



PROCEEDINGS

The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

Universitas Muhammadiyah Yogyakarta (Indonesia)

October 13 - 14 2020

<https://icosi.umy.ac.id/>

Focal Conferences



- ✔ (ICPU) The 2nd International Conference on Pharmaceutical Updates
- ✔ (ICOMS) The 6th International Conference on Management Sciences
- ✔ (ICLAS) The 9th International Conference on Law and Society
- ✔ (ICMHS) The 4th International Conference Medical and Health Sciences
- ✔ (ICAF) The 6th International Conference for Accounting and Finance
- ✔ (ILEC) The 2nd International Language and Education Conference
- ✔ (ICONURS) The 2nd International Conference on Nursing
- ✔ (ICITAMEE) The 1st International Conference on Information Technology, Advanced Mechanical and Electrical Engineering
- ✔ (IConARD) International Conference on Agribusiness and Rural Development
- ✔ (ISHERSS) The 2nd International Symposium on Social Humanities Education and Religious Sciences
- ✔ (ICONPO) The 10th International Conference on Public Organization
- ✔ (DREAM) The 5th Dental Research and Exhibition Meeting
- ✔ (ICHA) The 5th International Conference on Hospital Administration
- ✔ (ICOSA) The 3rd International Conference on Sustainable Agriculture





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Preface by the Chairperson of the 4th ICoSI 2020



Dr. Yeni Rosilawati, S.IP. S.E., MM.

Assalamu'alaikum Wr. Wb.

All praise is due to Allah, the Almighty, on whom we depend for sustenance and guidance. Prayers and peace be upon our Prophet, Muhammad SAW, his family and all of his companions.

On behalf of the organizing committee, it is my pleasure and privilege to welcome the honourable guests, distinguished keynote & invited speakers, and all the participants.

With the main theme of “Cutting-Edge Innovations on Sustainable Development Goals (SDGs)”, the 4th International Conference on Sustainable Innovation (ICoSI) 2020 serves as a forum to facilitate scholars, policy makers, practitioners, and other interested parties at all levels from Indonesia and abroad to present their novel ideas, promote cutting-edge research, and to expand collaboration network. The conference has about 1373 participants participating from more than 8 countries 4 continents all over the world, making this conference a truly international conference in spirit.

This multidisciplinary conference was first held in 2012 and has undertaken various changes and adopted to the current technological trends of our education system. From having this conference with just 175 participants back in 2012 we have come a long way in making the conference a huge success with more than 1373 participants participating in this two-day conference.

Formerly, this conference consisted of only 9 (nine) focal conferences. This year, there are 14 focal conferences from various disciplines, namely: 1) The 2nd International Conference on Pharmaceutical Updates (ICPU), 2) The 6th International Conference on Management Sciences

(ICoMS), 3) The 9th International Conference on Law and Society (ICLAS), 4) The 4th International Conference Medical and Health Sciences (ICMHS), 5) The 6th International Conference for Accounting and Finance (ICAF), 6) The 2nd International Language and Education Conference (ILEC), 7) The 2nd International Conference on Nursing (ICONURS), 8) The International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE), 9) The 2nd International Conference of Agribusiness and Rural Development (IConARD), 10) The 10th International Conference on Public Organization (ICONPO), 11) The 2nd International Symposium on Social Humanities Education and Religious Sciences (ISHERSS), 12) The 5th Dental Research and Exhibition Meeting (DREAM), 13) The International Conference on Hospital Administration (ICHA), and 14) The 3rd International Conference on Sustainable Agriculture (ICoSA).

Accordingly, We are proud to announce that this year, the 4th ICoSI 2020 breaks the Museum Rekor-Dunia Indonesia (MURI) record as the Virtual Multidisciplinary Conference with the Largest Number of Area of Fields in Indonesia

In addition, this year, this conference holds special value since this is the first conference in the history of our university where the entire conference is taking place remotely on a digital platform through the use of advance technologies due to the Covid-19 Pandemic.

I would take this opportunity to express my highest respect to the Rector of Universitas Muhammadiyah Yogyakarta, Dr. Gunawan Budiyanto who gave approval and ensured the maximal support from all the faculty members of Universitas Muhammadiyah Yogyakarta (UMY) that made this event a big success. In addition, my appreciation goes to all the support teams who have provided their valuable support and advice from planning, designing and executing the program.

Let me conclude my speech by encouraging the delegates to participate with an increasing number in all the activities and discussions through the digital platforms for the next two days. I wish everyone a successful, safe, and fruitful conference.

Thank you!

Wassalamu'alaikum Wr. Wb.

Yogyakarta, Indonesia, 14 October 2020



Welcoming Remarks by the Rector of Universitas Muhammadiyah Yogyakarta



Assoc. Prof. Dr. Gunawan Budiyanto

Innovation is the beginning of the development of technology, and technology is a development machine that is expected to provide benefits to humans and provide the smallest possible impact on environmental quality. In the concept of sustainable development, development must improve the quality of human life without causing ecological damage and maintain the carrying capacity of natural resources.

International Conference on Sustainable Innovation (ICoSI) is an international conference which is an annual conference held by the University of Muhammadiyah Yogyakarta (UMY), Indonesia. In 2020 this raises the issue of "Cutting-Edge Innovations on Sustainable Development Goals." Therefore, on behalf of all UMY academics, I would like to congratulate you on joining the conference, hoping that during the Covid-19 Pandemic, we can still provide suggestions and frameworks for achieving sustainable development goals.

About The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

The 2030 Agenda for Sustainable Development is enacted by the United Nations as a shared blueprint for peace and prosperity for people and the planet, now and into the future. It consists of strategies to improve health and education, reduce inequality, and spur economic growth while also conserving natures by 2030.

This year, however, at the first one-third of its timeline, the SDG Reports shows that the outbreak of COVID-19 did hinder the achievement, or at least decelerate the progress of achieving the 17 goals. In fact, according to the report, “some number of people suffering from food insecurity was on the rise and dramatic levels of inequality persisted in all regions. Change was still not happening at the speed or scale required”, accordingly.

Therefore, in this event of pandemic, the quantity and quality of research, innovation, and more importantly multi-disciplinary collaboration are indispensable. Furthermore, there needs to be clear ends of those works. That is how those research are applicable and benefits directly to the society. That is how those research is incorporated as the drivers of policy making, and used practically in the society. Hence, the stakeholders especially the triple helix of higher education institution, government, and industry must be re-comprehended and supported to reach the common goal of the SGD.

International Conference on Sustainable Innovation (ICoSI) has been essentially attempting to strengthen this regard since its first establishment. One of the goals of ICoSI is to provide primarily a platform where scholars, practitioners, and government could grasp the development and trends of research. Hopefully, meeting these actors altogether would result in stronger collaboration, sophisticated and advantageous research, and brighter ideas for further research. Based on these reasoning, this year, the 4th ICoSI 2020 UMY is themed ‘Cutting-edge Innovations for Sustainable Development Goals’.

Improving from last year conference which brought nine focal conference, this year ICoSI 2020 UMY brings 14 disciplines, from social sciences, natural sciences, and humanities. ICoSI 2020 received as much as 1005 papers. The paper works submitted in ICoSI 2020 UMY will be published in Atlantis Proceedings, IOP Proceedings, National/International Journals, and ICoSI ISBN-indexed Proceedings.

Nevertheless, ICoSI believes that publication is only the beginning of research dissemination. The publications will enhance the chance of the research known by wider audience, and then used, applied, and incorporated at either system, institutional, or personal level of human lives.



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TRACK ECONOMICS, LAW, EDUCATION, SOCIAL, AND HUMANITIES



Developing an Environmental Tax Framework for Malaysia: Learning from Vietnam's Environmental Tax Implementation Experiences

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ABSTRACT

Malaysia's position in the Environment Performance Index is decreasing every year. In 2018, Malaysia ranks 75th out of 180 countries compared to 63rd in 2016 and 51st in 2014. Malaysia's weakening performance was due to several environmental issues including increased in air pollution, higher environmental risk exposure, poor drinking water quality, decreased in fish stocks and higher risk in biodiversity and habitat. One of the most efficient and effective ways to promote green growth is the use of environmental tax. Environmental taxes are policy mechanisms designed to increase the price on activities and products that are harmful to the environment. In theory, environmental tax can improve ultimate economic efficiency by imposing tax burdens that offset the general costs that certain goods and production impose on the economy through detrimental emissions (i.e. emissions that impose costs on national or global populations because they are toxic or contribute to global warming). By requiring these external costs to be recognized in the total costs of production, long-term economic efficiency can be enhanced. Many countries around the world has included environmental tax into the tax system including Switzerland, France, Denmark and Sweden. For developing countries, Vietnam and Thailand are some of the exemplary countries that have successfully implemented environmental tax. This study aims to explore Vietnam environmental tax policies and experiences. Vietnams' experience in environmental tax implementation was a lesson to Malaysia to carefully design a workable and organised environmental tax framework. The environmental tax framework will help the government to reduce and resolve environmental issues. At the same time, environmental tax will be a new source of tax income to the country. With the abolishment of Goods and Services Tax and reintroduction of Sales and Services Tax in 2018 and current economic crisis due to Covid-19 pandemic, it is important for Malaysia to widen its tax income sources which environmental tax has proven to be one of the significant sources of income to many countries.

Keywords: *Environmental Tax, Developing Countries, Malaysia, Vietnam*

INTRODUCTION

Human and natural environment are closely and inextricably linked together. Human reacts on environmental structure and changes by physical geography, weather patterns and available natural resources. Environmental decline directly impacts on social structure of country, for example, increase of health issues and declination of population growth. These issues then influence economic structure of a country as the government needs to spend on health, restoration and preservation. The significant integration between human, nature and economics indicates the importance of protecting the environment. Tax is an important instrument for achieving a wide variety of political objectives including protecting the environment; it

provides a level playing field for market actors and investments and drives the behaviour of private actors.

In 1970s, the Organization for Co-operation and Development (OECD) introduced the polluter-pays principle: "the principle according to which the polluter should bear the cost of measures to reduce pollution according to the extent of either the damage done to society or the exceeding of an acceptable level (standard) of pollution." The OECD's principle is somewhat consistent with the Pigouvian traditional approached introduced by Professor Pigou, a political economy professor at the University of Cambridge, who introduced the welfare economics (Milne and Andersen, 2014). Sweden is among the first countries adopted the Pigouvian principle by imposing environmental charges

to polluters. Consequently, Sweden made a comprehensive tax reform by introducing environmental taxes on energy and CO₂ replaced labor taxes (Sterner, 1994). Several other countries then adopted the same strategy and their environmental tax reform experiences were published in 1989 OECD report (OECD, 1989).

Depending on political discourse of a country, environmental tax is also known as green tax, green fees or ecotax. Environmental tax is also synonymous with 'environmentally related taxes' which:

OECD, International Energy Agency (IEA) and the European Commission have agreed to define environmentally related taxes as any compulsory, unrequited payment to general government levied on tax bases deemed to be of particular environmental relevance. The relevant tax bases include energy products, motor vehicles, waste, measured or estimated emissions, natural resources, etc. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments.

Protecting the environment through imposing environmental tax is the most adopted strategy by many countries. To date, more than 50 countries in the world have imposed environmental tax including Switzerland, Vietnam, Ireland and United Kingdom. The environmental taxes have proven to successfully reduce a wide range of environmental issues including waste disposal, water pollution and air emissions. Furthermore, the collection from the environmental tax was used to invest on green technologies and raise public revenues.

Malaysia's environmental protection policies do not include imposition of tax. Instead, Malaysia provides tax incentives for green technology products, for example, green income tax exemption. Tax incentives have several important limitations; tax incentive is a form of spending; compared to environmental tax, the government collects revenue from polluters. Tax incentive also gives less impact on intended environmental behaviour. With the increase of environment issues in Malaysia, it is highly important for Malaysia to implement environmental tax. Furthermore, environment problems in Malaysia tend to be pressing and environmental policies are often underdeveloped whilst growth is mostly strong. In this context, environmental taxes are a useful tool to internalize external environmental effects.

Implementation of environmental tax requires proper planning to ensure it meets the objectives. The OECD issued the environmental tax guide for policy makers (OECD, 2011). Important elements in designing environmental tax includes tax base, scope, incentives, tax rate and policy credibility and predictability. Vietnam is one of developing countries in the world that have implemented environmental tax. While other developing countries like Indonesia and Thailand are still in

exploratory phase, preparing extensive studies, China and Vietnam have already reached a more advanced level (Xi & Yanfang, 2009). Vietnam has gone through the environmental tax reform which is a tax shift in which a progressive increase in the revenues generated through environmentally related taxes provides a rationale for reducing taxes derived from other sources, such as income, profits and employment, the taxation of which is less desirable. Even where there are no explicit offsetting reductions in other forms of taxation, fiscal consolidation through increasing environmental tax revenue might implicitly keep the level of other taxes below that which might otherwise have prevailed (EEB, 2017).

After more than 8 years, the environmental tax reform in Vietnam has gone through several changes to ensure it meets the fundamental objectives to reduce pollutions and increase government's revenue. This paper aims to analyse Vietnam's environmental tax reform. The experiences from Vietnam should be learned by Malaysia to understand the process, adapt best policies and avoid making similar mistakes.

RESEARCH METHODOLOGY

This study will use the qualitative methodology approach to achieve the research objective. Content analysis will be conducted to analyse environmental tax policy, OECD reports and published research on Vietnam's environmental tax implementation experiences. In particular, this study will analyse the government's policy, tax base, combination of environmental tax and other policy instruments, types of environmental tax, ten years of environmental tax collection statistics and their performance in reducing environmental issues.

RESULTS

The environmental tax reform projects begin in affecting the entire Vietnam tax system and became into effect from 1 January 2012. World Bank described Vietnam as one of the most dynamic emerging countries in East Asia Region. Vietnam launched an economic and political reforms under *Đổi Mới* in 1986. After 30 years, development in Vietnam has been remarkable; Vietnam's GDP was worth USD261.92 billion in 2019, with an increase of 6.88% from 2018 (World Bank, 2020).

In 2004, the Vietnamese Prime Minister, Nguyen Tan Dung gave a mandate to introduce environmental tax by 2011. An editorial committee was formed under the leadership of the Tax Policy Department, Ministry of Finance, comprising representatives from relevant ministries. The Environmental Protection Tax Law was also included in the official program of the XIIth Legislative Program of the national Assembly (2007-2011). However, materializing the law raised key institutional challenges particularly in positioning

environmental law into tax policy. It also requires a level of tax policy expertise not commonly found in government bodies that focus purely on environmental policy. As a result, the Vietnamese government seek help from the European Union (Rodi et al., 2014).

In 2006, three European expertise provided technical assistance to the Vietnamese government, involved in designing and implementing Vietnam’s environmental tax reform and prepared a full report in 2009. Thereafter, the German Development Implementing Agency followed up and supported the program. Their main aim was to construct the most suitable environmental tax policy that must be accepted and approved by both vertical and horizontal governance. As a vertically governance structured, the Ministry of Finance has the authority to approve a comprehensive environmental tax reform. The reform was harmonized horizontally with other ministries in related areas, for example, transport, and science and technology.

Getting cooperation from other Ministries was a big challenge as it was almost impossible to initiate high-ranking meetings or working groups across ministries. Political issues from local administrations, groups and other organisations adding more challenges in getting horizontally supports. Several round of discussions with these group were taken place and more information were collected in structuring the policies. Public opinions, which also known as the ‘motorbike constitutionalism’, were essential and taken into consideration along the process.

Four important decisions in the environmental tax reform are:

- a) the governing scope: the industries or activities that cause environmental pollution,
- b) tax base and tax rate: environmental tax rate on products and services that pollute environment, and
- c) tax administration: the governing body to collect environmental tax
- d) how the environmental tax collection will be used: either for government’s revenue similar with other type of taxes, or specifically for environment protection technology and activity

In 2011, the Environmental Protection Tax Law was finally passed to the National Assembly which consequently approved by more than 98% of its members. The National Assembly set tax rates ranges for 15 products as shown in Table 1 below.

Table 1: Environmental Tax Rate for Vietnam

No.	Taxable Object	Unit	Tax rate range set by National Assembly (VND* per unit)	Specific tax rate by Standing Committee
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I				
1	All types of gasoline	liter	1000-4000	1000
2	Jet fuel	liter	1000-3000	1000
3	Diesel	liter	500-2000	500
4	Paraffin	liter	300-2000	300
5	Mazut	kg	300-2000	300
6	Lubricating oil	liter	300-2000	300
7	Grease	kg	300-2000	300
II	Coal	ton	10000-30000	10000
III	Chlorinated and fluorinated hydrocarbons (HCFC)	kg	1000-5000	2500
IV	Soft plastic bags	kg	30000-50000	40000
V	Restricted-use plant protection chemical substances			
1	Agricultural chemical substances	kg	500-2000	500
2	Anti-termite chemicals	kg	1000-3000	1000
3	Preservatives for forest products	kg	1000-3000	1000
4	Disinfectant chemicals for warehouses	kg	1000-3000	1000

In determining both for initial implementation and future tax rate, the National Assembly follows the following principles:

- tax rates for taxable objects shall be adjusted every one to three years depending on the socioeconomic development policies set out by the government for each period.
- tax rates for taxable objects shall be designed based on the level of environment pollution and degradation caused by taxable objects.

In 2016, Vietnam collected of USD1.84billion from environmental tax and the tax collection was used for the government budget.

The long process of environmental tax implementation indeed beneficial to ensure the environmental protection tax law is successful and accepted. There are several benefits of Vietnam’s environmental tax reform. First, it enhances the responsibility and awareness of organisations,

individuals in environmental protection. Second, it encourages environment friendly production and consumption. In the long run, more environmentally technology products are produced. Finally, it increases state budget in environmental protection.

LESSONS FOR MALAYSIA

Malaysia government should start to think of environmental tax reformation. The successful story of Vietnam's environment tax implementation should be learned. First, the environmental tax reformation will take at least five to ten years of research before it can be fully implemented. The long process will allow researchers and experts of taxation, economics and environment particularly to design the best environmental tax policy. The policy includes tax base, tax rate and changes to current tax policies, for example reduction of employment tax rate.

Second, Malaysia need experts in environmental tax to design the policy. Other than getting help from the experts in European countries, Malaysians should be sent to the European countries to learn and gain environmental tax knowledge to become the experts. Currently, Indonesia and Thailand are also in the planning stage to implement environmental tax in the countries. Malaysian experts should join international discussions to understand the best policies not only to reduce environmental issues but also to increase government revenues.

Third, commitment from current government and various ministries are essential to successfully implement the policy. As the process will take a long time which may involve changes of leadership in the government, the implementation of environmental tax must be a national policy that must be sustained regardless of different political agendas.

CONCLUSION

Many countries, including Germany, the United Kingdom and Vietnam, have moved from conventional progressive labor tax to environmental tax policies. They have proven that environmental issues are decreasing and at the same time continuously strengthening its economic and fiscal positions. The shift is essential to achieve environmental protection and fiscal objectives concurrently. Malaysia must be ready to implement changes to be competitive and attract investors. Lessons

from Vietnam's environmental tax reform should be learnt by Malaysia to design its environmental tax policy. A well designed tax system is the backbone of every functioning market economy, setting a level playing field for competition and creating sustainable incentives for investment, while guaranteeing that states active pursue economic success.

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