of charcoal, resulting in improved human well-being and social equity and reducing environmental risks and ecological scarcities. It is low–carbon, resource–efficient, produced from sustainably sourced wood, and socially inclusive." Moreover, this misconception on charcoal value is also exhibited by Filipinos (72%).

In this regard, misconception deprives those in the charcoal sector of their positive contribution to mitigate climate change and livelihood to sustain their family's needs. Misconception on charcoal production can disprove the concept and practice of environmental sustainability which is the potential of the charcoal sector to contribute in the advocacy for safeguarding the environment. There can be a tendency to bluntly discourage the charcoal sector to stop its production. This is not fair for those in the charcoal sector. Hence, the writer argues that misconception on charcoal production becomes problematic and a burden for those in the charcoal sector. There needs an ethical consideration.

On Environmental Sustainability

The major response of the World Leaders on global warming and climate change is to reduce GHG emission. With environmental crises, sustainable charcoal production is key to the assessment of its impact on climate change (FAO, 2016). Sustainable practice of charcoal production supports carbon capture from the atmosphere. It can mitigate GHG emission. In other words, environmental

sustainability is called for action by world conferences on environmental issues. It is a commitment and central in the discussions of the United Nations' Rio +20 (June 2012) and Johannesburg Plan of Implementation of the World Summit on Sustainable Development. The idea of sustainability is well–explained with its broad relationships with economy, environment, and policies.

First, the economic dimension of sustainability gives a singular concern with those poor in developing countries. The main goal is to eradicate poverty as the greatest global challenge and an indispensable requirement for sustainable development, particularly for developing countries (Johannesburg Plan of Implementation, § 7–13). The United Nations recognize the significant role of the poor sector to contribute in sustainable development through environmentally sound production and enhancement of livelihood (Rio +20, June 2012, § 52). Poor sector's contribution is significant in the economy of a country. In this regard, FAO (2017) reveals that the poor sector generates income from charcoal production for 40 million people. Failure to regulate charcoal production means forgoing billions of dollars revenue.

Second, sustainability is much ethically needed in the context of environmental crises. The United Nations affirms the necessity to manage the natural resources based on sustainable and integrated manner (Johannesburg Plan of Implementation, § 24). With unbridled charcoal production, one cannot disregard its impact on the environment. It is important to remember Super Typhoons devastating infrastructures, livelihood, and human lives such as Katrina (2005) and Haiyan (2014), not to mention Tsunamis and earthquakes. Recalling such devastations reminds of the repercussions due to environmental exploitation without care for nature. The United Nations stress the need for a regular review of the state of the Earth's changing environment and its impact on human well–being (Rio +20, 2012, § 90). FAO (2017) reports that:

> "An estimated 1–2.4 Gt CO2e of greenhouse gases are emitted annually in the production and use of fuelwood and charcoal, which is 2–7 percent of global anthropogenic emissions. These emissions are due largely to unsustainable forest management and inefficient charcoal manufacture and woodfuel combustion."

In other words, practicing sustainability is to advocate safeguarding the environment and human lives at present and future generations. The practice of sustainability involves varied ways. In Mulanay, Quezon Province, M.R.B. Inzon, et al. (2016) made an analysis of environmental sustainability regarding charcoal production. The researchers conclude that sustainable charcoal production industry in Mulanay can be achieved by planting and utilizing suitable tree species and improving harvesting systems and production techniques. In San Narciso, Quezon, sustainable charcoal production is done by coppicing and pruning the branches. This means that environmental sustainability allows the trees to regenerate and grow for

the next harvesting cycle for charcoal production. In some places, charcoal producers do briquetting technique which is the process of converting low bulk density biomass into high density and energy concentrated fuel briquettes (Sugumaran and Seshadri, 2010). Charcoal briquetting is also a sustainable practice because it utilizes light biomass such as corn cob, rice husk, sawdust, coconut shell, almond shell, and cotton shell. Charcoal briquetting avoids cutting of trees for charcoal.

Third, sustainability necessitates regulating charcoal production. The United Nations through FAO (2017) mainly points out that the 2–7 % of global anthropogenic emissions is largely due to unsustainable forest management and inefficient charcoal manufacture and woodfuel combustion. The United Nations reinvigorates its political commitments. The commitment is to combat climate change in accordance with the principles and provisions of United Nations Framework Convention on Climate Change.

Hence, environmental sustainability is about eradicating poverty to lift the condition of the poor sector. It allows the responsible use of the natural resources and regeneration of trees for charcoal. Those in the charcoal sector should learn to regulate and observe policies about sustainable charcoal production. In this concern, it should be realized that environmental sustainability is mainly a teaching of the Catholic Church specifically in the encyclical *Laudato Si* (2015).

Laudato Si: The Church's Teaching on Environmental Crises

Pope Francis publicized the encyclical *Laudato Si* in 2015. This encyclical is an ethical evaluation and judgment regarding environmental crises that the Mother Earth is crying out.

The encyclical's careful evaluation and judgment is based on scientific evidences (Chapter 1). It describes the Mother Earth crying out because of pollution, climate change, water issue, and loss of biodiversity. These environmental conundrums cause the decline human life quality, societal breakdown, and global inequality. It sees the weak responses amidst these environmental tragedies. He points out that the earth is in serious danger and proposes an urgent ethical response.

In facing this ecological crisis, the encyclical explains the theological aspect of creation (Chapter 2). It sees the significant contribution of faith in the context of religion and spirituality to ecological crises. To care for nature is a duty towards the Creator and essential part of Christian faith. It explains further the wisdom of biblical accounts which suggest that human life is in close relationship with God, neighbor, and nature. This relationship has been broken because of sin. Thus, the blessing of natural resources has been abusively exploited. Then, it points out the

need to be in harmony with creation as the gaze of Jesus with all that God has created.

It then proceeds by pointing the human roots of this ecological crisis (Chapter 3). Pope Francis identifies that technology greatly contributes in environmental crisis. There is something to worry about technocratic paradigm which is an uncontrollable power to exploit nature for technological purposes specifically by those who have knowledge and economic resources. This paradigm is deeply embedded in the social consciousness (modern anthropocentrism) which sees nature as insensate objects to be hammered into useful shapes that can be thrown with complete indifference afterwards. These deep causes necessarily require a new synthesis to overcome the false arguments of technocratic paradigm and modern anthropocentrism.

The main proposal of the encyclical is integral ecology (chapter 4) strongly emphasizing the interconnectedness of human beings with nature. Integral ecology also concerns with history, culture, and architecture needing to be protected and preserved (§ 143). Moreover, this chapter also explains the necessity of the daily life ecology which gives attention to the urban environment. It points out that human beings have great capacity for adaptation, responding to ecological crises by limiting their adverse effects in their lives. Integral ecology is inseparable from the principle of common good. Safeguarding the environment is good for all. It is also justice for the coming generations. Notable in integral ecology is the concept of environmental sustainability. It is a "consideration [that] must be given to each ecosystem's regenerative ability in its different areas and aspects" (§ 140). The concept of environmental sustainability is so important because one can clearly see how this has been practiced by charcoal producers in San Narciso, Quezon.

Then, the encyclical critically points out the problems regarding the line of approaches and actions on environmental crisis (Chapter 5). There are problems in World Summits, national and local policies, transparency in decision-making, politics and economy. The encyclical suggests political will, unified agreements, far-sighted solutions, greater sense of responsibility, a strong sense of community, and honest discussions founded on truth. Notable in this chapter is the priority of poor countries needing to eliminate extreme poverty and promote social development. This priority of the poor sector is important to consider because this is the situation of charcoal producers in San Narciso, Quezon.

Lastly, the encyclical proposes the significance of ecological education and spirituality (Chapter 6). This section challenges everyone to go through an ecological conversion to attain the desired change amidst the ecological crisis. "Change is impossible without motivation and a process of education" (§ 15).

In the researcher's view, the encyclical poses a kind of understanding that is so careful and evaluative of the nature, impacts and affected ones of ecological devastation and crisis. With its nature, indeed, the phenomenon of this ecological crisis can be experienced in everyday life wherever one will go. Its impact is more of the decline of the quality of life. Ecological crisis affects everyone, mostly the poor sector. Careful and evaluative understanding are demands of the encyclical. In view of charcoal production, it is a reminder therefore that one should not right away view and judge that charcoal production is absolutely destructive to nature. This must be an ethical consideration when one sees a piece of charcoal produced for the sake of sustaining one's life and cooking food. Though of course, there is truth that some of the charcoal sector produce for the sake of profit. Yet, one is challenged to be specific in identifying the places of charcoal production and the producers. The truth is there is a sustainable practice of charcoal production; and this can be seen in the poor farmers of San Narciso, Quezon Province. They have not disregarded their duty towards nature, others, and primarily to their family.

In this regard, the two notable concepts pointed out by the encyclical *Laudato Si* must be viewed as an ethical consideration in view of charcoal production. These concepts are environmental sustainability and priority of the poor.

Ethical Consideration: Environmental Sustainability and Priority of the Poor

The context of the charcoal producers in San Narciso, Quezon demands an ethical consideration because they are poor. One can strongly argue that such absolute perspective – that charcoal production is destructive to nature – pushes the poor to dwell more in poverty. Such perspective is too narrow and deprive the poor charcoal producers the other means of sustaining their lives. In San Narciso, Quezon, the poor farmers produce charcoal by practicing environmental sustainability. They practice environmental sustainability by way of pruning (cutting the branches) and coppicing (leaving the stump) of the trees. In other words, they allow the regenerative cycle of the trees. *Laudato Si* instructs that "when we speak of sustainable use, consideration must always be given to each ecosystem's regenerative ability in its different areas and aspects" (§ 140). Obviously, the poor farmers of San Narciso, Quezon consider the ecosystem's regenerative ability. Not only this, they also observe the local policy regarding charcoal production. The local government of San Narciso, Quezon implements that only CALAAN (*Ipil-ipil*, *Kakawate*, *Tibig*, and *Binunga*) species are to be cut. In case of need, they prune tree branches of Acacia, Mahogany, Jimelina, Mangroove, Hanagdong, and Narra which are hardwood trees still allowing the regenerative ability of nature. Still, this is permitted by the local government as told by the local producers of charcoal and policy–enforcers of local government of San Narciso, Quezon.

This practice of environmental sustainability and observance of local policies on environment are responsive to ecological crisis. In other words, the poor farmers producing charcoal participate ethically in addressing ecological issues. One can sense that such sustainable practice and observance of local policies on safeguarding the environment deserve and applause, appreciation, and mostly support from the academe. This sustainable practice should be propagated and known by any affected stakeholders on charcoal production particularly the policy–implementing sector. For there is tendency to rigidly uphold the policy than responding to the needs of the poor in sustaining their lives. It is in this sense that the encyclical *Laudato Si* must be considered by those faithful in the policy–implementing sector whose view is influenced by absolutism on charcoal production as destructive to the environment. They should not forget that the encyclical has given priority of the poor. It states that,

> "For poor countries, the priorities must be to eliminate extreme poverty and to promote the social development of their people" (*LS*, § 172).

Conclusively, this ethical consideration implies justice given to those poor farmers producing charcoal in view of their poverty situation. In this sense, this research opens the opportunity to go into places of poverty and understand how the poor cope up with their lives particularly their livelihood affecting the environment and any individual in the society. It is the way by which anyone can have a change of perspective specifically regarding charcoal production. Such way is the very purpose and aim served by this paper.

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