

Proceeding Paper

Tax Policy Reconstruction toward Implementation of Circular Economy in Indonesia [†]

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Abstract: A circular economy seeks to extend products, raw materials, and existing resources in the wheel of life to make them useful as long as possible. The conversion from the old economy form to a circular economy is a complex practice that requires the involvement of appropriate policy interventions, one of which is tax policy. The current situation of tax policy is described in this study, while analyzing the inhibiting factors and weaknesses of tax policy instruments and proposing a design for tax policy reconstructions that can be built for the implementation of a circular economy in Indonesia. The soft system methodology (SSM) used in this research. The evaluation outcome shows that the tax policy is still limited as it has not focused on efforts to implement a circular economy-based industry; therefore, tax incentive policies are considered to still not be effective. In addition, the administration of tax policy implementation is not simple; it is not neutral and, thus, does not attract industry. Further research is required at the framework level or even for each type of industry. More detailed examination is required for tax policies proposed on the basis of the results of this study.

Keywords: policy evaluation; tax policy; circular economy



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1. Introduction

Almost a decade after the Indonesian government's ratification of the 2015 Paris Agreement to achieve sustainable development goals and reduce greenhouse gas (GHG) emissions by 2030, the Government of Indonesia's commitments and efforts have been strengthened to address various environmental, social, and economic problems through the implementation of a circular economy, one of which is by adopting and elaborating the circular economy concept into its vision and development strategy in Indonesia's Vision 2045. The implementation of the circular economy is included in the low-carbon development area in the priority of the national medium-term development plan for the period ending in 2024. Waste management, sustainable economic development, and expansion of the green industry are low-carbon development sectors related to circular economy principles [1]. Circular economy is a closed economic system approach in which materials, components, and products are maintained to always be useful and valuable so as to reduce the amount of waste material that is not reused and then disposed of without further processing. The concept of a circular economy is the opposite of a production economy which prioritizes straight-line calculations [2].

In a collaboration between UNDP and the Governments of Indonesia and Denmark, the implementation of a circular economy could reduce waste by 42.5 million tons (−52%) in the food and beverage industry, 3.2 million tons in 2030 (−18%) in the textile industry, 42.5 million tons (−20%) in the construction industry, 4.8 million tons (−36%) in the retail plastic packaging industry, and 1.9 million tons (−24%) in the electronics industry by 2030. Waste that accumulates during 2000–2019 caused losses equivalent to 213–551 trillion IDR per year. The results of the study from this collaboration showed that there are advantages

to implementing a circular economy in terms of both the environment and the economy. The increase in gross domestic product (GDP) could reach 638 trillion IDR. In addition, additional employment related to the green economy or green jobs until 2030 will reach 4.4 million people [1].

The transfer of taxes by lowering labor income taxes and increasing taxes on the use of nonrenewable resources can accelerate the movement of people toward the transition to the implementation of a circular economy [3]. The results of Madeleine's research briefly described the special provisions related to the VAT provisions applied to the delivery of secondhand goods in European Union countries. In her description, Madeleine expressed her opinion regarding how the specific provisions are currently applied and why these provisions require updating. The special provisions governing VAT on the delivery of secondhand goods have the aim of preventing the imposition of double taxation and preventing market distortions [4].

Environmental tax is intended to reduce the importance of activities that cause adverse environmental impacts. However, most of the taxes levied on these destructive activities were not originally designed with this purpose in mind but to increase revenue. Empirical studies have found that other uses for this income, such as other pre-existing tax deductions, can lead to even better returns in economic terms, leading to double dividends [5]. Environmental impacts can be managed with the use of tax policies. Adequate design of these policies is the key to circular economic strategies to obtain effective environmental outcomes while minimizing economic impacts. Another study presented new and nuanced evidence on the effectiveness of environmental taxes in the context of industrial waste management. Empirical findings based on nonrandom samples in this study led to the conclusion that increasing incineration tax rates is effective in minimizing the generation of industrial plastic waste. A study conducted by Milios in Sweden presented a comprehensive taxation framework, applied throughout the product life cycle. The framework included (1) a raw materials resource tax, (2) a reuse/repair tax break, and (3) a hierarchical waste tax at the end of product life [6].

Tax policies are used to influence the behavior of companies that are more sustainable, in the form of tax incentives and the imposition of taxes, which are currently growing rapidly and becoming more complex [7]. In addition to maximizing the budget, tax collection can be used as a tool to influence the form of economic behavior and social activities of the community with its regular end function. Tax policy offers a reduction in tax costs so as to provide a bigger place for investors to increase their production capacity [8].

The provision of tax incentives cannot be categorized as an alternative to the circular economy industry. The current tax policy has not yet been investigated because no correlation between the desired results and the actual results has been achieved [9]. The expected result is the application of a circular economy industry. The selection of appropriate tax policy instruments needs to be formulated. This is in order to encourage the transformation of industrial activity shifts toward resource efficiency and resource sustainability through the application of a circular economy industry. Therefore, various alternative tax policies should be able to produce an impact on changes in industrial behavior in the production process so that its activities can achieve the expected goal of focusing on the circular economy industry.

The transition to a circular economy is a complex process that requires multilevel and multistakeholder engagement, and it is facilitated by appropriate policy interventions. Considering the importance of a balanced policy mix covering a wide range of policy instruments, no laws or regulations have been identified that deal specifically with the circular economy in one policy instrument. Several regulations in various sectors such as the environment, energy and mineral resources, industry, business, investment and trade, and agriculture contain material on the regulation of sustainable economic activities in accordance with the application of the circular economy concept and 5R principles. Learning from what other countries have implemented, there are still many things that the

Indonesian government can do in terms of proposing tax policies toward the implementation of this circular economy. Tax policies toward the implementation of the new circular economy began with the implementation of the Carbon Tax Law in April 2022.

2. Methodology

The research methodology used in writing this study was the soft system methodology (SSM), as a pluralist method that likens the real world to something complicated that utilizes systems for thinking and problem solving [10]. The assumptions used in the SSM approach include the following: (1) the problem is unclear and tends to be complicated; (2) different issues are interpreted by stakeholders, according to their respective views; (3) the human factor plays an important role; (4) a creative and intuitive approach is used toward problem solving; (5) the result is related to learning and better understanding.

Thus, SSM is a methodology for understanding various kinds of irregular problems in the real world that are complex and not well structured. Action research-oriented SSM is intended to explore every problem situation that is not structured broadly and deeply with the aim of being able to improve it. The seven stages of continuous flow cycle activities in the SSM process are divided into two domains, namely, the real world and thinking of various systems about the real world. The activity stages of SSM conventionally refer to the Checkland Protocol, as shown in Figure 1.

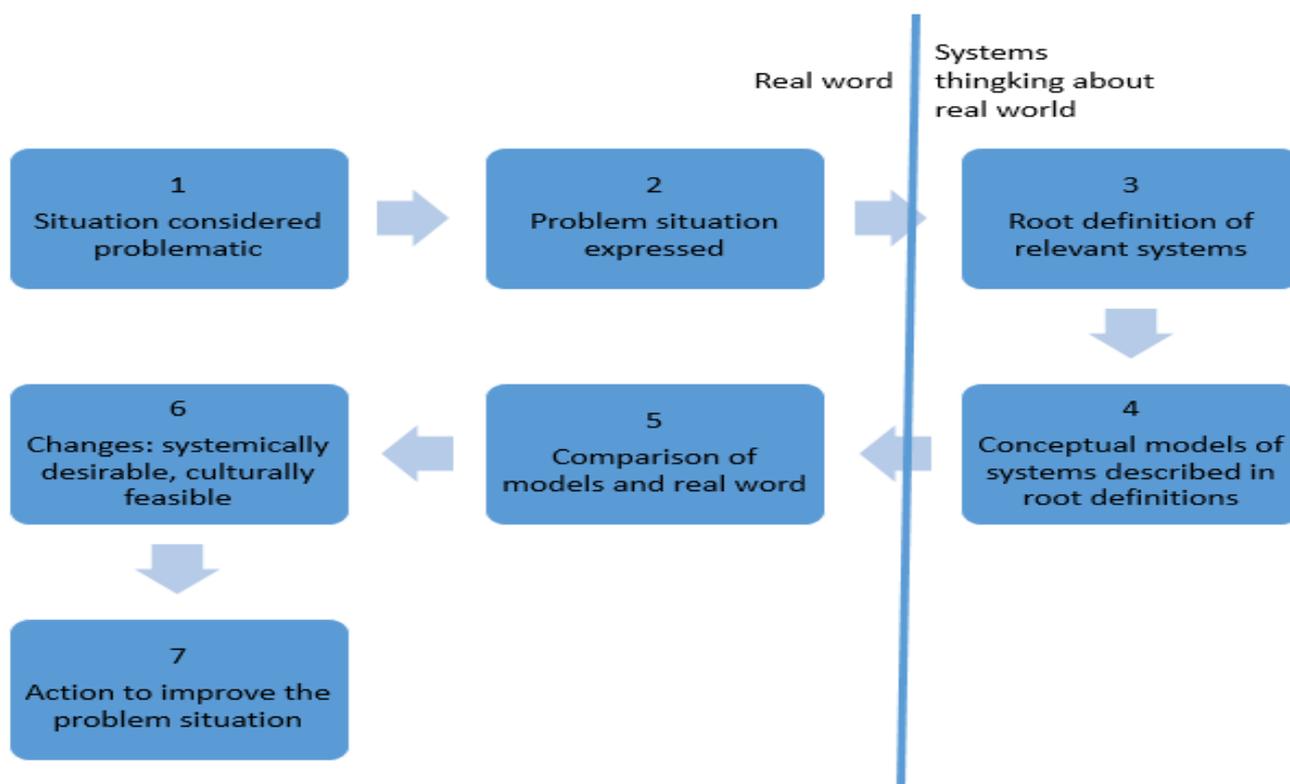


Figure 1. Checkland protocol figure.

In this study, the analysis was carried out only up to stage 5, which involved comparing the model with the real world. The five steps taken to describe the problems of tax policy reconstruction toward the implementation of a circular economy in Indonesia were as follows: (1) define situations that are considered problematic in the real world or identify problems that occur. At this early stage, the research aimed to identify the real-world situation in the Indonesian economy; (2) describe the situation of problems related to various interested parties into a rich picture diagram to get the overall picture; (3) define key words (root definitions) into a text-based and concise process flow form, divided into

CATWOE sections (client, actor, transformation, world view, owner, and environment); (4) create a conceptual model of the system that explains the relationship between activities according to on the root definition; (5) compare the conceptual model with the real world. This section discusses the implementation of the SSM approach in the reconstruction of tax policy toward the implementation of a circular economy in Indonesia at each stage of SSM.

Stage 1: Identify the problem and define the problematic situation. Various improvement efforts continue in the national economic sector as before the crisis impacted by the COVID-19 pandemic. One of these efforts is to carry out a transformation by implementing a circular economy. Although the circular economy concept has been introduced since 2009 by one of the foundations (Ellen Macarthur), parties related to waste management in Indonesia only considered it a few years later. As of this study being written, there was no standardization for the even application of the circular economy concept in Indonesia. This was exacerbated by the absence of clear regulations to initiate change. The formed regulations were only in the form of discourse without having been followed up by the issuance of related policies, and there were no supporting facilities. In addition, there remained a lack of recycling technology for waste materials that require high technology to recycle and are able to meet industrial needs in terms of both quality and quantity. In the end, a business model plan was needed to apply the concept of a circular economy.

Stage 2: Create a rich picture. From the description of the problematic situation in stage 1, a rich picture was drawn using the tax policy reconstruction agenda toward the implementation of a circular economy in Indonesia through the following steps:

1. Analysis one (intervention) was conducted to perform a sequence of real situations obtained from the presence of three main keys with a role. The results of analysis one are shown in Table 1.

Table 1. Analysis one.

Parties	Definition	Parties in Research
Client (C)	The Individual, group, or entity that causes intervention in the situation	Government
Practitioner (P)	Individuals or groups conducting research using the SSM Method	SSM Researcher and Advisor
Owner (O)	The parties who act as the owner of the issue. Can be entities or individuals who have an interest in or are affected by efforts to improve problematic situations.	<ul style="list-style-type: none"> • Government • Industry Players • General public

2. Analysis two (social) was conducted to analyze the roles, norms, and values that apply to the context of the case being studied. The results of analysis two are shown in Table 2.

Table 2. Analysis two.

Group	Party	Worldview
Client (C)	Government	<ul style="list-style-type: none"> • Develop policies related to the implementation of a circular economy • Reconstruction of tax policy for the implementation of a circular economy
Practitioner (P)	SSM Reseacher and Advisor	Knowing more about the reality of the object under study
Owner (O)	Government	<ul style="list-style-type: none"> • Effective supervision to ensure policies run as they should • Increase in economic value (gross domestic products)
	Industry Players	<ul style="list-style-type: none"> • Cost efficiency of purchasing raw materials • Increase production of recycleable • Prevention of ilegal dumping and emission
	General Public	<ul style="list-style-type: none"> • Better/healthier environmental quality • New job creation

3. Analysis three (political) was conducted to determine the disposition of power in a situation and how a process is carried out. The results of analysis three are shown in Table 3.

Table 3. Analysis three.

Party	Natural Power
Government	The Government has the power to decide tax policies related to the implementation of a circular economy
Industry Players	Industry players have the capital power to support/not support tax policies from the government for the implementation of a circular economy
General Public	The community has the power to support/not support tax policies from the government for the implementation of a circular economy

On the basis of the results of the analysis above, a rich picture of the problematic situation of tax policy reconstruction in the implementation of the circular economy in Indonesia was established (Figure 2).

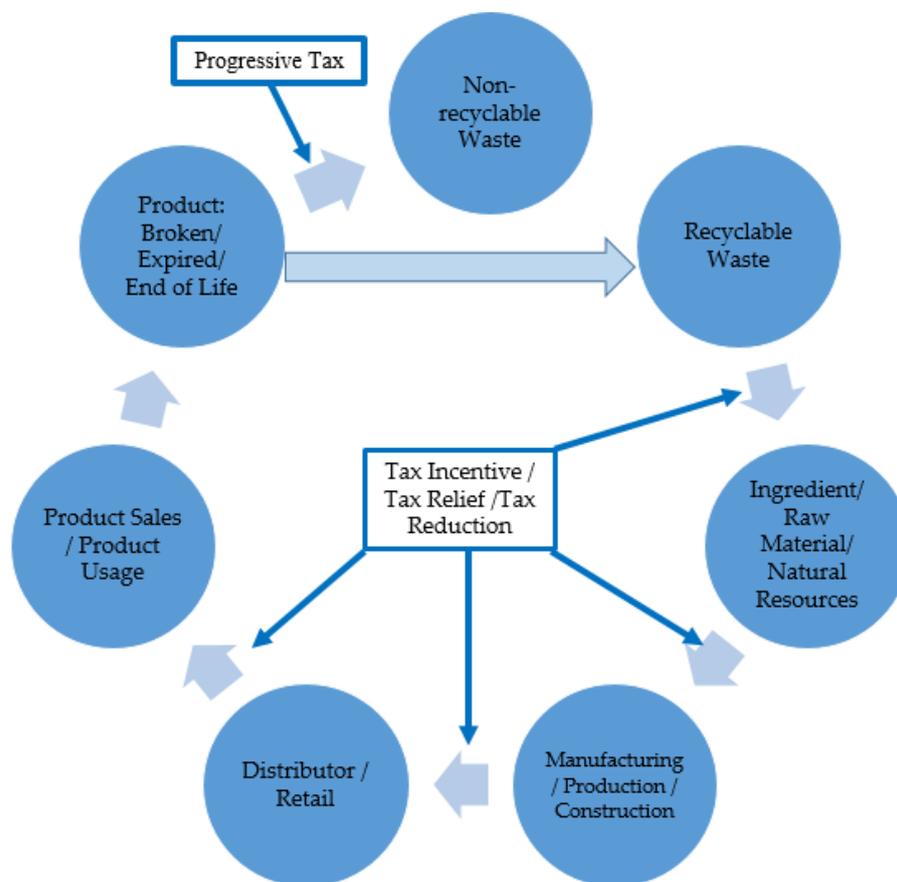


Figure 2. Rich picture of the problematic situation.

Stage 3: Create a root definition. At this stage, the root definition was established on the basis of a rich picture: “the Indonesian government can make an integrated policy reconstruction (P) with a tax policy reconstruction (Q) for the implementation of a circular economy in order to save the country’s economy from the threat of resource scarcity (R)”.

Stage 4: Create a conceptual model. The root definition model above was developed in a conceptual model using the analysis of C (customer), A (actor), O (owner), and E (environment), abbreviated CATWOE. Using the CATWOE model (see Figure 3), the root definition was extended in the conceptual model as follows: the government (A) needs to formulate various kinds of economic policies including tax policy (T), for the sake of implementing a circular economy (W), which can positively affect the interests of the general public (C), which will have a positive or negative influence on other parties such as industry players (E), and which can be approved, discontinued, or changed by industry players or the general public (O).

This CATWOE analysis was continued by addressing the performance criteria for the operation of the activity system:

- (1) Effectiveness: Is tax policy reconstruction the right policy in implementing the circular economy in Indonesia?
- (2) Efficiency: Can the reconstruction of tax policy speed up the implementation of the circular economy in Indonesia, which is reflected by the absorption of labor, the expansion of the business world, and the maintenance of a better/healthier quality of the environment?
- (3) Efficacy: Can the reconstruction of tax policy encourage the implementation of a circular economy and increase gross domestic product?

Stage 5: Compare the conceptual model with the real world. At this stage, the real situation was compared with the conceptual model. The results of the comparison between the two are shown in Table 4.

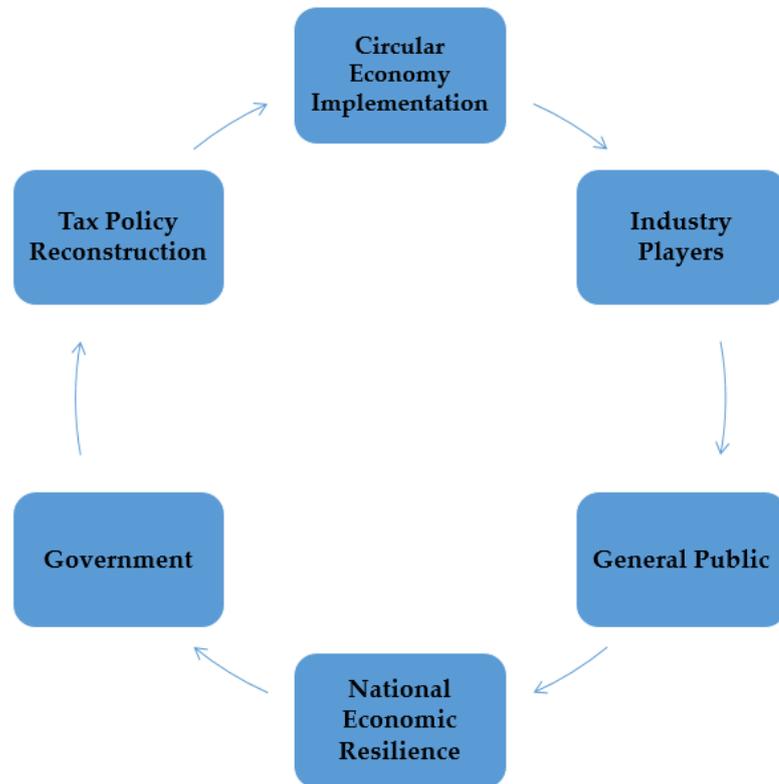


Figure 3. Conceptual model.

Table 4. Comparison of conceptual and real-world models.

Activity	What Happens in the Real World
Government reconstructs tax policy	<ul style="list-style-type: none"> • Policies related to the circular economy are still scattered and there is no standardization from the relevant Government Agencies • Several discourses on providing tax incentives were heard by several Government Agencies
Industry players implement a circular economy	Industry players do not yet have a business plan for the transformation to industrial application based on a circular economy
The general public wants a better/healthy environment quality and the creation of new jobs	The general public is still not fully able to change their consumptive lifestyle and produce large amounts of waste

3. Results and Discussion

The results of the SSM combined with a literature review and the secondary source material are presented and discussed below.

3.1. Current State of Indonesian Tax Policy

3.1.1. Tax on Green Economy

In the book entitled *Climate Change Financing Policy (2019)*, the Indonesian Government implemented several tax incentive policies for the private sector that participates in green economy development, including those who have carried out the following energy conservation activities:

(1) Income Tax

- a. Exemption for the import of goods for nature conservation purposes (PMK No. 34/PMK.010/2017).
- b. Corporate Income Tax Article 25 for domestic corporate taxpayers who invest in certain business fields and certain regions (PP No. 9 of 2016): (i) Reduction in net income by 30% of the total investment in the form of tangible fixed assets, including land which is used for main business activities, is charged for 6 years each at 5% per annum, which is calculated from the time of commercial production. (ii) Accelerated depreciation of tangible assets and accelerated amortization of intangible assets.
- c. Income Tax Article 4 paragraph (2) Final; a rate of 0.5% of turnover for entrepreneurs whose gross turnover (turnover) is not more than 4.8 billion IDR in one tax year (PP No. 23/2018)

(2) VAT and PPnBM

- a. Exempt from importing goods for nature conservation purposes (PMK No.196/PMK.010/2016);
- b. Exempt for the import of certain strategic taxable goods (machinery and factory equipment) (PP No. 81/2015);
- c. Exempt for delivery of certain strategic taxable goods (machinery and factory equipment) (PP No. 81/2015);
- d. Exempt from supplying electricity, except for houses with data above 6600 voltage amperes (PP No. 81/2015);
- e. The basis for imposition of PPnBM tax on taxable goods of 0% of the selling price for motorized vehicles which are included in the energy-efficient and affordable car program, other than sedans or station wagons (PMK No.64/PMK.011/2014).

(3) Import Duty

- a. Exempt for the import of goods for nature conservation purposes (PMK No.196/PMK.010/2016);
- b. Exempt for import with an import period of 2 years as of the entry into force of the decision on exemption from import duty (PMK No.188/PMK.010/2015), on (i) machinery for industrial development, and (ii) materials and goods of companies that have completed industrial development, except industries that produce services, as long as they add at least 30% of installed capacity, for additional production purposes for a maximum of 2 years;
- c. Exempt from importing goods and materials for additional production purposes for 2 years according to installed capacity with an import period of 2 years from the date of entry into force of the decision on exemption from import duty (PMK No.188/PMK.010/2015), on (i) companies that carry out development, except for industries that produce services using imported production machines purchased domestically, (ii) companies that carry out development, except for industries that produce services using imported production machines purchased domestically, as long as they add at least 30% of installed capacity, and (iii) companies that obtain import duty exemption facilities, but have not realized all of their imports within a period of 2 years, which may be granted an extension of the importation period for 1 year as of the expiration date of the import duty exemption facility.

(4) Carbon Tax

The implementation of a carbon tax in Indonesia is regulated in Law no. 7/2021 concerning Harmonization of Tax Regulations (UU HPP) Article 13 paragraph (1). It is planned that the carbon tax will be limited to PLTU coal with a cap and tax scheme and a minimum rate of 30,000 IDR/t CO₂e. This carbon tax rate is evaluated periodically and set higher than or equal to the carbon price in the carbon market. The implementation of the carbon tax was originally planned to take place on 1 April 2022, but the government postponed it until an undetermined time. In addition, the legal basis for the carbon tax is also stated in Presidential Regulation No. 98/2021 concerning the implementation of NEK Article 58, as well as other implementing regulations that are being prepared by the Government such as (a) RPMK on tariffs and DPP for carbon taxes, (b) PMK on procedures and mechanisms for imposition of carbon taxes, (c) PP on carbon tax roads, and (d) PP on the subject and allocation of carbon taxes.

3.1.2. The Inhibiting Factors and Weaknesses of Tax Policy Instruments

On the basis of the above explanations, Indonesia faces a problematic situation in the implementation of a circular economy, especially related to the absence of integrated policies, including tax policies related to the implementation of a circular economy. The transition to a circular economy involves extensive changes which cover the features of the economic model, political decisions, social priorities, and the choices of individual consumption habits.

The prices of goods and services must be adjusted to suit the habits of individual consumption and business practices in their economic activities. There should be a difference in natural resources and nonrenewable energy. The current tax system is not a powerful instrument in this arena. This further affects the profitability of activities, thus altering investor behavior and the prices of goods and services, which can change consumer consumption patterns, in addition to the changes in the economic structure due to the development of the digital economy and the high level of the informal sector. The informal sector has not been fully captured in the taxation system; therefore, tax revenue has not been optimal, leading to a gap in tax revenue. Another challenge comes from the tax base that is not yet optimal as a source of potential exploration, and the level of taxpayer compliance is still relatively low. On the other hand, a big challenge is the institutional capacity and access to finance and technology needed for green technology development. It is estimated that the annual capital investment required for the circular economy is around 308 trillion IDR or 21.6 billion USD (Airlangga, 2021).

The tax policy is still limited as it has not focused on efforts to implement a circular economy-based industry. Tax incentive policies are considered to still not be effective. In addition, the administration of tax policy implementation is not simple; it is not neutral and, thus, does not attract industry.

3.2. Tax Policy Reconstruction Proposal for the Implementation of a Circular Economy in Indonesia

To support the transformation to the implementation of a circular economy, Indonesia needs to reconstruct its tax policy so as to support the implementation of a circular economy in order to save the country's economy. This effort needs to gain support from industry players and the general public as parties that carry out and receive benefits from the reconstruction of tax policies in the implementation of a circular economy.

There is broad agreement on the importance of tax policy as a fundamental tool for promoting transformation aimed at meeting the challenges of the environment. The transition to a circular economy implies a systemic change that affects all aspects of economic life and requires the implementation of a policy mix that integrates various policies and instruments. What changes in tax policy can effectively contribute to this transition? Systemic changes to CE must be accompanied by systemic changes in the architecture of tax policy. The authors suggest the need for a strategic roadmap that sets out a sequence of

gradual, step-by-step changes that allow for major but viable changes in the short term, clearly oriented toward long-term architectural change goals.

Indonesia is moving toward the application of a circular economy to create conditions for reduced waste, better resource productivity, and increased competitiveness; the problem of resource scarcity that will arise in the future can be overcome, the environmental impact of production and consumption can be reduced, and the implementation of reconstruction current tax policy in relation to the still limited tax regulations related to the implementation of a circular economy in Indonesia can foster the participation of industry players in the implementation of a circular economy.

A strategic proposal (Table 5) that can be implemented in the medium to long term is based on the idea of prioritizing taxes on nonrenewable resources and eliminating or reducing taxes on renewable resources (including labor, which is considered the most renewable resource). Alternatively, general and transverse taxes can be created that reflect the combined value of all externalities associated with each product or chain of activities involved in its production, from the extraction of raw materials to consumption. The favorable tax treatment of renewable versus nonrenewable resources will change the relative price in favor of the use of renewables. In moving toward a circular economy, the first step should focus on reforming and leveraging available tax spending measures, including exemptions, deductions, and allowances that apply to existing major taxes (e.g., VAT and income tax) in general tax policies (especially with nonenvironmental objectives) can be reshaped and used to promote the transition to a circular economy. All subsidies that damage the environment should be eliminated and replaced with tax treatment that benefits all parties and sustainable activities. Such a transition would be strengthened by measures to facilitate the transition from the current taxation of labor-related activities to the taxation of nonrenewable energy resources. This will substantially increase the scope of the environmental tax base and gradually increase the tax rate applied.

Table 5. Tax policy Reconstruction Proposal.

Current Tax Policy	Propose Tax Policy Toward Circular Economic Implementation
1. Progressive Income Tax on labour income from 5–35%	1. Reduce Progressive Income Tax on labour income
2. Varies tax rate raw material (Central Tax and Local Tax). No difference between the renewable resource compare to non-renewable resource	2. Tax policy which make differentiation between the renewable resource compare to non-renewable resource
3. Same VAT rate for product sole. No difference between the product use re-cycled material compare to non re-cycle material	3. Tax relief/tax rate reduction for the product sold use re-cycled material
4. Carbon Tax for CO ₂ waste	4. Progressive Tax on every waste impose to industry with high waste

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