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Assessing CSR of the Business Sector to Energy for all in Nepal

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Abstract

Background: In Nepal, the existing energy divide with 80 percent off the grid population is extreme, despite the global agenda of energy for all (SDG7). Eradicating this energy barrier to reduce poverty and inequality, SDG 7 advocates renewable energy for an off-the-grid rural population under the CSR fund.

Objective: This paper examines the status of the CSR practice of the corporate sector in Nepal and the relationship between the CSR of the corporate sector and renewable energy promotion for energy for all in Nepal to reduce the off-the-grid rural population.

Method: This paper employed an explorative research design. Its data sets were primary cum secondary.

Result: As a result, the CSR practice of the business sector in a developing country like Nepal is not like as three-pillar principles of CSR. Despite a good amount of profit and knowledge about CSR, the poor, random, and voluntary CSR is a big surprise and a loss of opportunity to create social value across the country.

Conclusion: In the future, this corporate sector may be vulnerable to potential social and environmental crises, like the government. Therefore, CSR as an excellent economic instrument to sustain corporate activities and meet society's economic and socio-environmental responsibility is a big hope for renewable energy promotion and development to achieve SDG 7: energy for all by 2030.

Originality: This paper is not published anywhere else.

Key Words: CSR, Business Sector, CSR Fund, Energy Divide

Paper Type: Research Paper

JEL Classification: M10, O13, P18

Introduction

In the 21st century, energy for all is a serious concern because of its strong integration with livelihood, human welfare, and economic growth. Extensive theoretical and empirical literature considers it a big challenge in the critical scenario of massive energy poverty and extreme energy divide. However, a new economic development model considers energy a key driver of rapid economic growth. The World Bank (2020) figures out the energy divide in the world where 1.1 billion population still lives with no electric power and 2.9 billion people with no modern fuels for warming and culinary. In developing countries, 60 % of people and 47% of the least developed have no access to electricity, and 577 million populations do not have primary energy (UNCTAD, 2019). USAID (2008) portrayed a higher energy divide in developing countries of Africa, Asia, and South Asia with lower power production and distribution. In these countries, the paper mentioned low non-farm and high farm activities resulting from the energy divide. In South Asia, on average, 50 percent population consumes energy, but Maldives (100%) and Sri Lanka (85%) are exceptional (USAID, 2008). In Nepal, less than 50 percent access grid electricity. This scenario illustrates the energy divide and disequilibrium energy market with supply lag and excessive demand for energy for achieving a higher economic growth rate as desired by all member countries. In the figure, 152 million people in the South Asia region lack access to electricity, and 900 million do not have access to clean cooking. Additionally, in Nepal, 31% of the population does not have access to electricity, and 81 % still depend on traditional fuels for their livelihood, culinary, and warming energy. Thus, the extreme energy divide between the demographic and the region has become a critical global issue.

On this issue, Pokrovski (2003) expanded the production function, including energy input. Similarly, recent literature (Pokrovski, 2003, Sadorsky, 2012, Shahbaz & Lean, 2012, Al-mulali & Lee, 2013, Siddique & Majeed, 2015; Guo, 2018) argues co-integration between energy consumption and economic growth in developed countries. Besides, the studies (ECOTEC, 2007; Lynes & Andrachuk, 2008; Kerckhoffs & Wilde-Ramsing; 2010, Mexhar, Tabbara & Al-hosany, 2010; Williamson, Stampe-Knippel & Weber, 2014; Stjepcevic, & Siksnelyte, 2017) argue technological progress as miracles of multiple energy production functions in the developed countries for new economic growth and the welfare of people, along with economies of scale and economies of energy efficiency and productivity. It is a fact that the practice of market-friendly energy policy in developed countries opened up the entry of giant corporate sector in energy research and development and production, along with the mandatory CSR practice on renewable energy promotion and distribution. As a result, the off-grid population is the least in developed countries (WB, 2020).

Differently, Bista (2020) explains the constraint of capital, investment, and technology in the energy production function of developing countries, except for the affluence of water and human resources. WB (2020) shows a factsheet of the small energy market and the small-sized corporate sector in the developing countries, despite energy market-friendly policy. Like developed countries, Shahbaz, Benkraiem, Miloudi, and Lahiani (2017) argue that the relationship between economic growth and energy is positive. Azam (2019) provides similar empirical evidence in developing Asian economies and insights social welfare progress of the people. In the study of the association between energy and economic growth in Tanzania and Nigeria, Ebohon (1996) found their simultaneous causal link. However, WB (2020) shows a factsheet of the small energy market and the small-sized corporate sector in the developing countries, despite energy market-friendly policy. This weak status of the corporate sectors puzzles CSR practice in developing countries. It is clear about no CSR effort of the private sector on renewable energy promotion and development. Its result is the occurrence of the off-grid rural population as a significant development challenge for poverty reduction, welfare, and economic growth. The WB (2020) notes the rural areas have a big size off the grid population. Nepal is an example, with an energy divide of 56 % of the people outside the national electricity grid (MoF, 2020; Bista, 2020).

In this context, theoretical and empirical literature (Brundtland, 1987; Boulding, 1973; and the SDG, 2030) argue the sustainable development approach is a potential alternative to reduce the extreme energy divide in the world, particularly in developing countries. Most developing countries, including Nepal, have widely adopted this approach for energy for all. The method ensures energy availability, is reasonable, trustworthy, and viable for meeting future demand without adjusting current needs. The World Commission on Environment and Development (Brundtland, 1987) explains its integrity of three pillars: environment, economy, and society. Further, it mentions supplementary additional two pillars: culture and institution. As a follow-up approach, the UN (2015) widely made the SDG 2030 Agenda with the 17 Sustainable Development Goals (SDGs) and 169 targets from 2015 to 2030 to be mandatory for the UN member countries. The 7th goal relates to energy for all as a target of universal access to inexpensive, consistent, and modern energy services by 2030 by intensifying an extensive share of clean energy to all, reducing the energy divide and gap led to poverty for livelihood, human welfare, and economic growth.

Additionally, it focuses on mounting energy technology and infrastructure as the CSR of the business sector for modern and sustainable energy services for all developing economies. Thus, SDG7 has become the global plan to reduce the energy divide in developing countries for human welfare and happiness. The CSR of the business sector has become a popular alternative for the achievement of SDG7.

In the thematic milieu, this study examines whether the CSR of the business sector is an alternative driver to achieving the SDG7 target in developing countries like Nepal. Then it also investigates if the CSR of the corporate sector makes miracles in modern and sustainable energy production and distribution to reach the population outside the national electricity grid. This study is not the first and last one to focus on this potential alternative module: clean energy development as CSR of the business sector in developing countries. This thematic area is rich in theoretical and empirical literature because of the growing threat of climate change and poverty. Recent literature on this issue provides evidence about their focus on the CSR of the energy-producing corporate sectors in the USA, EU, and the Middle East to integrate economic and socio-environmental goals (Stijepcevic & Siksnelyte, 2017) for their sustainable growth.

It is no doubt that this literature reflects the oil-producing countries. Still, in cross-country studies, it is unnecessary to consider non-oil-producing countries, particularly developing countries. Additionally, the giant energy industry of the USA, EU, and the Middle East emit 2/3 of total carbon emission in the world's atmosphere. Despite the three pillars of CSR: economic and socio-environmental goals theoretical basis, its relevancy may be inappropriate for the non-energy sector in developing countries like Nepal. However, the four dimensions of CSR theory concern only the relationship between business and society.

In the three-pillar principle of CSR, there are assumptions: the growth of energy demand will increase in the future. Still, the supply of fossil fuel energy will decline in the future, and the carbon emission of the energy industry will cause the threat of climate change in the world. As an alternative energy source, renewable energy may be a potential one to meet its future cumulative demand for SDG7 and maintainable economic growth and development. Under these assumptions, the three pillars of CSR theory argue the relationship between economics and socio-environmental goals by renewable energy as the world's future energy for sustainable development and economic growth.

The empirical literature (Bista, 2018, Bista, 2019) shows the industrial policy of developing countries reflects CSR theory. The policy has made it mandatory for all the multinational and national private companies to invest as per the business and society integrity synthesis of the four dimensions of the CSR theory. In reality, the CSR nature and pattern are voluntarily fluctuating. The result shows no significant impact of CSR on society. Thus, the CSR application in developing countries is not meaningful and impactful in improving the relationship between business and organization, although it is a policy

concern. In this gap between theory and application, the test of the three pillars of CSR theory in the developing countries may be a big issue in the growth of investment in renewable energy production and distribution for minimizing the existing energy divide in the rural areas. Therefore, this study may be relevant to understanding the CSR theory- policy-application gap through the firm's survey.

The existing extreme energy divide, energy poverty in rural areas of the country, and potential energy crisis in the future motivate this study. Also, the motivation for this study is the possible finance of CSR on clean energy to understand the relationship between CSR theory-policy-application on renewable energy investment and development and energy divide because of the backdrop of extreme energy divide in Nepal, i.e., 56% of the off-the-grid rural population. The exploitation of the existing hydro energy potentials (83000 MW) is long-term. Therefore, renewable energy may be an excellent option to reduce the energy divide to improve rural people's welfare.

Besides, this study is significant for several reasons. First, this study is not cross-country. It is a simple case study of Nepal, where the energy divide is more than the energy industry and market. Second, the sample of this study is heterogeneous, including energy and non-energy industries. The industry is small and medium scale as per the industrial policy of Nepal, unlike the significant industrial sector of the developed countries. Third, the study explores the relationship between economic and socio-environmental goals of the CSR theory in the small and medium scale industry, along with the relationship between theory-policy-application and the relationship between CSR and renewable energy. Therefore, this study is theoretically and empirically crucial to the CSR policy of the country. This study scrutinizes the status of the CSR practice in the business sector in Nepal and the relationship between CSR and renewable energy promotion for energy for all in Nepal to reduce the off-grid rural population.

This section presents the organization of the paper. This paper consists of five sections. They are 1. Introduction, 2. Background, 3. Methodology, 4. Results, and 5. Conclusions.

Review of Literature

No doubt, Nepal[1] is rich in natural wealth and human resources. One natural wealth is water resources. The thesis of Budhi Bahadur Shrestha (1980s) on the hydro potential of the available water resources is 83000 MW (Bista, 2020). To date, this proposition is like real potential. However, the recent hydrological literature has opened up its discourse about its update. Besides, the hydrological studies identify 6000 rivers and rivulets as tributaries of four main big rivers: Mahakali, Karnali, Gandaki, and Koshi, including monsoon-fed small rivers (Bista, 2020). Although such a proposition establishes Nepal as the second most prosperous country in the world after Brazil in terms of water resources, MoF (2020) and Bista(2020) point out the electricity production capacity of Nepal at 1000MW to meet the total energy demand (1508 MW). Currently, Nepal imports 508MW of energy to provide its daily energy needs to 69% of the people. However, still, 31% population is outside the national grid (MoF, 2020). Out of the total population, 95.7% urban population access electricity but only

[1] Nepal is a small kingdom. Her landsize is of 0.3 % of Asia and 0.03 % of the world with 147181 km2. This small country is a beautiful with variant landscapes and divergent ecology. Himal and wild rivers supplements it with ancient heritage cities, cultures, and mystic holiness (MoF, 2018 & Bista, 2020). This agrarian economy is being reshape into highly dependent on remittance, tourism and import trade, although agriculture-GDP share is still 28%. In GDP, the share of remittance is 29% and the import trade is 35%. Despite swinging 1034USD GDP per capita and 5 % economic growth per annum on average, the country is one of 28 poorest countries. Out of 30 million total population, 80% population still lives in the rural areas in this medium sized country. Nepal has annual, periodic, and perspective plans and policy with development agenda. However, the practice of these plans is urban centric rather than rural centric or rather than balanced. Its consequences are the existing heavy informal economy, higher unemployment rate, the occurrence of vicious cycle of the poverty, declining agricultural land and its productivity, growing economic dependency on trade for food consumption goods, chronicle issue of corruption, commission and interest group and higher energy divide.

4.3% rural population, i.e., 21.025 million rural population (95.7%) do not. Its results are no radio, no mobile, no television, no refrigerator, no rice cooker, no night productive activities (learning, working, etc.). It means more leisure time, early sleeping and no productivity activities, and excessive firewood consumption for cooking and heating (MoF, 2018). Let us imagine what about women, the elder, the disabled, and the vulnerable situations of children.

As a solution to the existing energy gap problem, Nepal used the liberal economic thought of privatization, liberalization, and globalization in the energy sector in the 1990s to open foreign and private investment only in the hydro projects, except for the electricity distribution and the fixation of electricity tariff. The Nepal Electricity Authority (NEA) monopoly became liberal to some extent. This liberal electricity policy positively impacts the growth of foreign and private investment in hydro projects and harnessing the water resources across the country. In the future, hydro projects with the capacity to produce 10000 MW are in the pipeline. To date, the monopoly of NEA on electricity tariff, regular supply, and distribution of the electricity has limited to make the perfect competition in the electricity market and the freedom of the people to select reliable and cost-effective electricity services. Besides, about 56% of the population outside the electricity grid has been waiting for electricity to reduce their electricity divide and gap for lighting, heating, lifting drinking water, charging electric devices, and operating household appliances to improve their welfare. This reflection can be found as the top priority in the 15th year's national five-year plan, the energy plan and perspectives, rural electrification plan and policy, the renewable energy policy, and academic and nonacademic open and closed discourses on energy development.

It is a fact that the energy-poor households inspire themselves with SDG 2030, like Millennium Development Goal (MDG). SDG 7 can reshape the goal, vision, and priority of all relevant macro and development plans and policies, especially the country's 15th year National Five Years Plan, Energy Plan, and Annual Budget. Additionally, the application of CSR theory increases investment in clean energy production and distribution. As a result, it makes a regular supply of clean energy cheaper, as mentioned in SDG7. Furthermore, its direct impact will reduce the existing energy divide and a gap in their energy security and welfare.

Energy, Growth, and Welfare Relationship

The relationship between energy, growth, and welfare has been a crucial driver in reshaping the country's macroeconomics and development economics policy to explore alternatives. For example, renewable energy for the energy divide provides opportunities for a higher economic growth rate and the welfare of the people.

Firstly, the energy and growth relationship on which literature (Boulding, 1973, Costantini and Martini (2010), Cheng-Lang et al. (2011), and Abid and Sebri (2012) argue positively. Despite the 1970s literature, Boulding (1973) clarified their relationship theoretically by mentioning energy as a factor of production and asserting a positive correlation between energy and gross national product (GNP). Additionally, the study argued that a higher share of energy input is in well-off societies and developed countries. Thus, it is the essential input to economic growth. In recent years, the new growth models have considered it. Empirically, the findings of Costantini and Martini (2010), Cheng-Lang et al. (2011), Abid and Sebri (2012) supplemented their theoretical basis.

Costantini and Martini (2010) examined the causality between economic growth and energy consumption. The cross-country study of OECD and non-OECD countries covered different sectors. It employed time-series data sets. In the study, the industrial sector's energy consumption trend was similar in the short run but different in the long run. The transport sector has positive, but it is negative in the cross country studies. Likewise, Cheng-Lang et al. (2011) examined the relationship between real GDP and electricity use in industrial and residential sectors in Taiwan. The study used econometric models. Its data sets were quarterly time-series data from 1982 to 2008. In the study, their relationship

is positive in linear and nonlinear cases. Abid and Sebri (2012) studied the relationship between energy consumption and economic growth in Tunisia by the Granger causality approach. It covered the entire economy, the industry sector, transport sector, and residential sector using time-series data from 1980 to2007. The result reveals a positive relationship in the long run.

However, few empirical studies found negative results. Zachariadis (2007) assessed causality between energy consumption and the real economy (service and transport sectors). Its data set was a time-series database of G7 countries from 1949 to 2004. The study found negative results. Likewise, Belloumi (2009) estimated the causal relationship between economic growth and energy consumption for the total economy in Tunisia. It used time-series data from 1971 to 2004. The study found negative results. In the short run, Abid and Sebri (2012) in their research found negative. Therefore, the nexus of economic growth and energy is still a paradox.

Energy and Welfare Relationship

Despite such a paradox, the relationship between energy and household welfare (education and health) was positive. Eberhard and van Horen (1995) studied the health and broader social impacts of different energy sources in South Africa using a health survey. The study found 190% respiratory illness (pneumonia, bronchitis, asthma, etc.) of coal user children more than electricity user children. Thus, clean energy had a positive impact on household welfare and comfort. Similarly, Domdom et al. (1999) estimated the association between energy and education in South Africa. The study was time-series based. Traditionally, the poor household used unhygienic firewood energy in the absence of electricity for lighting. The study found the positive impact of electric illumination by increasing the number of hours of reading and studying of poor children. Thus, the energy had improved their household welfare. Likewise, Foster and Jean Philippe (2000) assessed the impact of energy intervention on the poor and their welfare in Guatemala. The study used quantitative indicators. The study found a positive impact of electricity on the welfare of the poor, although they have limited access to electricity.

The synthesis of the above thesis and anti-thesis literature establishes the positive correlation relationship between energy, growth, and welfare by arguing energy is a crucial input to development and welfare. In Nepal, the energy divide and gap generate a constraint. However, none of the literature has focused on CSR for SDG 7: energy for all and renewable energy. This study investigates this issue for energy for all.

Research Methods

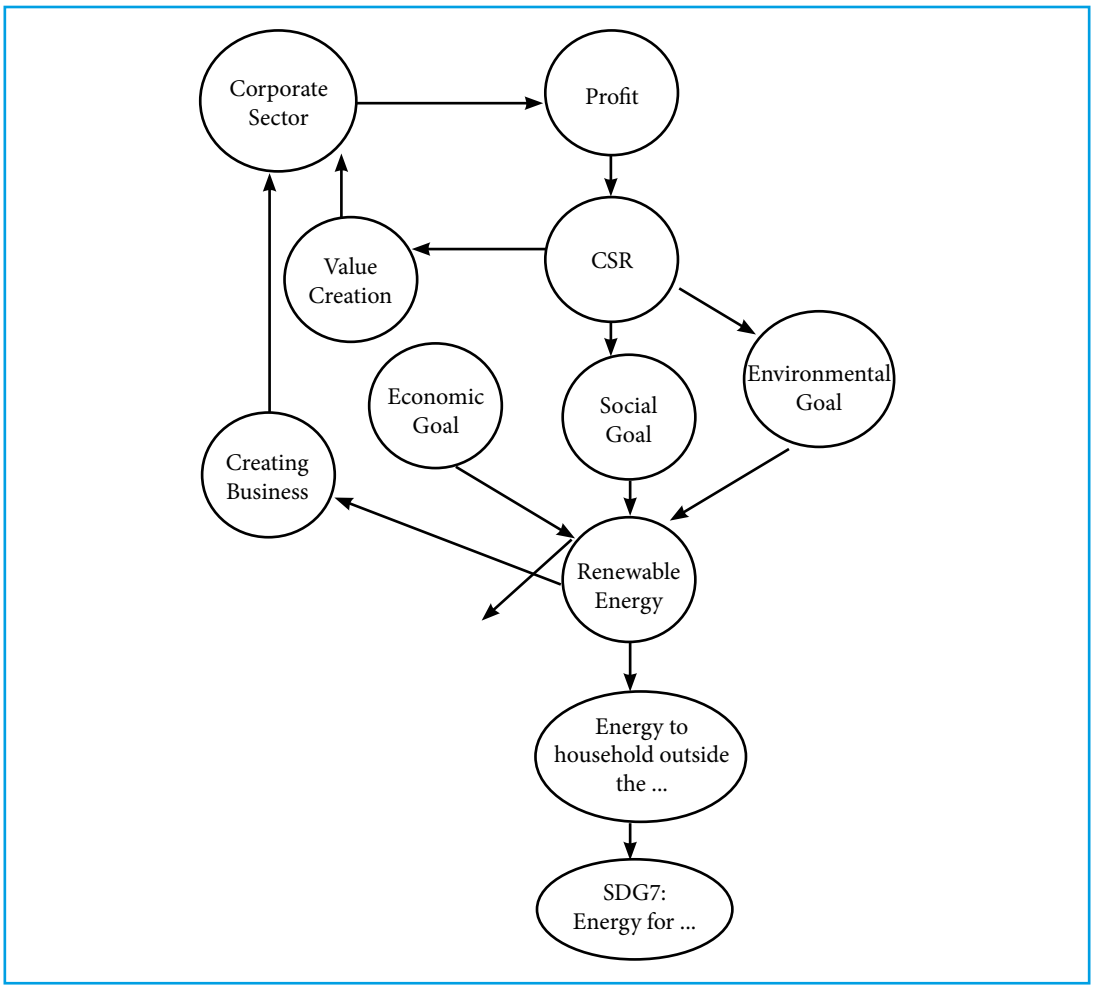
Conceptual Framework

The concept of CSR is not new: it has a history of more than100 years. In 1917, Henry Ford used the term social responsibility of the business sector first for the value of all stakeholders' interests and the social welfare of employees and shareholders (Lynach-Fannnon, 2007). After 15 years, Dodd (1932) and Berle (1932) brought it into the academic and public discourse by publishing the article "For Whom Are Corporate Managers Trustees?" in a Harvard Law Review-Journal in 1932. Again, 21 years later, Bowen (1953) published a book on the social responsibilities of the businessman as an insight into the relationship of a corporation with society and the need for business ethics (Carroll, 1979). This issue received public and academic attention after Milton Friedman (1970) 's article "The Social Responsibility of Business is to Increase its Profits," published in the New York Times Magazine.

The literature (Carroll, 1999; Engardio et al., 2007; Fanto, 1998; Marinov & Heiman, 1998; Elhauge, 2005; Portney, 2005; Reinhardt, 2005) mentioned CSR as sacrificing returns in the public concern. There are two key pieces of literature: four dimensions of CSR theory and three pillars of CSR theory (Stijepcevic & Siksnelyte, 2017). The four dimensions of CSR theory argue the relationship between business and society. The three pillars of CSR theory accommodate the four dimensions of CSR theory

in the relationship between economics and socio-environmental goals (Stijepcevic & Siksnelyte, 2017). This concept is relevant to this study. Figure 1 describes the conceptual framework of CSR.

Figure 1: CSR Framework



Source: Bista (2020)

It is popular that the economic principle of the corporate sector is cost minimization for maximizing profit. By the three pillars of CSR theory, the corporate sector should use a certain percentage of profit for economics and business-environmental responsibility for renewable energy. In this way, the corporate sector has a mandatory CSR, and the CSR is mandatory for renewable energy for households outside the national grid.

Data, Variables, and Method

The objectives and proposition of this study explain its variables as well as its data sources. In the conceptual framework, there are two variables: CSR and renewable energy. The relationship between CSR and renewable energy is discussed below:

Proposition 1: The corporate sector has a mandatory CSR to explain the size, profit, and type of corporate sector and its CSR fund. In the four significant variables, size, profit, and type of the corporate sector are independent, and CSR fund is the dependent variable in the profit model.

Similarly, **proposition 2:** CSR is mandatory for renewable energy for households outside the national grid reveals five variables in the multiple regression models. CSR, household socioeconomic characteristics, and type of corporate sector are independent variables, and renewable energy is the dependent variable.

We assumed that the corporate sectors published all information on these variables of both models to maintain their financial performance and transparency to the shareholders and the board of directors and pay corporate tax and income tax to the government of Nepal. Besides, all information about renewable energy and the socioeconomic characteristics of households were in the progress reports. Thus, the sources of all information and data were second nature.

The study's sample size represents small and medium corporate sectors, including energy and non-energy sectors (banking sectors, telecommunication, aviation, and business and industry groups) based on the industrial statistics. As a reason, almost all corporate sectors, including joint ventures, were small and medium scales. In these four clusters, the selection procedures of the samples were based on the lottery method after cleaning clusters based on the available information and their history. Thus, the study samples are eight commercial banks, four telecom firms, two airlines, and five business groups.

The data collection method is based on a desk review of the published data of these four clusters and 19 sample corporate firms, including the audit report from 2008 to 2017. The author checked its reliability and validity by KII and cross-institutional study. The collected data from four business groups, namely bank groups (Agricultural Development Bank, Citizen Bank, NABIL, Nepal Bank Limited Nepal, Investment Bank, Mega Bank, Rastriya Banijya Bank, and Siddhartha Bank), telecommunication groups (Classic Tech, Ncell, Nepal Telecom, and World Link), airlines group (Buddha Air and Makalu Air) and the business groups (Chaudhary, Khetan, Sharada, and Panchakanya Vaidya), were inserted in Excel.

Data Analysis and Results

Energy Scenario in Nepal

In this 21st century, the energy divide in the world is a significant challenge. In this divide, there are two extremes of energy consumption. The ratio of per capita energy consumption and production in the developed countries is maximum, but in the developing countries, it is minimum with an extreme energy divide. In the USA, the per capita energy consumption is 314.1 GJ per annum; meanwhile, it is 162.5 GJ per annum in Japan. On the other hand, Nepal has 14.2 GJ per annum (WB, 2018). The gap in energy divide between developed and developing economies indicates 22 times higher in developed economies. As an indicator, its economic meaning is development divide too in terms of economic growth, connectivity, productivity, and technology. Thus, the minimal per capita energy consumption and energy divide of the developing countries are constraints to the developed countries for global prosperity and welfare.

It is a fact that inferior energy is a major source in the energy scenario in Nepal, along with the existing extreme energy divide. Inferior energy (traditional biomass energy) (85%) dominates to 15% of modern energy (fossil fuels (9%), coal (3%), hydroelectricity (2%), and renewable energy (1%)) along with the lower per capita energy consumption (14.2GJ per annum) (MoF, 2018). This scenario is not hopefully still steady to increase overwhelmingly hydro and renewable energy, despite giving top priority to the development of hydroelectricity and solar energy over 65 years long plans. Interestingly, the excessive energy demand of the country due to the growth of population and the expansion of industry, service, and agriculture has led to a large energy deficit and an extreme energy divide as a barrier to modernization and productivity. The energy deficit has transformed the energy scenario into dependent on the imported energy sources. In this constraint, the potential sustainable economic growth is just a hope of the country as the standard quality of life.

Additionally, household energy consumption (87%) share dominates the excessive energy demand and the energy scenario, along with transport (6%), industry (5%), commercial (service) (1%), and agriculture (1%) (MoF, 2018). Out of total household energy consumption, 20 % urban population consumes 80% of energy, but 80 % rural population consumes only 20%. In the urban areas, households have multiple energy choices in which LPG cooking gas (70%) and electricity (10%) dominate. However, in the rural areas, biomass fuel (wood (81.4%), dung (9.1%), biogas (2.4%), and crop waste (1.8%), charcoal (0.1%)) is 95%, along with LPG gas (3.9%) and Kerosene (1%)(CBS, 2011). Thus, this energy consumption reveals the maxima of the energy divide in the rural areas and inferior energy consumption.

Share of Renewable Energy

Renewable energy is scientifically tremendous potential energy perceived and used as an alternative to the rural population outside the national electricity grid. In the 1990s, Nepal considered this energy to reach out to the off-national grid rural population. To date, its coverage is 15% of the off-national grid rural population, including Pico hydro (<10kw), micro-hydro (10-100kw), the solar PV system, and biogas.

- **Micro Hydro:** It refers to Pico hydro (<10kw) and micro-hydro (10-100kw)) for renewable energy sources in the rural electrification policy and program in Nepal. The rapid development of this energy in geographically complicated and rugged rural areas is technically and economically viable within a short time and a small budget. As per this fact, the government of Nepal formulated the rural electrification policy and program through the subsidy schemes for micro-hydro projects in 2000 AD. Despite the existing 6000 run-off rivers and rivulets, the production of micro-hydro was 35 MW in 2018 (NEA, 2019). Thus, micro-hydro has become a popular potential renewable energy, particularly for reaching the off-national grid rural populations to reduce the energy divide.
- **Solar, Wind, and Bio Gas** are popular renewable energy sources for lighting and heating as alternatives to the off-national grid rural populations. Studies estimated 8GWh per day solar energy potential. In general, sunshine hours per day are 6.8 hours. If technology is appropriate, solar energy will be economically and technically viable as alternative energy to the off-national grid rural populations. In the 1990s, the government of Nepal began to subsidize for alternative energy resources to provide energy to rural households. However, its cost did not motivate the poor rural households. Across 74 districts, 0.2 million households received 6.3 MW of solar energy. It will be 317.14 MW, if 56 feasible solar projects in 21 different places get completed.

Additionally, Nepal has tremendous wind and biogas energy potential for lighting and heating in rural areas, like solar energy. Studies found 3000 MW wind energy potential, out of which 448 MW wind energy is commercial potential. Similarly, biogas energy is another eco-friendly, sustainable one. The government has installed more than 2800 plants in 0.23 million households across 77 districts.

CSR Features of the Business Sector

Recently, CSR has become a popular means of the corporate sector to create social value for product and service brands inside and outside the country as social marketing through socio-environmental responsibility for commercial interest and profit. Apple, Google, Microsoft, etc., in the USA and European countries, have allocated more than 2 % of their company's profit.

In Nepal, the industrial policy 2020 has endorsed CSR as mandatory for all industries and businesses to contribute 1 % of annual profit to the CSR fund and the prescribed CSR activities with the CSR team and CSR policy, along with its public disclosure and nature of CSR. In practice, the corporate sectors have differently understood the CSR mentioned in the policy and randomized its practice for their economic interest rather than the socio-environmental interest. Therefore, this study is curious on

this issue of the business sector across the districts within the country by using seven indicators: CSR fund, Size of CSR, CSR team, CSR activities, CSR practice years, nature of CSR and CSR disclosure.

Almost all these sample firms established after implementing the structural adjustment program (SAP) in the 1980s had less and more than 30 years of history. Before the 1980s, Nepal Bank was established in 1937. After the 1980s, the private sector established NABIL (1984) and Nepal Investment Bank (1986). The remaining sample three banks are Mega Bank (2010), Siddartha Bank (2002), and Civil Bank (1993) after the SAP II (Table 2). Similarly, airlines, telecommunication, and business groups have a similar history.

The study results present seven indicators: CSR fund, the size of CSR, CSR team, CSR activities, CSR practice years, nature of CSR, and CSR (Table 2). These indicators measure the performance of CSR to meet their prescribed socio-environmental responsibility in the CSR policy for achieving socio-environmental goals and targets.

The result of Indicator 1: No of years for CSR reveals the CSR practice years of the sample firms and groups. In Table 2, the CSR practice of all firms and groups is random for a few years. The CSR practice is ten years of the bank and financial groups, eight years of the business groups, six years of telecommunication, and three years of the airline groups. Despite the long history of these sample firms and groups, the history of their CSR practice was unexpectedly unsystematic, irregular, and very short against the mandatory CSR policy. Thus, this poor practice of CSR is a critical issue for CSR policy of the government to achieve economic and socio-environmental goals and targets. Therefore, the social value of these firms across the country is not impactful and meaningful to society.

The result of Indicators 2 and 3: Size of CSR and CSR fund shows the CSR practices of the sample firms and groups. Table 2 shows the size of CSR and CSR funds in which the size of CSR does not meet the 1% mandatory CSR provision in all groups. Except for aviation groups, CSR fund is available. Thus, these indicators complicate the poor practice of CSR, despite the 1 % of profit mandatory CSR provision of the CSR policy. Therefore, the sample firms and groups across the country do not firmly commit to practicing the CSR fund and size.

Table 1: CSR characteristics

Indicators	Bank & Finance Group	Telecommunication Group	Airlines Group	Business Groups
No of Years for CSR	10	6	3	8
Regularity in some years	yes	yes	yes	yes
CSR Fund	yes	yes	no	yes
% of Profit	0.04	0.14	0.03	0.1
CSR team	No	No	No	No
CSR events(Mean)	9	12	4	8
CSR disclosure	yes	yes	no	no

Source: CSR Disclosure, 2018

The result of Indicators 3, 4, and 5: CSR policy, team, and activities measures the CSR practice of the sample firm groups. Table 1 shows CSR policy, team, and activities. CSR policy and team are not available in the sample firm and groups except for CSR activities. These CSR activities are questionable in the absence of CSR policy and team. However, telecommunication groups conduct more CSR activities than the other groups (Bank Finance Group, Airlines group, and business group).

Similarly, the result of Indicators 6 and 7: nature of CSR and disclosure are essential indicators of CSR practice. Table 2 shows the nature of CSR and disclosure in which Bank and Finance Group and Telecommunication have disclosed on their websites, but airlines and business groups have not. Thus,

the CSR of the sample firms and groups is the issue of transparency. Hence, CSR's nature, size, and activities have not created social value for the sample firms and groups.

Table 2: CSR Motives

CSR motives	Frequency	%	Motive Ranking
Concern social issues	1	2	X
To be responsible for the society	4	7	VII
Creating social value in the society	2	3	IX
Promoting the company's goodwill	9	15	I
Increasing customer	2	3	IX
Promoting social marketing	7	12	IV
Ethical obligation	3	5	VIII
Good cause	6	10	V
Pure religious objectives for satisfaction	5	8	VI
Charity purpose	4	7	VII
Social Obligation	9	15	II
National cause	8	13	III
Total	60	100	

Source: Field Survey, 2018

The poor performance of CSR of the sample firms and groups raises questions about their motives. This study assess CSR motives through 12 indicators: 1) concern social issues, 2) to be responsible to the society, 3) creating social value in the society, 4) promoting company's goodwill, 5) increasing customer, 6) promoting social marketing, 7) ethical obligation, 8) good cause, 9) pure religious objectives for satisfaction, 10) charity purpose, 11) social obligation and 12) national cause. Table 2 illustrates CSR motives in which the sample firm and groups preferred promoting company is goodwill as a first motive, social obligation as the second motive, and national cause as the third motive, although CSR size is least. Interestingly, there is no motive to promote renewable energy to the off-grid rural population.

It is not much hope in CSR activities on renewable energy promotion and development for the off-grid rural population because of small, voluntary, and irregular CSR practices.

Table 3: CSR Activities

CSR Activities	Frequency	%	Rank /Priority in CSR
Scholarship	10	17	III
Environment	5	8	VI
Awareness & Training	12	20	I
Emergency Aid	6	10	V
School building	11	18	II
Health camp	8	13	IV
Sanitation	4	7	VII
Heritage reconstruction	1	2	VIII
Total	60	100	

Source: Field Survey, 2018

The above motives determine CSR activities. Interestingly, the study has a query about its activities. The study found eight categorical CSR activities: scholarship, environment, awareness and training, emergency aid, school building, health camp, sanitation, and the reconstruction of heritage sites (Table 3). Table 3 shows different activities: the awareness and training of the general public and employees; the construction of school buildings in rural areas; and providing scholarships to the deprived students and girls. These four sample groups have conducted heterogeneous CSR activities. Then, almost all corporate sectors have initiated health camps, emergency aid, and environmental programs: Bagmati Cleaning Campaign and Tree Plantation, Sanitation, and heritage reconstruction. However, the study did not find renewable energy promotion activity.

CSR Size

Table 4: CSR Size and Fund

Industrial Groups	CSR Fund size		
	Less than mandatory		mandatory
	< 0.5 %	<1%	<2%
Bank and Finance Group (%)	87.5	12.5	0
Telecommunication Group (%)	75	25	0
Airlines Groups (%)	66	34	0
Business Groups (%)	60	40	0
On average	72	28	0

Source: Field Survey, 2018

It is a fact that CSR size is a means to society in the condition that a firm must contribute 1% of net profit to CSR fund with CSR policy Equation 1and team. All firms and groups have to accept this mandatory provision. However, its practice is so different that it raises a question. The study assessed its size through its published database. Table 4 shows the CSR size of the sample firm and groups in which 28 % of the sample firms and groups contribute less than 1% of net annual profit, but 72% of the sample firms and groups contribute less than 0.5 % of net annual profit. Nonetheless, non-firms and groups do not follow the mandatory provision of CSR, despite, on average, 20% profit per annum. This negligible and irregular CSR has not allowed conducting impactful activities like promoting renewable energy in society to create social value.

CSR and Renewable Energy

Unlike developed countries, the sample firms and groups of the developing countries have voluntarily and randomly small CSR, out of which there are heterogeneous CSR activities mentioned in the above result of the study. These activities do not relate to renewable energy targeting the off-the-grid rural population. This study targeted the promotion and development of the off-the-grid rural population using CSR funds for renewable energy promotion and development targeting the off-grid rural population. Table 5 shows the use and priority of CSR funds on renewable energy.

Table 5: Use of CSR

Industrial Groups	Use of CSR fund on renewable energy	
	Yes (%)	No (%)
Bank and Finance Group		100
Telecommunication Group		100
Airlines Groups		100
Business Groups		100
On average		100

Source: Field Survey, 2018

The result illustrates no use and priority of CSR funds of all four corporate groups (Bank and Finance Group, Telecommunication Group, Airlines Groups, and Business Groups) on renewable energy promotion and development (table 5 &6).

Table 6: Priority of CSR fund

Industrial Groups	Is renewable energy the priority of the CSR Fund?	
	Listed (%)	Not listed (%)
Bank and Finance Group		100
Telecommunication Group		100
Airlines Groups		100
Business Groups		100
On average		100

Source: Field Survey, 2018

One of its reasons is small and medium scale industries and the service sector, along with the random practice of CSR and weak government regulation of CSR policy and its mandatory provisions. Besides, the CSR policy and provision do not prioritize serious economic issues such as the extreme energy divide of the off-grid rural population. As a result, the sample firms and groups could not create severe and significant social value by responding to the off-grid rural population's socio-environmental issues at the grassroots level. At the community level, such an extreme energy divide issue has complicated their socioeconomic life. Hence, CSR is not meaningful to renewable energy promotion and development by targeting the off-grid rural population and their inferior socioeconomic status.

Discussion and Conclusion

This paper assesses the practice of CSR, the energy divide, and its linkage with renewable promotion and development targeting the off-grid rural population based on the survey through explorative and descriptive research design. The paper found three results. Firstly, the energy divide is holistically extreme because 20% of the urban population consumes 80% clean energy, but 80% of the rural population consumes 20% clean energy and 80% inferior biomass-based traditional energy for lighting and cooking. However, Nepal is an energy prospective country with 83000 MW hydro energy potentials. Secondly, the practice of CSR is random, irregular, and voluntary with less than mandatory size. However, these four industrial and business sector groups have accounted for a significant annual profit. Lastly, renewable energy promotion and development has not received any penny of CSR funds with top priority to resolve the extreme energy divide of the off-grid rural population. However, the off-grid rural population has been suffering from the energy divide to improve their socioeconomic level. Thus, the CSR practice of the corporate sector in Nepal does not follow three-pillar principles of CSR for maintaining economic and socio-environmental goals and targets for achieving sustainable economic growth by minimizing the unprecedented climate change and minimizing the energy divide

by reaching the off-grid rural population through renewable energy. Despite a good amount of profit and knowledge about CSR, the corporate sector's poor, random, and voluntary CSR is a big surprise and a loss of opportunity to create social value across the country. In the future, this corporate sector may be vulnerable to potential social and environmental crises, like the government. Therefore, CSR is an excellent economic instrument to sustain corporate activities and meet society's economic and socio-environmental responsibility. It is a big hope for renewable energy promotion and development to reduce the energy divide by accessing electricity to the rural population for lighting and heating to improve their poverty and vulnerability. Then, the country can achieve SDG 7: energy for all by 2030.

Conflict of Interest

Author declares no conflict of interest.

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