

SUSTAINABLE FINANCING MODEL FOR FINANCIAL SERVICE INDUSTRY (BANK) ON CARBON TRADING IN INDONESIA

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Overview

Climate change and global warming are influenced by the amount of carbon emitted into the atmosphere. The rate at which carbon emissions are causing damage to the environment, including an increase in the earth's surface temperature, global climate change, rising sea levels, and even disruptions in the food supply chain, is far quicker than scientists projected (Zhu *et al.*, 2013). Indonesia has ratified the Paris Agreement; thus, the government has to immediately implement a Nationally Determined Contribution (NDC) strategy. The Nationally Determined Contributions (NDCs) are the pledges of each state signatory to the Paris Agreement and describe the efforts Indonesia must take to strengthen environmental protection over the period 2015-2019 in order to achieve more ambitious targets beyond 2020. Indonesia must take strategic moves toward a low-carbon and climate-resilient future to fulfil its transitional goals for future development.

Climate change has far-reaching implications on all industries and regions of the world, and it is almost guaranteed that hazards will emerge with permanent consequences if nothing is done now. Yet, climate-related hazards have not been completely examined and accounted for in the existing asset assessment (NGFS, 2019). Article 2.1(c) of the Paris Agreement states that the financial sector is essential for facilitating the transition to zero-carbon energy (UNFCCC 2018; Whitley *et al.*, 2018; Chenet *et al.*, 2019). With low-carbon development, the financial sector plays an important role in promoting and accelerating the transition to a green economy. This is because financial markets serve as a source of capital for economic activity, which can have both good and negative effects on the environment. In four years, the value of global assets that employ Environmental, Social, and Governance (ESG) data to inform investment decisions has doubled and is projected to reach USD 40,5 Trillion by 2020. (Source: Green Taxonomy Report)

Methods

This research employs a quantitative methodology since the produced data are numerical and are examined using a statistical method or model (Bungin, 2008). This research employs cause-and-effect thinking, which is reduced to certain variables, hypotheses, and research questions. This study will also investigate the application of sustainable finance theory to the carbon trading system.

Climate change is a global challenge to human society's sustainable growth. If the impact is not contained, it can endanger a variety of human lives, including the economic, social welfare, and public health. High greenhouse gas (GHG) emissions, particularly carbon by-products, are the primary factor attributable to human activity in this occurrence (Rafieisakhaei M. & Barazandeh B., 2017). Involvement of the financial sector in environmental protection is an essential option for addressing the dynamics of hazards posed by extremely complicated climate change (emission reduction). Using system dynamics modelling, sustainable finance policies on carbon trading or lowering carbon emissions can be modeled. The issue of sustainable finance in carbon trading is very dynamic and intricate (there is feedback between variables) due to the fact that it involves a large number of sectors and parties, thus it must be tackled comprehensively.

Results

The mental model is built on the relationship between variables based on a review of the literature and the results of interviews with informants. Figure 1 shows the Causal Loop Diagram, which is a diagram that describes the causal (cause and effect) relationship between one variable and another and forms feedback. Relationships are represented by arrows which can be positive or negative. The arrow with a positive sign indicates that if a variable's value increases, then the other variable it influences also increases. The arrow marked negative indicates that if a variable's value increases, the other variables it influences will decrease. A series of variable relationships can form positive feedback (reinforcing) which is denoted by the letter R or negative feedback (balancing) which is symbolized by the letter B. This feedback will determine the behaviour and trends of the simulation model.

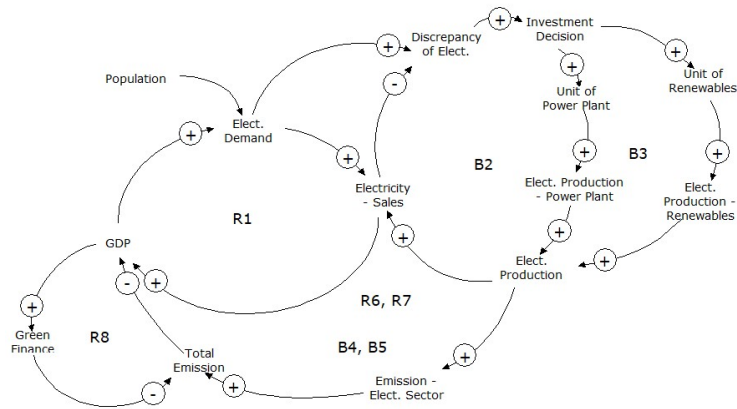
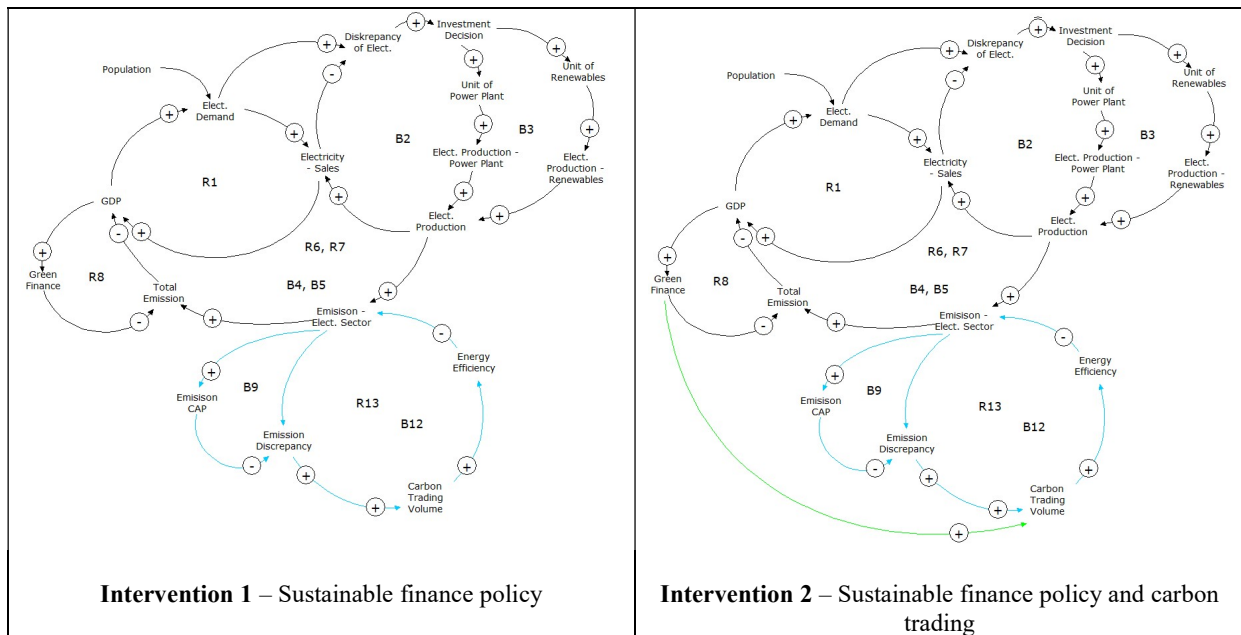


Figure 1. Causal Loop Diagram Model

This model aims to simulate how the financial services industry can contribute to reducing greenhouse gas emissions by utilizing sustainable financial instruments. An example of a scenario chosen to explore the linkages between the financial services industry and emission-producing economic activity is electricity. Electricity was also picked as an example because this industry is one of Indonesia's largest emitters.

Intervention 1



Conclusions

Financial institutions play a crucial role in society by enabling transactions, supplying liquidity, and constructing capacity. Their function in the carbon market should be identical. These main functionalities will aid in transforming the voluntary carbon market, which is now dominated by over-the-counter (OTC) trading, into a more liquid, transparent, and broadly accessible market with a fair price. Financial institutions will have various options to participate in carbon trading as a result of increased regulation.