

## Research on the Legal System of Payment for Ecosystem Services Under the Global Perspective

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### Abstract

In this paper, we will be evaluating and justifying a theoretical basis for the legal system and government to fund ecosystem services through a comprehensive elaboration. The four areas that would benefit would be: aspects of watershed environmental services, biodiversity services, nature reserves services and carbon trading. This evaluation will explain and determine that Natural Resources and Ecological Services are both self-sustainable in the long run. This will be a possibility only if the laws are quickly formulated and regulations are put in place.

**Key words:** Payment for ecosystem services; Legal system; Environmental resources

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### INTRODUCTION

The need for rational economical policies to solve environmental and ecological problems begins with the Payment for Ecosystem Services. (Referred to as PES) PES plays an important role in the protection of resources by effectively promoting select public goods that fall into a certain criteria. This legal system of PES will be to legate the environment within economic policy. This purpose will serve to adjust the ecological benefits and economic benefits of stakeholders, balance social fairness

with justice and maintain the ecological equilibrium of the original objective. Throughout the 1990's, research on PES studied various international academic circles and developments of the ecological environment. In addition PES explored theoretical research that is currently in practice in numerous countries.

### 1. THEORETICAL BASIS FOR CONSTRUCTING THE LEGAL SYSTEM OF PES

The basis for PES to operate is based on an interest relationship. This legal system will need to act as a regulator to the public's social interests. It will also be the legal systems responsibility to distribute these interests. This distribution must consist of accurate guidance, while including rules of conduct, set rights and obligations of principal and educate that with coordination the main relationship these interests will ultimately fulfill the purpose of this law.

#### 1.1 Environmental Right

Environmental right is said to be the product from the problems of the human environment. This is the justification for the legal right of environmental law.

On the surface, the purpose of the environmental right is to solve the relationship problem between man and nature. In truth, the environment right is more concerned with the relationship between people and their society

The pollution of the environment and damage to the ecosystem are a direct result of the social activities of human beings exceeding the scope of what the environment can withstand. Solutions to the environmental problems will be accomplished by defining these rights and obligations. Many countries confirm the civil environmental rights in various forms of legal documents. Some countries give people environmental regulation through legislation. The establishment of

the PES legal system will for a realization justifying environmental rights. It will protect the future of human survival by making it a reality. In addition it will also conform to the requirements of social development.

### 1.2 The Theory for Fairness and Justice

Fairness and justice is a value idea in the eternal pursuit of law. The law will coordinate and find balance of all interests. Rawls, a famous United States philosopher pointed out that justice is the primary value of the social system and a social problem should be solved first. The Justices theme is to divide the basic rights and obligations, yet distribute social cooperation benefits.

Public goods from the environment determine the common wealth of mankind. However, it is difficult to define the property right of the environmental resources due to the finite amount of natural resources within the environment. This makes is difficult to distribute equal environmental rights. It may cause imbalance between various groups and industries. In accordance with the right and obligations of the idea, everyone should bear the social responsibility in an equal manner.

When an individual makes certain sacrifices for the public, only monetary compensation can recover those losses, turning an inequality into equality

The legal system of PES is based on the theory that that justice works through benefit sharing, risk sharing, equal distribution of benefits and fair responsibility. From the fair perspective, the establishment of the PES in the legal system seeks to balance the results of the ecological protection and the ecological benefit.

### 1.3 The Theory for Sustainable Development

In 1987, the World Commission on environment and development published a report on the environment and development issues "Our Common Future", was first to propose the concept of sustainable development. According to the report, sustainable development is not only meets the needs for contemporary people; it also doesn't pose a hazard to future generations' development. Sustainable development adheres to two views within development; firstly we should follow a harmonious life with nature, yet still pursue advancement in production.

However, we should not only rely on technology and investment to obtain future development by exhausting resources, polluting the environment, destruction to the ecosystem; but, instead adopt a coordinated approach to developing more environmental protection. Secondly, contemporary people in pursuit of present development and consumption should strive to make their upcoming commitments and opportunities be equal for future generations. In fact, using resources in a sustainable way and keeping the sustainability of the ecological system is an inevitable requirement of social development and the only choice.

## 2. CURRENT DEVELOPMENT ABOUT GLOBAL LEGAL SYSTEM OF PES

Presently PES has two main types. These types include purchases government ecological services, which shall be the dominant public payment system and the public markets ability to pay.

In developed countries, such as Germany and America have established policy and institutional framework of payments for ecosystem services. In addition developing countries such as Brazil and Costa Rica have also carried on the ecological compensation for numerous activities achieving remarkable results.

According to ongoing statistics, the world now has 287 cases of forest environmental services trade, 61 cases of watershed protection trace, 51 cases of landscaping transaction, 28 cases of "comprehensive service transactions". These cases not only focus on the developed areas, but many countries including regions in Africa and Asia. In this paper, the author will introduce the international PES development status of several fields briefly.

### 2.1 Watershed Environmental Services

Compensation for watershed environmental services can be divided into three categories, including water quality, water and flood control. At present, watershed environmental services under the guidance of the government are most common across most countries. Colombia had a unique example that uses water associations, which users pay a fee for water consumption. This fee was collected through donations of community members, whom invest in upstream areas of watershed protection. In Germany the government determines the payment through a series of complex calculations. These calculations balance the river basin amongst the environmental rich and poor areas. They government can also change these patterns to reflect a more beneficiary result, while achieving an inter-regional equilibrium level of public services.

Currently, only a few countries use the market means approach in the watershed environmental service. This is because the annual turnover is limited in most markets of developed countries. In 1996 USA Environmental Protection Agency issued a "watershed trade draft", guiding states to establish a basin trade system, which water shed bank is the most used method. Watershed is a clearinghouse banking system. The provider holds an emission reduction credit certificate on the exchange fund and the banks sell these credits to polluters that exceed pollution limit.

In 2000, The Soil and Water Conservation Department of New South Wales in Australia promulgated salinity strategy which designed to control water and soil salinization. This was done to protect and sustain native plants, while improving water utilization. To achieve this goal, the government focused on controlling measures

and market measures combined. The government issued salinity emission permits to polluters and allows permit trading. The government established clearinghouse for environmental services in the form of investment funds. The government purchases and provides the buyer's credit through the funds of the landowner.

It is obvious that the major owners and major suppliers of watershed resources is typically government funded through payments to watershed ecosystem services. Government often plays an important role in promoting the watershed ecosystem services market.

## 2.2 Biodiversity Services

With the destruction of the ecological environment and mankind's continued expansion, wildlife species are dwindling and some endangered species suffer more serious threats than others. Many countries have made various efforts and attempts for the protection of biodiversity, in which the biodiversity service payment system has since been established.

Biodiversity services provide the financial means to the owners and managers of forest resources protection and management of the forests biodiversity. Currently the paid types mainly include purchasing high value on the use of habitat species, habitat for biodiversity conservation, management fee, tradable rights under the cap and trade regulations or for supporting biodiversity conservation transactions.

In 2001, Conservation International, the World Bank, the Global Environment Fund established the Critical Ecosystem Partnership Fund, through project financing, funding for local communities, non-governmental organizations, the private sector and other civil society on key biological ecosystem biodiversity protection. A Netherlands organization for international cooperation established Suriname Biodiversity in 1993, which mainly engaged in the commercial development for the purpose of development of medicinal plant diversity. Costa Rica has been the world's first biodiversity exploration investment. The government saved a lot of genetic resources that were made available to investors. These resources or "one-stop" services traded policy framework, which the Nation Association of biodiversity plays a central role in this task. Most service payment mechanisms of biological diversity are in the experimental stage, a large number of pet transaction costs are a major obstacle to market development. With the establishment of intermediary trades, retail trade, OTC, focused investment fund and other payment mechanisms, biodiversity services payment system will be gradually improve.

## 2.3 PES for Nature Reserves

Nature reserves are defined by IUCN: maintenance of biological diversity, natural and cultural resources of land or sea through legal means. Nature Reserves maintain the ecological potential of surrounding and downstream

land, protect animal and plant species, look after valuable ecological tourism and economic development opportunities for the region, while providing grounds for biological research. However, this comes with a cost to those living near nature reserves. This cost may include loss of land, plant, animal resources and further economic development opportunities. Thus the government must develop a policy to balance the benefits and costs of various stakeholders. The establishment of nature reserves ecosystem services payment system is derived from this.

Costa Rica once had the highest deforestation rates in the world. In order to prevent further forest degradation, Costa Rica paid for and launched a nationwide of ecological services, mostly known as PSA projects. Costa Rica first introduced the 1996 Forest ACT, which established the ecological services to forest ecosystem. Afterwards, the government established the National Forest Foundation for private forest owners in form of compensation funds. Most of these funds come from taxation. The Forest ACT also included user fees that were charged to various ecological services, which the government every year earmarks so each forest owner is required to pay a compensation fee.

## 2.4 Carbon Trading

Human economic activity has changed the composition of the atmosphere and natural environment. These changes are from carbon dioxide, methane and other greenhouse gases in the atmosphere. All of these gases have lead to global climate change. The negative effect of global climate change on natural ecosystems is becoming increasingly apparent. Due to this governments have begun to seek solutions such as international carbon trading to prevent further climate change. To achieve carbon reduction the Industry Federation and Business Advisory Council in the UK drew up an emissions trading program proposal. The government, by this trading program puts out 30,000,000 pounds every ear to pay for cutting carbon emissions amongst the participants. Participants can sell their carbon emissions to other companies, use their carbon emissions or buy other participants carbon emitters.

The Australian National Intuition and private forest owners have accumulated vast experience in the forest based carbon emissions trading. The main strategy is to take a wide range of carbon emissions by the interests of capital and resolve these risks associated with direct sales. These types of transactions are done primarily through the Department of Natural Resources within the government. Presently, carbon trading does not have a unified trading platform in the world; but, most industrialized countries have established some form of trading system, which the government overseas its development in the market through an establishment of clear trading rules and regulations.

### **3. THE INTERNATIONAL EXPERIENCE OF THE LEGAL SYSTEM OF PES.**

#### **3.1 Establishing Natural Resource Property Rights Is the Sustainable Conditions of PES**

Confirmation of ownership for natural resources is the key factor to clear the legal relationship of PES between the responsibility, rights and profits. Within private property the land, mines, forests and other natural resources the property rights are clear. Countries rarely interfere in natural resources that belong to the private or collective property ownership. Even if public interests are in need of restriction, countries must fully be compensated. In this sense, PES is actually a form of respect property owners and their rights. Several developed countries follow this model. For example, the American grain ecosystem services pay is based on the private ownership of land, German mine ecological compensation system is based on the ownership of mines and mining rights on the basis of clear ownership, Australia Basin ecological compensation system is built on land ownership where resources ownership and forest ownership is clear. Based on clear ownership of property rights, countries' legal system of PES does and can run effectively.

#### **3.2 Formulation of Laws and Regulations to Restrict and Support Ecosystem Services Pay on A Legal Basis**

From the beginning of twentieth Century, the western countries through the Constitution and other forms of legal legislation protect the environment and maintain its ecological balance in the form of legal regulation. Although most countries have not formulated specialized laws, there are provisions related to PES in correlation with the natural resources and ecological environment.

In 1956, the U.S. government proposed a farmland protection program, also known as the Soil Bank program. This program encourages farmers to use short-term or long-term conversation with their land by increasing soil fertility. The government gives farm subsidies to grain farmers in accordance with the plan and guides farmers to be more conservative with their land for soil conservation.

In 1961, the government developed an emergency plan to reduce feed grain. In order to reduce the inventory and production of feed grains, the government encouraged farmers to stop farming 20-50% of their plantable land. If the farmer stops planting crops on more than 20% a compensation ratio was increased to 60%. The less the farmer planted up to 50% the higher the compensation ratio would increase.

In 1965, the government implemented a paid turn plowing plan to further refine the ecological subsidies for farmland. PES is implemented in the form of mineral resources in this case.

Currently soil conservation in U.S. is known as CRP, Crop Restoration Program. Grain farmers are subsidized

by the government to not plant crops, but instead are encouraged to plant native grasses in order to maintain healthier and longer lasting topsoil. While CRP may be a reduction in profit to the farmer; it provides more sustainable land, pays for the landowners' taxes and creates a stable ecosystem for the surrounding wildlife. Many farmers currently rotate their land by planting crops for 10 years and follow with 3 years of CRP. This rotation not only leads to healthier soil, but stronger crop yields.

Germany has established PES for the protection of its mineral resources. Currently they have in place a complete legal system including civil law, commercial law, economic compensation law and regulatory law. Germany has laws for land mineral resources, water resources and mines. These laws were a co-decision amongst professional regulators whom provided the legal basis for the exploitation of resources and ecological compensation of environmental protection.

#### **3.3 Government and the Market Play a Key Role in the Payment for Ecosystem Services**

Presently the development of the market mechanism is not mature; the government continues to play a major role in the payments for ecosystem services. The government's main goal is to promote and implement the payments for ecosystem services and ecological services. In effect, public goods will benefit from a wide range of financial compensation from the government.

The government provides ecological protection and construction of "pay." This creates a need for a market mechanism that supports PES. For ecological interests the injured party and beneficiary are very clear, the ecological damage responsibility is clear and could be introduced into the market in the form of market regulation of ecological compensation that is paid to the beneficiary or vandals. Market-oriented ecological services include self-organization of private transactions, open market trading, eco labeling payment and individual user fees/taxes.

#### **3.4 Establishment of a Mature Community Participation and Consultation Mechanisms Conducive to the Successful Implementation of PES**

The social interaction mechanism can achieve a balance of system independence and a social relationship to the legal system. Public participation becomes one of the most convenient methods. Public participation not only improves legislation, but reduces resistance. Ma Kuirui River "watershed upstream irrigators pay reforestation agreements" was successfully implemented, which reflects the common aspiration of broad participation amongst the upstream and downstream enterprises and residents.

Mexico failed to establish any ecological services through the government. Mexico's funding comes mainly from the community and social support, local participation and the support of farmers.

When public participation is greater, payments for the ecosystem services implementation grows. It allows for stakeholders to take a stand and promote and develop future ecosystem services.

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## CONCLUSION

Summary, the ecological compensation practice in some countries is given more attention based on its theoretical foundation and legal basis of compensation. Compensation types and payments are various in each situation. Some types of ecosystem services by the government pay weigh heavily on institutional design to create market ecological resources or services and rely on market mechanism to achieve ecological cost. This process not only affirms the payments for ecosystems services are justified, but with effective coordination the government and the consumer both benefit in the end.

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