

## **The Influence of Sweden's Carbon Tax on Global Environmental Diplomacy**

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### **ABSTRACT**

Climate change has become a problem for countries around the world, because it can lead to food crises, extreme temperature rises, increased potential for natural disasters and endangered flora and fauna. The triggers of climate change come from human activities. Human activities that affect climate change include burning fossils, petroleum, natural gas and coal. All of these activities will produce carbon emissions. To overcome the problem of carbon emissions, many efforts have been made by the international community. One of the countries that has succeeded in the carbon emission problem is Sweden. Sweden solved the carbon emission problem through a carbon tax that started in 1991. The carbon tax is imposed on all public activities that produce carbon emission gases. The purpose of this study is to find out how the Swedish carbon tax affects environmental diplomacy. This research utilises the Pigouvian Tax theory proposed by Arthur Cecil Pigou. The research method used in this study uses a qualitative method with a literature study approach. The results of this study show that Sweden's position on the international stage is getting better. This is due to Sweden's success in implementing a carbon tax without destabilising its economy. Several countries around the world have joined Sweden in implementing similar policies. In addition, Sweden also has a significant contribution, being the first country to ratify the Kyoto treaty which aims to reduce greenhouse gas emissions.

**Keywords:** *Carbon Emissions, Sweden, Global Diplomacy*

### **INTRODUCTION**

Climate change has become a global problem that can threaten the security of life of living things (Malihah, 2022) (Sutartib & Purwana., 2021), because climate change could lead to a food crisis (Brida, 2023), extreme temperature rise, increased potential for natural disasters, threatened fauna and flora, rising sea levels and increased health risks (Pratama et al., 2022). Basically, the earth has emitted greenhouse gases in the atmosphere. Human activity is the main driver of climate change (Kusumawati et al., 2023) since 1988. Human activities that cause climate change include burning fossil fuels, oil, natural gas and coal (Sulistiyono, 2012). Burning these fossil fuels produces greenhouse gases, which contain a lot of carbon dioxide. (VANIRA, 2023). Carbon emissions or so-called greenhouse gases are a form of human action. The more greenhouse gases that are transferred to the atmosphere, the greater the absorption of solar heat energy that is transmitted to the earth, which will cause an increase in temperature on earth.

In 2021 the Intergovernmental Panel on Climate Change (IPCC) reported that in a ten-year period the earth's temperature has increased by 1.09oC with a time span from 2011

to 2021. In addition, the IPCC also reported that sea level rise in 2020 will increase threefold. All changes that occur on this earth are caused by human activities. To reduce the further increase and prevent the impact that threatens living things, the United Nations (UN) through the United Nations Framework Conventions of Climate Change asks the whole world to take the same action by making an agreement to reduce the production of carbon emissions. This agreement was signed in Paris by 195 countries on 23 April 2016, this agreement is referred to as the Paris Agreement (Barus, 2022)(Andersson, 2019).

Swedish scientist Svante Arrhenius started calculating the increase in carbon dioxide due to greenhouse gases that could lead to an increase in the earth's temperature as early as 1896. Before the carbon tax, environmental policies were just rules and bans. However, since the 1980s, there has been an agreement to use more economic tools. Erik Dahmen, a professor of economics, published an article in *Svensk Tidskrift* in 1987 entitled 'The environment and the market'. He said that all Swedish political parties underestimated the market process as a means to reduce emissions because they only saw regulation as a solution. However, on 24 March 1988, Bert Bohlin, the first head of the Intergovernmental Panel on Climate Change (IPCC), published an article in Sweden's largest daily, *Dagens Nyheter*, proposing the implementation of a carbon tax (Jonsson et al., 2020).

So since 1991 Sweden has implemented a carbon tax. The carbon tax was introduced in line with the Swedish government's tax reform. The tax reform aims to establish a new tax system based on the environment to address environmental issues. Sweden has been concerned with environmental issues since 1988. So this tax reform resulted in a new tax, namely the carbon tax, which was then implemented in Sweden (Barus, 2022). A carbon tax is a tax levied on any product that produces carbon emissions, including fossil fuels. Carbon emissions, also known as greenhouse gases, are the result of human actions.

Sweden has the highest carbon tax rate in the world. When compared to Finland, Sweden's neighbouring country that also applies carbon tax, Sweden's carbon tax is 2 times higher than Finland. The rules related to the implementation of carbon tax in Sweden have undergone several changes since 30 years ago. In 1991 Sweden implemented a carbon tax (Andersson, 2019) 26 per tonne USD CO<sub>2</sub> equivalent. From 2000 to 2004, the tax increased dramatically, amounting to 32 per tonne USD CO<sub>2</sub> equivalent. The carbon tax continues to increase every year until in 2021, the carbon tax reaches 137 per tonne USD CO<sub>2</sub> equivalent (Barus, 2022).

As a country that has successfully implemented a carbon tax (Thunborg, 2021), Sweden is often cited as an example of a country that has successfully implemented a carbon tax. With this, Sweden has been able to influence global environmental policy. As a member of the European Union, Sweden plays an active role in shaping EU environmental policy. Sweden's experience and success with carbon taxes has influenced EU carbon policy, including the EU Emissions Trading Scheme (EU ETS)

(Sitorus & Pratysto, 2018). It is often involved in technical and financial assistance to developing countries to help them implement carbon tax policies and clean technologies. This not only helps these countries reduce emissions but also strengthens diplomatic relations between Sweden and developing countries.

This paper uses the concept of negative externalities promoted by Arthur Cecil Pigou. Pigou is a British economist, he is one of the founders of environmental economic theory that underlies the application of environmental tax policy. Pigou argues that economic activities can generate negative externalities, such as pollution that can harm society and the environment. Pigou argues that overcoming negative externalities requires the role of government through fiscal instruments such as taxes (Pigou, 1947).

Pigouvian taxes are taxes imposed on economic actors that generate negative externalities with the aim of internalising the social costs of these externalities. According to Pigou, a tax imposed on economic actors that generate negative externalities will make producers or consumers consider the social costs of their production. So that negative externalities can be reduced or even eliminated. Negative externalities are the actions of a person that produce adverse effects on others, without compensating the person who is harmed (Mengden, 2023). An example is the implementation of a carbon tax, where a tax is levied on carbon dioxide emissions produced by industrial activities or motor vehicles. With this tax, it is expected that carbon emissions will be reduced as producers will endeavour to reduce emissions in order to reduce the tax burden (Pigou, 2017). Environmental problems in Sweden related to carbon emissions are in line with Pigou's theory. Carbon emissions, which are part of negative externalities, can be solved by imposing a carbon tax on every individual activity that generates negative externalities, especially carbon emissions.

This research aims to determine the influence of Sweden's carbon tax on global environmental diplomacy, especially in this case the European Union's policy related to carbon trading and Sweden's influence on developing countries to implement a carbon tax. Therefore, the research question for this Swedish carbon tax theme is how the Swedish carbon tax affects global environmental diplomacy. The question of Sweden's influence is raised because Sweden is one of the countries that pioneered and succeeded in implementing carbon tax in its country.

## **METHODS**

This paper uses a qualitative research method with a literature study approach. Creswell defines qualitative research as research to study social and humanitarian problems where researchers report their research findings according to reports on the views of the data and data analysis obtained (Creswell & Creswell, 2018). Whereas in another journal it is written that qualitative research methods are a research process carried out in a natural setting, to understand the phenomena that arise which are written using data, words, and writing reports obtained from trusted sources (Fadli, 2021). The literature study approach is a data collection technique through the library,

by reading, recording, and then managing data to be used as research material (Kartiningrum, 2015). The purpose of qualitative research is to make it easier for readers to understand facts and phenomena, which are explained in their original form, thus generating new hypotheses (Fadli, 2021).

## **RESULT AND DISCUSSION**

### **Carbon Tax and Implementation Mechanism of Carbon Tax in Sweden**

A carbon tax is a tax levied on carbon dioxide (CO<sub>2</sub>) emissions resulting from the use of fossil fuels. It aims to reduce greenhouse gas emissions by incentivising individuals and companies to switch to more environmentally friendly energy sources (Ihsan & Hutama, 2023). In the international context, carbon taxes are considered an important tool in climate change policy. According to existing research, a carbon tax can be defined as a tax levied on products or activities that produce carbon emissions, with the aim of internalising the environmental costs of those emissions. As such, a carbon tax serves as a mechanism to incentivise emissions reductions and the transition to renewable energy (Palupi et al., 2023).

Taxation in Sweden has changed repeatedly over the 30 years since its implementation (Hildingsson & Knaggård, 2022). From year to year, the tax rate increases until the peak increase occurs in 2021 at 137 USD per tonne of CO<sub>2</sub> equivalent. The implementation of the carbon tax in Sweden in 1991 coincided with tax reform by the Swedish government. The purpose of this tax reform was to establish an environmentally-based tax system to solve environmental problems, as these environmental problems have been a concern of the Swedish government since 1988. As a result of the tax reform, a new tax system, the carbon tax, has emerged.

Swedish government's carbon tax aimed at fossil fuels (Sutartib & Purwana., 2021) in the form of petrol, diesel oil and coal. The carbon tax applies to fossil fuels used for vehicles and heating. Some sectors are not required to pay a carbon tax but still pay for the emissions produced by each sector through carbon trading called the European Union Emission Trading Scheme (EU ETS), such as the agriculture, mining, forestry, and industrial sectors (Dian, 2016). The EU ETS is a carbon trading scheme set up for European countries. The EU ETS carbon tariff is much smaller than the carbon tax required by the Swedish government. Therefore, the agriculture, mining, forestry and industrial sectors are not required to pay carbon tax but pay emissions to the EU ETS because it will not have a negative impact on the country's economy.

The three types of subjects subject to carbon tax include importers, distributors and large consumers (VANIRA, 2023). This is done because Sweden does not have a producer of fuel, so the carbon tax is imposed on importers, distributors and consumers on a large scale. In 2019 Sweden received carbon tax proceeds totalling USD 2.3 equivalent to IDR 32.7 trillion. All of these proceeds will be included in the total central government revenue. Carbon tax is one of many taxes in Sweden, including energy tax, aviation tax,

and vehicle tax. In fact, these taxes existed long before the carbon tax was introduced, but since the carbon tax was introduced, other tax rates have been reduced. Although other taxes are still in place. The high cost of the carbon tax imposed by the Swedish government shows its seriousness in addressing environmental issues, especially related to global warming caused by carbon emissions.

The implementation of carbon tax in Sweden is considered successful in reducing carbon emissions in the country, the implementation of a relatively high carbon tax does not have a negative impact on the Swedish economy. Since the first year of the carbon tax in 1992 until 27 years later in 2018, Sweden has reduced carbon emissions by 27%. The highest reduction in carbon emissions occurred in 2000. Sweden's success in implementing carbon tax can also be seen in its Gross Domestic Product (GDP). Sweden's GDP increased in 2020 by 105% (Jonsson et al., 2020). Considering that Sweden's economy has remained stable despite the high carbon tax and the country's growing GDP, it can be said that the carbon tax in Sweden has been successful (Arif, 2023).

As mentioned earlier, Sweden's carbon tax is twice as high as Finland's carbon tax. However, Sweden's economy remains stable. This is because since the implementation of the carbon tax, Sweden has reduced other tax rates such as income tax rates. The previous income tax was 80% which was then reduced to 50%. In addition to lowering tax rates other than the carbon tax Sweden also abolished several types of taxes. In 2004 the inheritance tax was abolished and in 2005 the entrepreneur tax was abolished and in 2007 the wealth tax was abolished.

The reduction and elimination of some taxes is done so that the burden on society is not too great to pay so many types of taxes so that the country's economy continues to run well. Thus the reason why the Swedish government, carbon tax proceeds are only incorporated into central government revenues which will then be used as central government spending costs. By reducing and eliminating some taxes, the carbon tax proceeds will be used to cover other taxation funds, so that government spending funds will always be sufficient to carry out government functions.

The implementation of a carbon tax has both positive and negative impacts. Among the positive impacts resulting from the implementation of carbon tax is reducing carbon emissions resulting from the use of energy that produces pollution. As a result of the implementation of carbon tax in a country, it can increase the country's revenue, so that the proceeds of carbon tax will be used to finance pollution mitigation programmes in developing environmental technology. This in turn raises public awareness of the adverse environmental impacts of their activities. The existence of a carbon tax encourages the development of more sophisticated and efficient technologies to create a clean environment, because each individual will strive to carry out activities that do not burden tax costs (Aurel et al., 2024).

Apart from the positive impact of carbon tax, it also has a negative impact because the cost of carbon tax will increase the price of energy and goods, related to the cost of

production and the increase in the price of goods and services. The increase in western prices will result in a reduction in people's purchasing power, especially those of lower economic status. In addition, the carbon tax also has a negative impact on economic growth due to the increase in energy prices, which can reduce household spending and affect the fossil fuel-dependent industrial sector. In addition to the difficulty in obtaining energy for the industrial sector, the business sector also has difficulty competing in the international market, so it has to move market share to countries that do not apply carbon taxes (Conte et al., 2022).

The implementation of the carbon tax is a burden for marginalised communities, as they need a policy offset from the government in favour of the middle and lower classes. They feel burdened by the rising cost of living due to the carbon tax (Diamond W, John; Zodrow, 2018). Without the support of offsetting policies from the government, marginalised communities feel the heavy impact of the carbon tax. Therefore, in addition to providing several positive impacts for the country, both in terms of GDP, carbon emission reduction, but the implementation of carbon tax has a negative impact on society, especially people who are classified as middle to lower economy.

Sweden has been a pioneer in international environmental policy and was one of the first signatories and ratifiers of the Kyoto Protocol. Sweden already has the lowest emissions intensity (emissions per unit of gross domestic product (GDP)) and the second lowest per capita GHG emissions in the European Union (EU). Sweden aims to use 49% renewable energy by 2020 but the target was exceeded in 2013. In 2016, 57% of electricity came from renewable energy sources, mainly hydropower. Overall, this means that the use of electrical energy, for example with heat pumps for heating or electric cars, is a very effective strategy in Sweden. Sweden's carbon tax currently covers all energy-related carbon emissions that are not included in the Emissions Trading System (ETS) (Ackva & Hoppe, 2018).

Sweden's success in implementing a carbon tax, first implemented in 1991, has had a significant impact on global environmental diplomacy. Slowly, Sweden and its carbon tax gained the attention of the international community. Sweden's success in reducing carbon emissions without hampering economic growth led to its success in climate policy, giving Sweden a strong position on the international stage (Somanathan et al., 1986). Sweden has utilised its success with carbon taxes to encourage collective action in forums such as the UN and EU, arguing that carbon taxes are an effective tool for achieving emissions targets.

Global environmental diplomacy is diplomatic activity that focuses on environmental issues that have a significant international impact. These efforts can take the form of international co-operation, international agreements, to address environmental issues such as climate change, biodiversity loss, and pollution (Rizwanullah et al., 2024). This diplomacy developed in response to the increasing environmental disasters that require global collaboration to find sustainable solutions. With international co-operation, a common understanding can be formed to solve global environmental problems. The

implementation of environmental diplomacy is certainly inseparable from various challenges, one of which lies in the different interests of each country. Therefore, environmental diplomacy in the global realm is not only the responsibility of the state, but also requires the role of stakeholders in order to achieve good and sustainable results.

To tackle the carbon emission problem that is affecting people all over the world, Sweden is providing support through international organisations. Sweden provided 487 USD to the Green Climate Fund in 2015-2018. In addition, there are 20 large organisations that receive assistance from Sweden and a few selected organisations that are considered to have the potential to address climate change. Of the more than 20 organisations that Sweden has provided assistance to address climate issues, only 5 have reported, including: International Development Association, Green Climate Fund, African Development Fund, Global Environment Facility Trust Fund and International Bank for Reconstruction and Development (Hårsmar & Hjelm, 2020).

In recent years, several countries have taken steps to reduce carbon emissions, including instituting environmental regulations, Emissions Trading System (ETS), and carbon taxes. In 1990, Finland was the first country in the world to introduce a carbon tax. Since then, 20 European countries have implemented carbon taxes, ranging from less than €1 per metric tonne of carbon emissions in Ukraine to more than €100 in Sweden, Liechtenstein and Switzerland. Switzerland and Liechtenstein impose the highest carbon tax rates and the lowest carbon tax rates can be found in Ukraine (Mengden, 2023).

Carbon tax is said to be a good mitigation tool because it is able to make companies control their carbon emissions through the price imposed. In addition, the cost of carbon tax is relatively low because the rate will be adjusted to the existing tax. This is quite different from the rate used by Sweden as it imposes a very high carbon tax rate when compared to other types of taxes in the country. In addition, a carbon tax is considered good because a country's success in reducing carbon emissions will gain a good reputation and position in negotiations related to climate change, and finally, through a carbon tax, pollution sources and energy use can be easily controlled (Sitorus & Pratysto, 2018).

In 2017 the Swedish national legislature decided to introduce a climate policy framework through the Swedish climate law. This framework is the most important climate reform in Swedish history and sets out the implementation of the Paris Agreement in Sweden. By 2045, Sweden will achieve zero greenhouse gas emissions into the atmosphere. Sweden's success in implementing a carbon tax led to increased global climate ambition, inspiring many countries to implement similar policies (Sumner et al., 2013). Several countries such as the European Union, Denmark, Finland, France, Iceland, Ireland, Japan, Mexico, Norway, and Slovenia have implemented carbon taxes. Through these actions, Sweden has also raised international public awareness about the importance of carbon taxes, creating global support that pressures other governments to act more seriously on climate change.

## CONCLUSION

Climate change caused by carbon emissions is a concern for all countries in the world. Various ways are done to overcome this problem, fearing that it will have an impact on the preservation of flora and fauna and disrupt human activities. One of the countries that has successfully overcome the problem of carbon emissions is Sweden. Sweden imposes a carbon tax on every activity that produces carbon emissions. Sweden's 2020 target was to use 49% renewable energy, but the target has been exceeded since 2013. Sweden's success in implementing a carbon tax has not destabilised the economy, but the carbon tax has increased the country's GDP. This is because the mechanism implemented by Sweden is quite good. By increasing the carbon tax but reducing or even not imposing several other types of taxes. Sweden's success in implementing a carbon tax has inspired many countries around the world to implement similar policies. Since then, 20 European countries have implemented carbon taxes, ranging from less than €1 per metric tonne of carbon emissions in Ukraine to more than €100 in Sweden, Liechtenstein and Switzerland. Sweden was the first country to ratify the Kyoto treaty. Sweden's carbon tax policy has influenced global environmental diplomacy. As a result, other countries have also implemented carbon taxes.

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