

Islamic Crowdfunding Mechanism to Answer Renewable Energy Investment Challenge in Indonesia

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Abstract.

The purpose of this research is to provide an idea about source of investment fund in Indonesia's renewable energy through Islamic crowdfunding mechanism. The method used is qualitative explanatory analysis with a literature study strategy. Seeing the challenges and opportunities of renewable industry investment, Islamic crowdfunding is said to be solution of renewable energy development in Indonesia. This research produced some Islamic crowdfunding mechanism to fulfil renewable energy investment in Indonesia. The Islamic crowdfunding mechanisms are included a donation based (hibah and qardh), equity and loan based (syirkah: mudharabah and musyarakah), also debt based (murabahah and ijarah). This donation, equity, loan, and debt-based crowdfunding are form of proposed solution to answer the challenge of renewable energy investment in Indonesia.

Keywords: *Islamic Crowdfunding, Energy, Investment*

I. Introduction

Global warming has become one of the main challenges faced by the world today. Bozkurt and Destek (2015) [1] emphasize that increasing environmental pollution and environmental problems along with technological developments and improvements, also the running out of fast fossil fuels, lead to consideration of renewable energy sources that can reduce pollution and degradation. Many countries have taken actions to reduce carbon emissions, including through conversion to renewable energy. The use of renewable energy is considered to help reduce the

adverse effects of climate change and environmental pollution [2].

In Indonesia, energy consumption is still dominated by fossil-based energy especially fuel oil and coal, like the provision of energy for fuel for electricity it is still dominated by fossil energy. [3] analysis, in addition to coal, the dependence of electricity generation on fuel oil (BBM) is still high, while in terms of fuel supply is very limited and is used to meet the needs of other sectors. The national electricity industry also faces a crucial problem because the supply is not balanced with its utilization, especially in areas with minimal access. If in the near future, there is

no significant new energy source found in 2046 it is feared that Indonesia will experience an energy deficit.

The use of new and renewable energy must be the main concern of the Indonesian government not only as an effort to reduce fossil energy use but also to realize clean or environmentally friendly energy [4]. According to [3] Indonesia's dependence on fossil fuels has an impact on high imports to meet domestic demand for petroleum (reaching around 55% of the total national petroleum supply) in 2015. According to [4], this pollution problem can suppress through government policies, especially in the energy sector with the use of new and renewable energy Renewable Energy, which is environmentally friendly, in addition to reducing carbon emissions and realizing energy independence.

Vaghefi et al. (2015) [5] emphasize that developing countries, like most Muslim countries, need an economy that encourages growth and development, preserves natural capital, creates jobs, improves human welfare, and reduces poverty and inequality. Such an economy is called a green economy. Therefore, promoting innovative renewable applications and strengthening renewable energy markets will contribute to the preservation of ecosystems by reducing emissions at the local and global level. Along with the effects of pollution and alternative fuel needs, interest in new renewable energy has increased, and this interest will then increase the value of investment [6]. The development of the renewable energy sector requires financing instruments that can support research and implementation. One source of renewable energy investment is through crowdfunding. Crowdfunding, an

instrument that attempts to knock the crowd of web surfers to raise money, might help reduce and overcome this gap. Through the Internet, sponsors of the "green economy" project (like individuals, non-profit organizations, and companies operating in the energy sector) are permitted to contact funders who are looking for investment opportunities but also believe in environmental sustainability and in the transition to renewable energy. Various European countries, other Asians have begun to invest in renewable energy. Data from Reuters.com [7], stated that Equity based Crowdfunding emerged as an increasingly important source of entrepreneurial financing. For example, the category "business and entrepreneurship" accounted for 27.4% of the total volume of CF in 2012, which increased to 41.3% in 2014.

In the development of Islamic economics, the Islamic finance industry has also penetrated this investment mechanism, that is, in form of Islamic crowdfunding platforms for financial investment. [8]. Islamic crowdfunding platform is a sharia-based crowdfunding system that funds halal projects and products permitted in Islamic law. Products and funds invested must be valid. Most crowdfunding platforms currently use *Murabahah* (cost plus profit margin) and *Mudharabah* (profit sharing) contracts. Other structures that can be considered include *Salam* (forward financing transaction), *Ijara* (leasing), and Diminishing *Musharaka* (reduced equity partnership) [9].

The use of crowdfunding approach in solving socio-economic problems of society is a new breakthrough that is often referred to as an alternative financing of the development of the renewable energy sector. This technology

sector financing becomes urgent to be done to see the energy sector directly related to the sustainability and economic vitality of a country, because major decisions made about the energy sector have a domino effect in the entire economy [10]. In developing countries, renewable energy investment is mainly dominated by the state, but private sector investment in renewable energy is far below the expected level. The main cause of this situation is explained by [11], which are access to finance, uncertainty in profit, and risk.

But despite these challenges, on the other hand there is a great opportunity for Islamic crowdfunding in Indonesia. As [12] stated that crowdfunder usually does not see much guarantees or business plans, but focuses more on the company's core ideas and values. Crowdfunder participates in donation-based crowdfunding based on altruistic or normative motives, which arise from their ownership in the community or the results of the project. The characteristics of crowdfunders who are willing to invest in the renewable energy sector must be accommodated in a trustworthy container. And through the crowdfunding platform that is connected on line, the renewable energy development project can be accessed by various prospective crowdfunders in various regions of the country, even the world. For this reason, in line with [13] this form of crowdfunding has important implications for entrepreneurial activities that need more research attention. Research on the role of Islamic crowdfunding in financing renewable energy has penetrated various countries, but in Indonesia research on this chapter is still very rare. So based on this background, this study focuses on solving investment problems in the field of renewable industry in Indonesia

through the mechanism of Islamic crowdfunding.

II. Literature Study

Crowdfunding

Crowdfunding is a growing alternative funding source for various profit and non-profit businesses ranging from personal loans to initial investments financed. The crowdfunding process itself is generally characterized by the success of "interactions between platforms, various founding campaigns that seek financial support for their ideas and businesses, and a large crowd of individuals (crowdfunders) who are interested in investing, promising, lending, or contributing ideas and this effort " Success of crowdfunding often depends on the willingness of foreigners to support other strangers for goals, products, or services that have not yet been realized and which they have little supervision or direct control. Even so, crowdfunding has emerged as a source finance that is increasingly common for entrepreneurial projects (and others) that seek capital

Parties related to Crowdfunding

Golic (2014) [14] concluded that crowdfunding is the result of social media, and is a system that requires close collaboration between three participating parties - entrepreneurs, investors (crowdfunders) and brokers (crowdfunding platforms). Each party has a mission that unites them to achieve goals that are generally desired. Individuals, SMEs, non-governmental organizations (NGOs) usually play the role of entrepreneurs. Through crowdfunding, entrepreneurs not only raise funds for their projects / businesses from a

large group of individuals but also test their business ideas.

Investors, called "crowdfunders", gather as a large group of members of the general public. They may be ordinary people who do not have the competence of professional investors. Crowdfunders recognize the potential of a project or consider certain promising ideas and thus each of them invests small financial resources. Crowdfunders receive non-financial benefits or financial compensation in return for their contributions. Prizes for investors in crowdfunding can be social returns, products or services, financial returns or refunds.

The crowdfunding platform is a virtual electronic intermediary between entrepreneurs and investors, where all communication and fundraising takes place. Crowdfunding platforms are online brokers who facilitate the process of transferring funds from those who want to contribute or invest in those who need capital. The platform operates by allowing those seeking funds to pitch on the site describing how much money they need, for what they need it and what, if any, investors receive in return for contributions. Prospective funders can then see the offer on the platform, interact with those who are

looking for finance and other potential funders and decide whether to invest or not. Projects and businesses are funded by a collection of contributions from many individuals, enabling innovators, entrepreneurs, and business startups to use their social networks to raise capital.

Business manager

Business managers or parties that need crowdfunding funding, are business entities engaged in certain business fields, in this discussion: managers of renewable energy. Business managers create an attractive portfolio of business ideas which are then spread on the internet to be able to attract investor sympathizers who have vision and motivation in the same field. The manager is responsible for managing the funds invested in him.

Islamic Crowdfunding

The concept of Islamic crowdfunding is almost the same as the crowdfunding concept in general. The difference lies in the application of "asset-backed" transaction mechanisms and profit loss margins. [15] propose a crowdfunding model that is in accordance with Islamic principles, shown in Table 2.1 below.

Table 2.1 Instruments and Islamic Crowdfunding Model in the Islamic Perspective

Financing Objectives	Crowdfunding Model	Form of Potential Entities	Contract Instruments
Islamic Charity	Donation Based	Microfinance Institution	Hibah, Qardhul Hasan, Murabahah
Product	Reward Based	Microfinance Institution, micro and small business, startup business	Buy and Sell / Bay'
	Loan Based / Debt Based	Microfinance Institution Micro and Small Business	Murabahah, Ijarah
Investment	Equity Based	Micro and Small Business (small enterprises), Startup Business (renewable energi)	Syirkah al Aqd dan Syirkah Al Milk
		Startup Business (renewable energi)	Musyarakah

Source: Hendratmi, 2018 (with any changes)

2.3 Renewable Energy

The Indonesian Government's policy on energy can be found in several predetermined regulations. In the Regulation of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number 12 of 2017 concerning the utilization of renewable energy sources for the supply of electricity, chapter 1, article 1, paragraph 2, states that renewable energy sources are energy sources generated from sustainable energy resources if managed with good, including geothermal, wind, bioenergy, sunlight, flow and waterfalls, and movements and differences in the temperature of the ocean layer. In the Law of the Republic of Indonesia Number 30 of 2007 concerning energy, article 3, states that energy management includes: Energy independence, ensuring the availability of energy from domestic and non-domestic sources, ensuring optimal, integrated and sustainable energy management resources, efficient use of energy, ensure people access to energy, increase domestic industrial energy capacity and services so that they become more independent, create jobs, and ensure environmental sustainability.

III. Research Methods

This research will incorporate literature findings from two fields: crowdfunding and renewable energy. Crowdfunding can play an important role at the beginning of the life cycle of renewable and sustainable energy projects. Various crowdfunding approaches can be used to finance the initial stages of developing renewable energy, especially when stakeholders are beneficiaries, or related groups related to environmental protection and sustainability. This research seeks to provide a proposal for a renewable energy funding solution in the Islamic crowdfunding

mechanisms. To achieve these objectives, the research approach is in the form of exploratory qualitative analysis with literature study methods. The main data of this study is information about the concepts and practices of crowdfunding in financing renewable energy projects originating from legal documents, books, journals, economic magazines, and articles related to research topics.

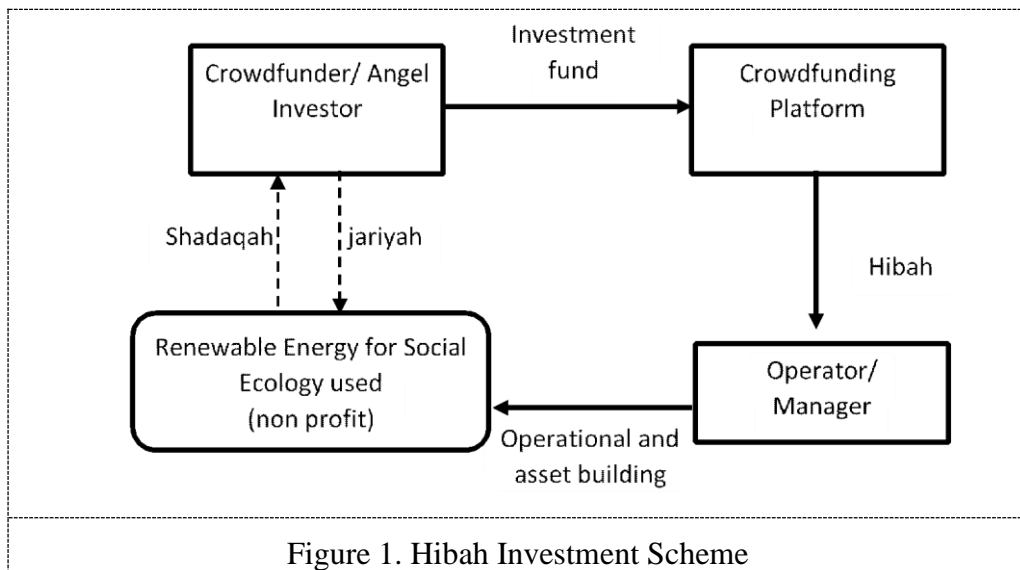
IV. Result and Discussion

Crowdfunding funding can be categorized as donation-based, equity-based, or loan-based depending on funding objectives and investment methods (Worldbank: 2013) [16] In Islamic crowdfunding, a similar concept is applied to crowdfunding financing for renewable energy projects. As a renewable energy project, of course the project is supported by the existence of an underlying asset for energy development that meets halal qualifications. Furthermore, in line with the chart of [8], there are development from Islamic crowdfunding, from donation-based (hibah and qardh), equity-based iesyirkah which consists of Mudharabah and musyaraka (profit sharing), and is based on debt financing such as Murabahah (costs plus profit margin), Ijara (leasing), which will be discussed in the respective financing schemes.

4.1 Donation Based

Donation-based crowdfunding is mostly given from angel investor like individual who concern in renewable energy project or by non-governmental organizations (NGOs). NGOs have used donation-based crowdfunding to withdraw donations for their mission or project. There are two kind of donation based in Islamic crowd funding, namely hibah and qardh scheme.

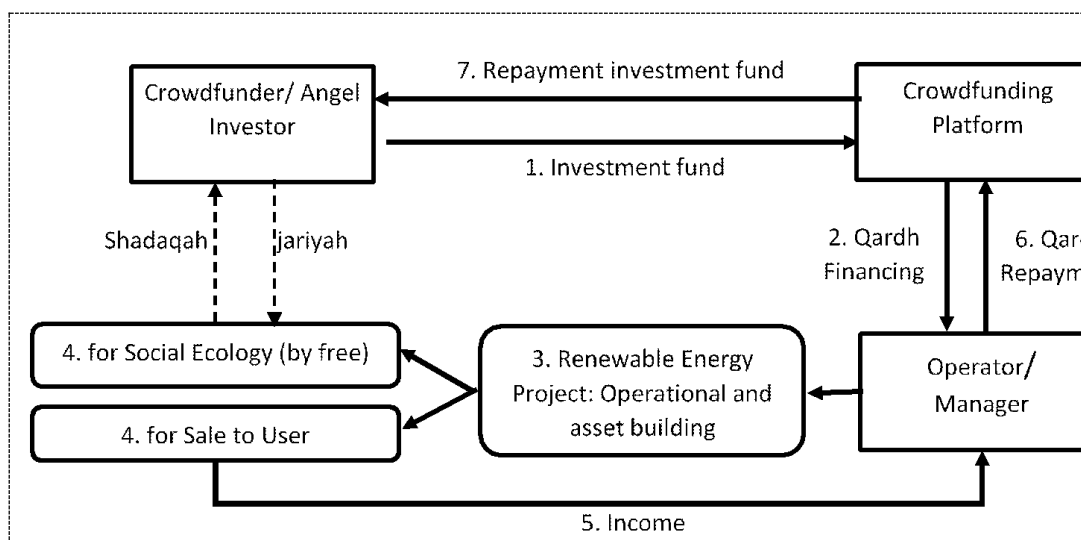
4.1.1 Investment with Hibah Scheme



In Hibah scheme, crowdfunders here as angel investor donate voluntarily without expecting financial compensation, because they have internal motivation to help and owned the share of renewable energy project. It much help the manager to fulfil their need the financial needs of projects. As the return, if the renewable energy project is built and giving impact to social and

ecology, it can be source of shadaqahjariyah to investor. In other side, there is type of other donation scheme that is qardh, when the investor only giving loan for project and has no willingness to take profit whether the manager only has responsibility to repurchase the loan itself (without fee/profit sharing).

4.1.2 Investment with a Qardh Scheme (Loans without Fees)



4.2 Equity and Loan Based with the Syirkah Scheme (Partnership)

4.2.1 Syirkah Investment Scheme (Mudharabah and Musyarakah)

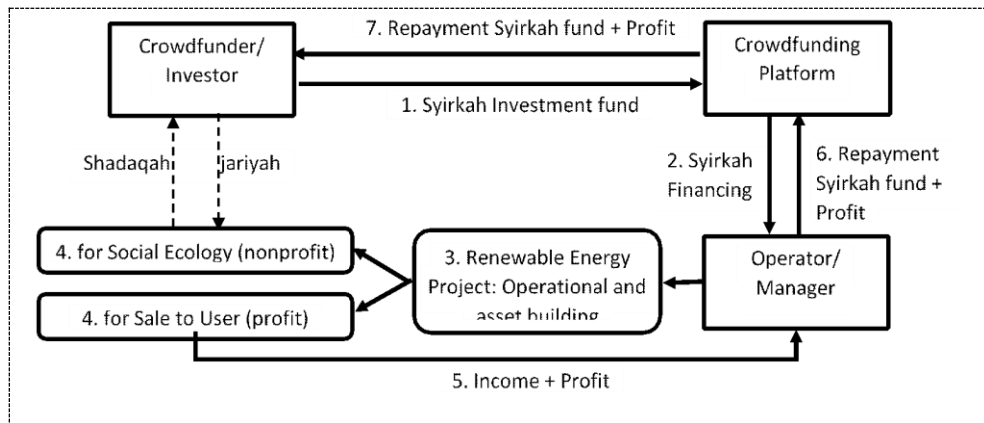


Figure 3. Syirkah Investment Scheme

In this equity-based scheme, investors generally become members of cooperatives or shareholders and thus become joint owners of the factory. Partnerships usually pay profit sharing or annual dividends to their members. Besides that, this partnership also can be held in short loan based. In public crowdfunding, lenders obtain fixed rate loans, providing for payments principal in accordance with the agreed timetable, crowdfunding platform sets the interest rate, which is usually higher than the level of savings available to lenders and lower than traditional loans available to borrowers. In Islamic crowdfunding, the scheme used is profit sharing, both using

revenue sharing and profit / loss sharing. This scheme is considered more equitable for managers and lenders because with profit sharing, if the manager gets a large yield, the percentage of the profits obtained by the lender is also large, whereas if the results are small, the distribution obtained is also appropriate so as not to burden and pressure the manager. Different things in the use of public crowdfunding, the use of fixed interest on capital that cannot be flexible follows the development of the business.

4.3.1. Murabahah Scheme

4.3 Debt Based Loans with Murabahah and Ijarah Schemes

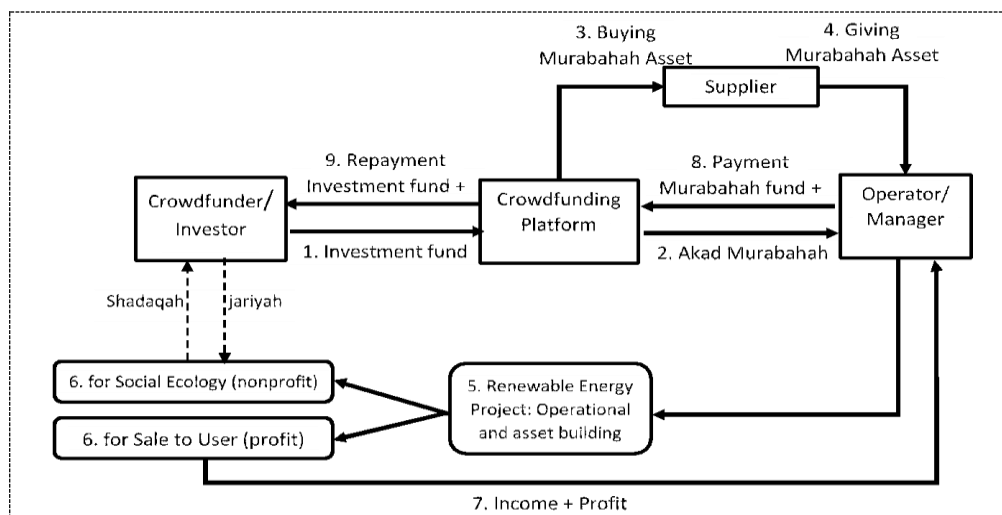


Figure 4. Murabahah Investment Scheme

In murabahah scheme, platform as intermediaries of investor buying the asset or machine which is needed by manager to build the renewable energy. The buying prices is

added with profit margin and divided into timetable according to credit payment ability of manager. From this scheme, the crowdfunders have right to get margin from the buying asset.

4.3.2 Ijarah Scheme

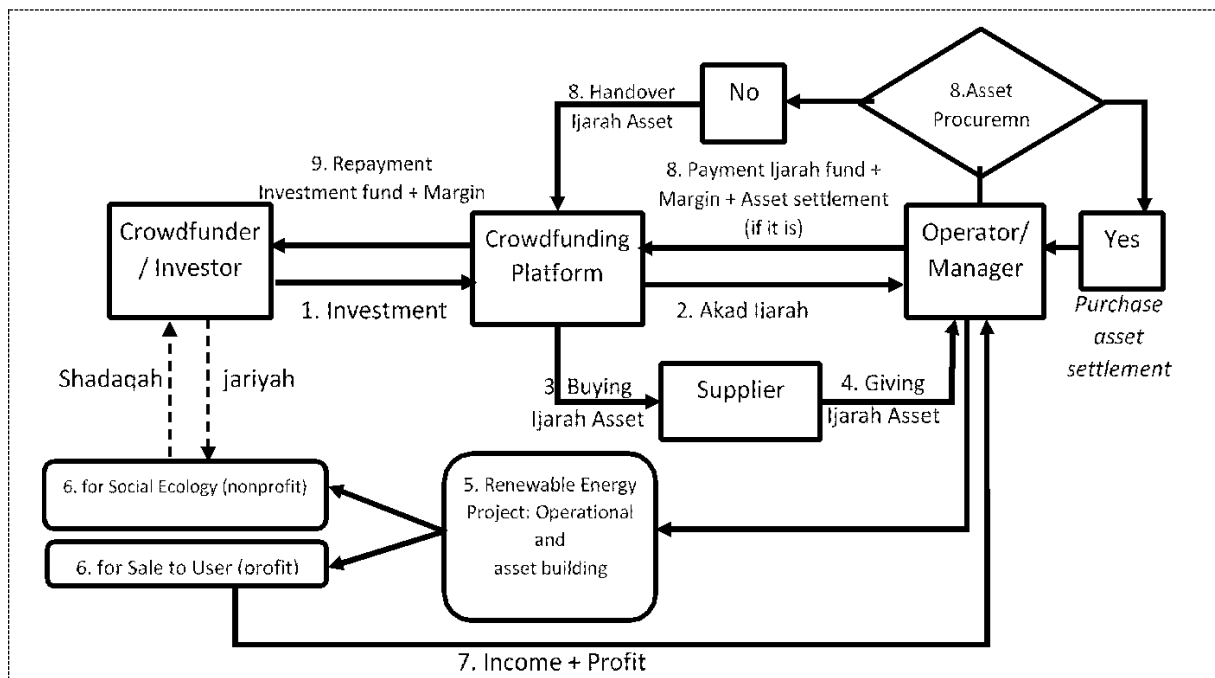


Figure 5. Ijarah Investment Scheme

Almost same with murabahah, in ijarah scheme, platform serve the asset or machine that manager's needed to build renewable energy which funding comes from crowdfunder. But in ijarah platform rent the asset to manager and they should pay rent cost each period (plus the instalment payment if they want to buy and own it). The rent cost and instalment payment from manager can produce profit, and that what is given to crowdfunder. As if the asset settlement brought by manager, the platform do the repayment investment fund +margin to crowdfunders.

Of all various types of crowdfunding, different scheme can be designed and applied according to the typical or

motivation of crowdfunders and the needs of manger to build renewable energy projects.

Community involvement in crowdfunding with the development of renewable energy can build community capacity, empower communities and enrich social capital. Participation of funds from recipients and their involvement in the initial stages of energy supply projects enable the development of productive alternatives with higher resource potential [17]. The donation, equity, loan, and debt is supported and contribute financially to manager operational costs and crowdfunders can get feedback as their internal satisfaction and profit (in some scheme). The further impact of the scheme application is not just for both

side but also to social and ecological sustainability.

V. Conclusion

Various studies on renewable energy show that this sector must be supported by the financial investment that can be obtained from various sources, one of them Islamic crowdfunding. Islamic crowdfunding provides various energy sector investment and financing contracts like donation scheme (hibah and qardh), equity and loan scheme (syirkah:mudharabahmusyarakah), and debt scheme (murabahah and ijarah). Hopefully it can become a source of funds for renewable energy development in Indonesia which not only bring profit to shareholder and stakeholders but also to the social and ecological sustainability.

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