INNOVATIONS

Economic Incentives for Environmental Protection: Analysis of Ethiopian Environmental Pollution Control Law

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Abstract

The right to a clean environment is recognized as a human right under different human rights instruments. The government should issue environmental laws and policies by incorporating different environmental regulation techniques to make the environment clean and suitable for humankind. The main environmental regulation approaches are the traditional command and control and the economic incentives. Because of the less effective command and control,some states have adopted economic incentives to protect the environment better. This study aimed to assess the integration of the economic incentive approach under the Ethiopian environmental pollution control proclamation. The study is doctrinal legal research and adopts a qualitative method of data analysis, and utilizes an explanatory research design. The researcher used both primary and secondary data sources. Primary data are legislations, while secondary data are journals, books and reports. The study found out that, under the Ethiopian environmental pollution control proclamation, only the traditional command and control mechanism of environmental regulation is adopted, and there is no economic incentive arrangement to give more protection to the environment. The OECD countries experience shows that they are applying various economic incentive instruments and achieving a better result. Lastly, the researcher concludes and suggests that the application of economic incentives in addition to the command control approach will make the environment cleaner, and Ethiopia should adopt the approach.

Keywords: 1. Economic incentives 2. Command and control 3. Environmental Pollution Control Proclamation 4. OECD countries

1. Introduction

Environmental protection means preventing unwanted changes to ecosystems and their constituent parts.[1] This may include the protection of ecosystems and their constituent parts from changes linked with human activities and the shielding of unwanted natural changes to ecosystems and their constituent parts.[2]

Countries have their domestic environmental law and policy to avoid or reduce environmental harm or degradation by applying different legal and institutional mechanisms at different levels. They apply various types of mechanisms through which they can regulate the behaviour of actors. One mode of environmental regulation is the traditional way of environmental regulation, known as a command control approach. It controls regulatory areas of issuing permits, monitoring and inspecting activities, and, where appropriate, taking enforcement action.[3]The role of such regulation has

changed, and the range of alternative approaches has increased from time to time.[4]But, it still forms the essential for environmental protection in most countries. Other countries are resorting to other alternative environmental protection mechanisms in addition to the traditional approach of environmental protection. For instance, In the USA, the federal government has adopted various economic instruments for the emissions of air pollutants and wastewater constituents to introduce more flexibility, efficiency, and cost-effectiveness into pollution control measures.[5] Most of these instruments operate as incentives to polluters who can determine the most efficient and cost-effective means for achieving environmental targets.[6] This economic incentive is becoming popular, and countries are adopting this though as an environmental protection method.

Ethiopia has various environmental laws issued at different times to protect the environment. Among these laws are is environmental impact assessment proclamation, environmental Pollution control proclamation and Environmental Protection authority proclamation. The regulatory approach established under this lawis the traditional command control mechanism in which every undertaking activity is regulated, and environmental authorities at different levels are required to take control.
This paper analyzes Ethiopia's environmental pollution control law regarding the mechanisms of the regulation adopted under this law and see other countries' experience in adopting the economicincentives as a means of environmental regulation. Also, the benefits of applying economic incentives is reflected, and a lesson is drawn for Ethiopia.

2. Types environmental Protection Mechanisms

Policy instruments for achieving environmental objectives is mainly categorized into two broad categories. The first one is those that provide firms with relatively little flexibility in achieving goals, the so-called command and control" approaches.[7] The second one is those that provide firms with greater flexibility in making environmental improvement along with incentives to look for extra effective ways of making sustained environmental progress, the so-called market-based or incentive-based approach.[8] But there are also other mechanisms such as the voluntary environmental protection approach.

2.1. The Command and Control Approach

One of the regulatory mechanisms is the traditional command control mechanism. This approach has two components – command and control. The command implies that governments set specific environmental standards and targets.[9] That means environmental legislation based on the command-and-control approach of regulation set ‘blanket environmental targets, such as emission standards, exposure levels or technology standards. The control component indicates the possible consequences and sanctions that non-compliance with the commands may entail. Governments that adopt the command-and-control model ‘strive to inspect and audit every firm to discover and thoroughly punish every violation, even minor ones.[10] In shaping the early environmental policies of the 1970s, policymakers introduced standard-based schemes in keeping with dominant legal traditions of dealing with activities deemed excessive by society.[11] This command and control pattern of regulation set uniform objectives for how much a given undertaking should emit, often by dictating the processes that should be used in their facilities.[12]It is a type of regulation that is considered the preserve of the State as only it is assumed to have the capacity to be effective at commanding and controlling.[13] Some defines command and control regulation as the exercise of influence by imposing standards backed by criminal sanctions.The force of law is used to prohibit certain forms of conduct or to demand positive actions, or lay down conditions for entry into a sector.

The command-and-control regulation covers several different instrument categories with different characteristics. The most restrictive type of regulation is perhaps an outright ban on specific products or processes.[14] This could, for instance, ban the usage of some products which are hazardous and eliminate technologies that are not environmentally friendly, or it may be a process of production. An obligation to use a particular technology in a given circumstance,such as a rule explicitly requiring the use of a selective catalytic reduction technology at a power plant is also quite restrictive. A standard limiting emission of certain pollutants during a particular period gives the polluters more flexibility in complying with this regulation. The more so, the longer the period in question.[15] A standard stipulating a given minimum environmental quality that has to be attained within a given area is even more flexible. However, it can be tough to implement such a regulation if many sources contribute to the environmental issue at stake.[16]

This environmental protection approach has some weaknesses that may trigger searching for policy alternatives for better protection of the environment. One the darkside of command and control is its efficiency and cost-effectiveness. Command and control regulation depends upon enforcement. However, recourse to legal remedies is seen as inefficient and not cost-effective, particularly compared to other approaches.[17]There is a claim that the centralized and uniform nature of command-and-control regulation at domestic systems was increasingly criticized as costly, cumbersome, inefficient, and insensitive to local contextualities.[18] Lack of incentive to improve environmental quality is another weakness of the mechanism. Regulation offers no incentive to increase the quality of the environment beyond the standard set by a given nations law. Once the regulation method has been satisfied, polluters have no incentive to do better.[19] This may discourage the polluter from exerting its energy to increase the environmental quality to a higher standard. Again the strategy is not flexible. It regularly involves the same standard for all polluters and often the same pollution-control technology. This means that the regulation draws no distinctions between firms that find it easy and cheap to meet the pollution standard or reduce pollution even further and undertakings that might find it problematic and expensive to meet the standard. Firms have no motive to changetheir production methods fundamentally that might reduce pollution even more and at a lower cost.[20] Lastly, since legislators and the Environmental Protection Agency write command-and-control regulations, they are subject to compromises in the political process by some lobbying groups. Existing firms often argue and lobby that stricter environmental standards should not apply to them, only to new firms that wish to start production. Therefore, since the traditional command and control approach has weaknesses, there should be another alternative way to protect the environment. This is why most countries are resorting to some regulatory alternatives.

2.2. Economic Incentive Approach

The state-centred approach to environmental regulation fails to work because of the above-listed problems of the traditional command and control approach. As a result, economic incentive means of environmental regulation were introduced in many nations' environmental instruments as the best alternative to the oldest one.

Economic incentive tools are regulations that encourage behaviour through price signals rather than through obvious commands on pollution control levels or methods. [21] This approach protects the environment by using different instruments of economic incentives. Such an approach incentivizes firms through different ways for what they did in protecting the environment. It is a strategy that will give firms some freedom and flexibility, unlike that of command control mechanism. According to this regulatory approach, firms are encouraged to go beyond the standard of emission provided under

the command control mechanism. When they go beyond the standard and protect the environment, incentives shall be given to the firms.

This mechanism of environmental regulation has captured the attention of environmental policymakers in recent years because of the potential advantage they offer over traditional command and control approaches.[22] When this regulatory approach is appropriately designed and implemented, it may allow any desired level of pollution clean up to be realized at the lowest possible overall cost to society, becausethis approach may provide incentives for the most significant reductions in pollution by those firms that can achieve these reductions most cheaply.[23] Rather than equalizing pollution levels among firms, economic incentives equalize firms' total amount to reduce pollution.

The key benefit of economic incentives is that they would allow a given pollution target to be met for a lower overall cost than the command and control regulations,a considerable advantage given the perceived high economic burden of regulatory compliance. Also the economic incentive grant firms and individuals greater independence in deciding how to meet aims; they create ongoing incentives for undertakings to design new and better-quality abatement technologies ensuring that pollution control becomes ever cheaper; they minimize the information burden on regulators, and they provide potential revenue sources for state or federal governments.[24] In addition, economic instruments may provide better flexibility in dealing with minor and diffuse emissions sources, which together contribute significant amounts of pollution, but which until now have been largely ignored in favour of controlling the pollution from more prominentcauses.[25]

The use of economic incentives is becoming more widespread. Surveys show that about 100 economic instruments were in place in 14 OECD countries by 1987, rising to 150 by 1993.[26] This number is increasing from time to time. In the USA, the federal government has adopted various economic instruments, such as market-based trading programs for the emissions of air pollutants and wastewater constituents, to introduce more flexibility, efficiency, and cost-effectiveness into pollution control measures. Most of these instruments are incentives to polluters who can determine the most efficient and cost-effective means for achieving environmental targets.[27]

2.2.1. Types of Economic Incentives

There are different types of economic incentives instruments. These are pollution charges, tradable permits, deposit-refund systems, reductions in market barriers, and government subsidy provision or elimination.[28]

The pollution charge system assesses a fee or tax on the amount of pollution a firm generates. Different scholars interchangeably use the terms fee, charge and tax. Charges impose a fee or tax on each ton or other unit of pollution discharged.[29] The choice of whether to tax pollution amounts, activities preceding discharge, inputs to those actions, or real damages will depend upon balances between costs of abatement, mitigation, damages, and program administration, including monitoring and enforcement.[30] In another expression, the generator of a designated type of pollution pays a fee or charge or tax for each unit of pollution.These fees make attractive devices for managing the environment for the reason that they attach a direct cost to polluting activities and because sources can easily count their savings if they reduce the amount of pollution they emit.[31]These can have an impact on environmental quality in two ways. The first one is that they can directly affect polluting behaviour and the choice of inputs to firms and product purchases by households. In the second place,they can offer a source of income to pay for governmental oversight of environmental management or to subsidize pollution regulator activities.[32]

A tradable permit is like charges and taxes, but they operate by fixing a cumulative quantity of discharges rather than charging a price for each unit of discharges.[33] Instead of being charged for emission, one needs to hold a permit to emit.The idea of such a type of economic incentive is that some companies or firms can reduce their pollution inexpensively than others. Such firms who can reduce their emissions are allowed to sell their extra rights or allows to those undertakingsthat find it expensive to decrease their emissions.[34]

A deposit-refund system is essentially a combination of a tax and a subsidy. The consumer of packaging container materials is given the right to a refund if he returns the waste product to the seller or an authorized recycling use point.[35]For this right, the consumer may have had topay a formal deposit at the timeof the purchase or have paid a higher product price. This environmental protection mechanism may technically make the environment free from waste products. Globally, such systems are applied to help control the disposal of lead-acid batteries, products such as beverage containers, pesticide containers, tires, automobile bodies, and other consumer products.

Reducing market barriers can be taken as another means of economic incentives and can be used to curb pollution. In some cases, considerable gains can be made in environmental protection simply by removing existing government-directed barriers to market activity.[36] For example, measures that make it easier to exchange water rights promote more efficient allocation and use of scarce water supplies.[37]

Lastly, there is a subsidy as another type of economic incentive.Subsidies are direct or indirect payments from the government to the company, which successfully reduce the price of goods or services and encourage their sale. Subsidies include tax deductions and refunds.[38] Among the many subsidies used at all government levels to help manage environmental pollution are grants, low-interest loans, favourable tax treatment, and particular procurement strategies for products believed to pose relatively minor environmental damage.[39] Such incentive is used to support private sector pollution prevention and controlling works, the cleanup of polluted industrial sites, farming and land conservation, waste management, substitute automobile fuels, pollution-free cars, and municipal wastewater treatment.[40]
Subsidies also can result in damaging environmental effects. Subsidies for environmental management are from time to time criticized because the government entity providing the subsidy and the taxpayer ultimately is helping to bear the costs that should be the responsibility of the polluter. Furthermore, when products or activities are subsidized, consumers act on price signals that do not reflect the total costs of production, in the end consuming more than they otherwise would and causing harm to the environment.[41] Therefore, when the governments provide a subsidy, they have to take care of its downside; otherwise,it may be changed into a race to the bottom scenario.

3. The Experience of Selected OECD countries in applying economic incentives

Economic instruments for pollution control were reported to be in place in all OECD countries. These OECD countries are applying various kinds of economic incentive instruments. In these countries,economic incentives are rapidly growing in terms of the type and pollution on which it is applicable. In the mid-1970s, economic incentives were used sporadic instances outside of the water management systems in France and the Netherlands, which were implemented in the late 1960s to early 1970s and relied heavily on wastewater pollution charges.[42]A first OECD survey reflecting the

condition in 1987 in 14 OECD countries identified 150 cases of economic incentives including subsidies, out of which 80 were environmental charges or taxes.[43] Since then, the condition has continued to evolve, and several countries have implemented or are intending to introduce new economic incentives. In some countries, the number of economic incentives has increased by 50 per cent between 1987 and 1993.[44] This is particularly true for Denmark, Finland, Norway, Sweden, the Netherlands and the United States.[45]

When we take the U.S case, the country is applying various kinds of economic incentives for different sources of pollution in addition to the traditional command and control mechanism. The U.S., Internal Revenue Service outlines only four U.S. taxes as emissions taxes: these taxes are on petroleum, chemical feedstocks, ozone-depleting chemicals, and motor fuels.[46]Many of these are not direct taxes on emissions but taxes on additional input below the assumption that the input is directly related to the amount of pollution produced. There are many examples of water discharge and user fees at the state and local levels. However, most of these are motivated by the need to raise revenue to cover the service's cost. Most local communities also charge fees for solid waste disposal either through variable rates or fixed fees. In the United States, there has been six major application of economic incentives. These are the Environmental protection agency's emission trading program, the leaded gasoline phasedown, water quality permit trading, chlorofluorocarbon trading, SO_2 allowance system for acid rain control and the RECLAIM program in the Los Angeles Metropolitan region.[47]

On the deposit fund system as a type of economic incentive, it is better to see the German experience. Germany has been a front-runner in promoting recycling. This country's recycling system is taken as an experience by different countries like Austria, France and Spain. The system is known as Green Dot or Duales system in which the Green Dot on the packaging shows that the producer has paid a payment to Duales, which is responsible for recycling.[48] A new package recycling law of Germany went into effect on January 1, 2003. Single-use containers incur a fee of 0.25 euros (or 0.50 for containers 1.5 litres or larger).[49] Beer cans are included, while liquor, wine, fruit juice, milk, and non-carbonated beverage containers are exempted. Up to October 1, consumers must return the empty containers to the point of purchase along with a receipt or other evidence of purchase.[50] After that date, retailers and beverage suppliers must have a system for accepting returns.

The Netherlands experience of applying for a tradable permit may tell us how the country is applying the economic incentives. In 2001, the Netherlands and industry-governmentdecided to a rate-based emission trading package for NOx releases that assigns credits to sources based on performance rates multiplied by the consumption of the source of fossil fuels. As described by Zijlstra, sources with a capacity equal to or greater than 20 M.W. must meet this performance standard rate through own abatement measures or the obtaining of credits from other sources.[51] The environmental objective of the program is an industrial discharge target of 55,000 tons of NOx in 2010, a 55% lessening from 1995 base year emissions of 122,000 tons.[52]For the reason that a rate-based program does not manage total emissions, the state set an interim goal line of 75,000 tons for 2005 to show whether narrowing the performance standard of 50 grams of NOx per GigaJoule will be required.[53]

Most OECD countries also employ subsidies to protect their environment or natural resources such as water, soil, wildlife and forests. Such a scheme is practised by Austria, Canada, Iceland, the Netherlands, Sweden, the U.K., and the U.S.[54]In theU.K., it is directed at farmers in nitrate-sensitive areas and areas of scientific interest and aims to move agricultural management towards a sustainable direction, e.g. by providing financial support for waste facilities and compensation of income losses.[55] Switzerland also provides compensation for financial losses associated with

ecological activities.[56] The U.S. executes many programs encouraging farmers to improve conservation practices and take land out of cultivation.[57]The Netherlands introduced the Energy Investment Tax Allowance in 1997 to reduce up-front investment costs for corporations investing in the latest energy-saving and sustainable energy technologies.[58] Those companies investing in technologies listed in the annually updated 'Energy List' may deduct some of the investment costs from their taxable profits, reducing the need for financing.
Other OECD Member Countries are also applying economic instruments to a significant level. The Czech and Poland seem to have full-grown charges-cum-subsidy schemes which play a structural part in bringing environment investments to substantially higher levels, in particular in the context of environmental funds.[59] The number of pollutants addressed in the charge schemes is also more extensive than found on average in the OECD. Hungary is operating many environmentally-related taxes. Korea and Mexico also apply a range of economic instruments.

4. The Analysis of Ethiopian Environmental Pollution Control Law

Ethiopia has a high-level strategy to pursue agriculture-based industrialization to achieve middle-income country status by 2025 with no net increase in carbon emissions. As an economy isheavily dependent on agriculture and forest resources and with a historical legacy of widespread severe environmental degradation, environmental issues are a significant consideration for achieving this high-level goal.[60] Furthermore, the current destruction and degradation of the soil and forest resources and others on which this development strategy depends represent a significantpolicy and practical challenge. The main environmental issues affecting the country are soil erosion and land degradation, deforestation and forest degradation, water scarcity, biodiversity loss, and various types of pollution. There should be a strong legal framework and powerful environmental organs with a clear policy objective to tackle the above environmental crisis.

Ethiopia has various laws that are related to environmental protection. There are different proclamations directly related to environmental protection. These are the Environmental Impact assessment Proclamation No299/2002, Environmental Pollution Control Proclamation No. 300/2002, Environmental Protection Organs Establishment Proclamation No. 295/2002 and Biosafety proclamation No.655/2009. For this study, the author is only focused on the Environmental Pollution Control Proclamation since it is related to pollution regulation.

This proclamation was issued as proclamation No. 300/2002 by the Ethiopian parliament to protect the environment from pollution in addition to the Environmental Impact assessment proclamation.[61] The preamble of the proclamation says that since some social and economic development endeavours may inflict environmental harm, protection of the environment is the responsibility of all and eliminating or mitigating pollution is appropriate issuing the law is needed.[62] The preamble is telling us about the reason why we need to have an environmental law to reduce or avoid environmental harm or pollution.

An interesting thing here is not about the need for environmental protection rather the adopted instruments or approaches regulating the environment to achieve the objective provided under the proclamation. This proclamation is dominated by the traditional environmental regulation approach,a command and control mechanism. Almost all of the provisions reflect the command and control approach to protect the environment.A few of the articles are discussed as follows.

Article 3 of the proclamation stipulates that no person shall pollute the environment by violating the relevant environmental standards. If a violation happens, the authorities will impose sanctions.[63]

From sub-article 3 to 5 of the same article also talks about controlling pollution and the environmental authorities' action of different levels. There is no economic incentive mechanism provided under the article to protect the environment alternatively than the command and control approach.

Article 4 of the Environmental pollution control proclamation provide the management of hazardous waste, chemical and radioactive substances. This provision concerns the need fora permit from the authority to transport, generate, treatment or disposal of such types of substances. Otherwise, this article does not provide the type of treatment or incentive for firms to reduce such hazardous substances.

Management of municipal waste is another concept that is emphasized under the pollution proclamation. It specifies that urban administrations shall ensure the collection, transportation, the recycling, treatment or safe disposal of waste through the institution of an integrated waste management system.[64] And the environmental authority shall monitor and evaluate the adequacy of municipal waste management systems and ensure the effectiveness of their implementation.[65] The proclamation jumped over the matter of waste management by simply providing a command and control method to treat the matter. Unlike some OECD countries, there are no economic incentive instruments such as a deposit fund system or subsidies, which may make our environment cleaner. The experience of the OECD countries shows that applying these economic incentives to waste management is more successful than the command and control approach.

Environmental standard is the other issue provided under the Ethiopian environmental pollution control proclamation.[66] This is about setting some emission standard or providing pollution by the environmental authorities to achieve the required environmental standard. Such type of standard is typically a command and control approach. Setting a standard under the law is not wrong. Nevertheless, the problem is that there is no economic incentives mechanism to achieve the provided goal or to go beyond the provided standard. That means, when a firm meets the standard provided, there is a zero incentive to achieve beyond the standard. This will limit the enhancement of the environmental quality and it is not attractive for firms to make the environment cleaner.
Additionally, the proclamation talks about the inspection by authorities and the imposition of penalties for offences committed. The environmental inspectors shall supervise the overall activities of firms whether or not they are behaving as the standard.[67]From articles 12 to 17, the proclamation talks about the type of offences committed and their penalty.[68]

Although the environmental pollution control of Ethiopia is dominated by the traditional command and control mechanism of environmental protection, few provisions reflect the economic incentive approach of environmental protection. However, the provisions do not provide an economic incentive mechanism for environmental protection. Instead, it reflects the spirit minimally. Article 10 sub-articles 1 and 2 of the Ethiopian environmental pollution proclamation provides that regulation will be issued for the incentive arrangements if the existing undertaking introduces new prevention methods or minimization of pollution.[69] Still, there is no subsequent legislation or regulation issued by the council of ministers on this issue. Also, the author believes that the incentive scheme referred to the unissued regulation is not the type of economic incentives adopted under the environmental laws of other countries (especially by OECD Countries). Sub article 2 talks about the exemption from customs duty. When new instruments destined for pollution control are imported, they shall be exempted from customs duty upon approval of the environmental authority.[70]When we see the provision, it reflects the concept of government subsidy as an instrument of economic incentives. The taxation subsidy seems to be applied in this case. However, we cannot accept this as an economic

incentive in a strict sense since environmental subsidy is wider than the one provided under this proclamation.

5. Conclusion

Based on the above countries experience and analysis of the Ethiopian environmental pollution control proclamation, the following conclusions are made. Since the command and control mechanism of environmental regulation has some shortcomings, and it is not sufficient for the better protection of the environment, many countries are applying an economic incentive approach as an additional method of environmental protection. The experience of OECD countries shows the approach's success in reducing the environmental pollution in different areas. From the analysis of the Ethiopian environmental pollution control proclamation, one can conclude that it is dominated by the concept of command and control mechanism by disregarding the other alternative way of environmental regulation mechanisms. The alternative way of environmental regulation is not introduced to protect the environment better. If the economic incentives approach of environmental protection is used, in that case, there is a high possibility of giving more protection to the environment than the protection through a command and control application. As a recommendation, in addition to the command and control mechanism, the economic incentives should be integrated into the Ethiopian environmental laws by taking other countries' experience into account since it gives more protection to the environment by applying some flexibility to firms.

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