An assessment of green economy in Central Java Province, Indonesia: conformity and transformation

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Abstract: This paper assesses the environmental performance of land-based economic sectors of Central Java, Indonesia. An assessment framework is designed and applied to two Districts: Banyumas and Purbalingga. It consists of two main elements, namely: (a) an assessment between the medium term development plans of the two districts in terms of their consistency with green economy ideas and (b) an assessment of the transformation phase (from research to the real green investment) that has been achieved by each district. Results show that development actors in the regions have a strong aspiration for 'welfare and justice' as the ultimate goal of development. However, their visions overlook one of the main objectives of the green economy, which is associated to the notion of 'environmental protection and climate stabilisation'. This assessment also suggests that research and advocacy have been limited which may prevent effective transformation towards a green economy in both districts. Finally, some forms of research and advocacy on green economy are proposed.

Keywords: green economy assessment; Central Java; conformity; transformation; land-based sector.

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1 Introduction

A large number of experts and many international organisations pay attention to green economy idea as the operationalisation of the concept of sustainable development.

Benson et al. (2014a) stated that green economy projects are gaining a political momentum and attracting investment and new players. Many parties and practitioners are not bothered by 'green' as a term (Wilton-Park and IIED, 2014), because they want to achieve the same traits: quality, outcome, and pattern of growth of economic activities.

Green economics, a discipline that combines knowledge from natural science and economics (Kennet and Heinemann, 2006), provides a solid scientific foundation underpinning green economy. Green economy is defined as an economy that can improve the quality of human life and reduce social inequality in the long term, as well as an economy that can protect future generations from serious environmental risks and ecological scarcity (UNEP, 2015). The green economy supports economic growth (pro-growth), employment (pro-job) and social inclusion. The basic premise is that greening various economic sectors can contribute to economic recovery and growth, prosperity and sustainable job creation, and at the same time meet the challenges of social inequality and environmental sustainability.

Central Java Provincial Government is determined to make its regional economy greener. It has set up a partnership under a program called Green Economy and Locally Appropriate Mitigation Actions in Indonesia (GE-LAMA-I). There is a need for an accurate and objective assessment process or mapping on how green the economy and development in Central Java is. This paper reports on the experience of Central Java Province in assessing green economy, with particular emphasis on land-based sectors.

The green economy assessment presented in this paper is limited to land-based sectors. It is defined as the land extractive economic sectors or sectors where utilisation of land is the main components of the sectors. These sectors include agriculture and forestry. IFAD (2013) highlights the important role of these sectors for green economy. Agriculture sector has the largest economic contribution in many developing countries and is estimated to have employed 1.3 billion workers globally in the operation of agricultural activities, the supply chain before and post harvest activities, and agriculture infrastructure development to open market access. The emerging green economy on the activities of the urban informal sector (Benson et al., 2014b; Chambwera et al., 2011), for example which is generated from solid waste management (UNEP, 2012), are not included in the discussion.

Geographically, the study is focused on Central Java Province as a case study assessment at the provincial level, while the District of Banyumas and Purbalingga become a case study on the regional level.

2   Green economy in regional perspectives

A region is the place of the various activities that are manifested in the form of: (1) production activities which are carried out by the business organisations or private sector; (2) consumption activities which is performed by an individual at the lowest level and collectively either by the household or community; and (3) the extraction of natural resources (Setiadi et al., 2008). Natural resources available in a particular region, often including hinterland areas, flows as input of production activities, which in turn is used to meet the market demand or household consumption. These principles underpin the present study of the green economy in Central Java.

The extractive regional economy depends on natural resources. In this regard, the environment serves as a supplier of raw materials and as a sink for absorbing residues

(such as emissions, waste, etc.) generated by the activities. Despite some success in minimising the impacts of economic activities, for instance through clean production (e.g. Bonilla et al., 2010) or eco-innovation (e.g. Carrillo-Hermosilla et al., 2009), it has been widely demonstrated that the environmental damage created by increased economic activity, both through the consumption of natural resources and energy as well as the disposal of residues, has increased, as it is evident in China (e.g. Zhang, 2012). The environment has been over exploited above its capacity to recover. IFAD (2013) states that the growth of agricultural production to meet current global consumption has been achieved in ways that do not consider the sustainability of our planet. As a result, forests in developing countries were cleared at an alarming rate. If the situation takes place on a larger scale and in faster rate, the risk of environmental degradation would rise, particularly when adequate efforts to conserve and to protect the environment are absent. In this condition, the environment may not be able to further support the regional economy and would threaten the economic sustainability of the region including employment (Setiadi et al., 2008).

There is a lot of empirical evidence showing that pro-conservation policies that are not integrated into economic policies fail in their implementation. Innovative methods and strategies ensuring a smooth transition toward greener economy need to be developed. This is in line with Bertrand and Larrue's (2005) view that environmental and natural resource management policies should consider the principles of economics. Efficient utilisation of resources in accordance with economic principles is expected to meet consumption needs and reduce environmental damage.

The green economy is seen as a concept that could overcome this problem. It has a wider scope than resource efficiency and technological innovation that serve mainly to improve the productivity of GDP; it also includes the protection of natural systems and efforts to make the economy more equitable and iclusive (Wilton-Park and IIED, 2014). The green economy aims to change the pattern of development that ignores the sustainability of natural resources. Green economy strategy is translated through the formulation of policies and programs so that natural resources can continue to provide economic, social, and ecological benefits in the long term.

In fact, regional development policies rarely consider environmental and natural resource indicators. Efforts towards 'greener' development call for accurate data projection on every sector of the economy, social and environment along the interaction amongst these sectors within the region both in short and long terms (Shearlock et al., 2000).

Today, there is a growing recognition that economic growth based on the utilisation of natural resources can still be achieved, though it should be conducted in different ways, strategies, and policies. 'Think and act differently' become a new policy slogan on natural resources management (IISD, 2005; Milbrath, 1996), which is a policy that: (1) put natural resources from just as a commodity to be an asset, (2) change its orientation from conventional-exploitation to innovative-conservation patterns and (3) change its orientation from short-term to long-term goals.

Efforts to develop greener economy are often overshadowed by beliefs that it will decrease in regional employment (Setiadi et al., 2008). Perhaps it is true if we think in the short term only. However, if we expand our analysis in measuring the stability of the employment sector in a region over a longer time horizon, the green economy both theoretically and practically is more promising. For example, a policy shift on greener energy sector in China resulted in the loss of 44 million jobs from 2006 to 2009, but it

then increased dramatically in 2010 due to the production of new and renewable energy (solar panels, wind power, and biomass), and it resulted in 472 thousand new jobs (Cai et al., 2011).

Studies in other countries (UNEP, 2011) also show that investment in green economy provides financial benefits through investment reduction in the public sector. For example, the restoration of mangrove areas in Vietnam worth 1.1 million USD has resulted in annual savings worth 7.3 million USD for the treatment of coastal embankment and for minimising the impact of routine typhoon confronting the region. A valuation study of forest area in the Leuser National Park estimates that conservation and selective use will provide greater economic benefits (worth 9.1–9.5 million USD) to the economy of the region, compared to the consumptive use and deforestation (worth 7 million USD).

A number of key elements of the creen economy in the context of climate change and other global environmental changes are worth highlighting. First, green economy includes activities that strengthen urban and regional economy and improve the welfare of the population. Second, green economy strives for economic growth that is just and considers well-being. Third, green economy drives economic growth coupled with the reduction of greenhouse gas emissions and degradation of the environment and natural capitals.

2.1 Models of policy options for implementing green economy

UN General Secretary in 2010 has developed strategies to encourage green economy that underpin other policies at the operational level (Brand, 2012). Some others have published guidelines for transitioning towards a greener economy (Benson et al., 2014a; UNEP, 2012; Wilton-Park and IIED, 2014). There are a number of policy options to encourage green economy, including the application of pricing instruments, regulatory tools, investment, and mainstreaming.

However, there is little information and evidence showing that these green economic policy packages were able to help the poor, and in particular create new job opportunities for them (Wilton-Park and IIED, 2014). Benson et al. (2014a) state that sustainable public procurement and certification favour large corporations or business players having long experience in a particular field, but often create new problems for small and newly established businesses. This is one of major challenges for the green economy due to a gap in the implementation of policies at the global, national, and local levels (Benson et al., 2014a).

2.2 Development of green economy assessment framework

This assessment framework defines the achievement of transition toward green economy based on two important dimensions: conformity and transformation. While the former examines the consistency of regional development goals with the idea of green economy, the later assesses regional development programs in green economy transformation stages.

2.2.1 Conformity

UNEP (2014) has published a guidebook presenting a framework for assessing green economy through policy formulation lens, which starts from issue identification, policy formulation and appraisal, to monitoring and evaluation. This approach has been piloted in Ghana, Mauritius and Uruguay (see UNEP, 2015). However, this paper argues that the UNEP's guideline is more appropriate directed to plan and to prepare an ideal green economic policy, which seems independent and self-sufficient, than to locate current efforts towards green economy within ongoing development policy.

Therefore, in the mapping of the green economy, or to be precise, in assessing regional development plans from green economy perspective, this study partly adopts the green economy scoping process developed by Bass (2013). It emphasises the clarification of the goals or the expected outcomes of the regional development plan using the green economy lens. In understanding green economy, however, there has been some confusion between goals (objectives) and strategies (means). In this context, Bass (2013) suggests that the goals of green economy cover the quality of life, environmental protection and climate stabilisation, and justice; while the strategies include economic growth, sustainable natural resource management, and strengthening resilience.

Most regional development plans follow a generic content structure or encompass basic elements, incuding the statement of visions and missions or policy directions. Drawing from this fact, these elements need to be criticised and open for examination. Table 1 descibes the conformity dimensions of the assessment framework.

Table 1   Green economy assessment framework for regional development plan

Regional development plan elements		Green economy lens
Vision	Goals/Objectives	Human's quality of life (well-being)
		Environmental protection and climate stabilisation
		Equity/fairness
Missions Policy Directions	Strategies/Approaches	Economic growth
		Sustainable natural resources management
		Strengthening resilience

Source: Adapted from Bass (2013)

In the regional development plans, both visions and missions or development policy directions can be observed, explicitly or implicitly. Explicitly, it can be seen through the use of specific terms. For example, is 'green economy', 'green growth', 'low carbon economy', or 'inclusive economy' introduced in the plan? Implicitly, it can be seen whether the development program is oriented towards a green economy; for instance, the extent to which they give priority to business diversification, natural resource productivity improvement, environmentally friendly job creation, environmentally sound infrastructure investments, natural resources efficiency enhancement, and etc.

Additionally, regional development plans also contain a key element, which are the short-listed or priority programs intended to operationlise the regional vision statement or objective. Then, these short-listed and priority programs identifed to be relevant for green economy can be further examined for their relative position or quality based on the following questions:

First, whether the programs tend to emphasise solely the regional income generation or they have additional purposes other than income generation?

Second, do these programs tend to put an emphasis on the aspect of justice or social inclusion, and to what extent? Raworth et al. (2014) identify four possible levels of how issues of equity and social inclusion are considered in the development of green economy. At the worst level, it can be ensured that there is no either social analysis or social action. On the next level, there are limited strightforward supporting policies that are designed, for example through compensation and cash transfers. Then, at a better level, there is a joint effort of economic development through participatory-based approach. Finally, at its most ideal form, there is a transformation of the entire economic system, such as through the fulfillment of the rights of the poor, the elimination of gender gap, and the reformation of government system, etc. However, one remaining important consideration for making green economy policy is responsive to social equity issues is to devise a specific policy or program that is specific to the local context (Raworth et al., 2014).

Third, do the programs emphasise greener outcomes, and to what extent? The orientation of each program is essential to understand whether a program achieving a greener outcome. At least, there are three possible grades of green economy programs' orientation, from the lower to higher grade accordingly: reduction of greenhouse gases (GHGs) emission, resource efficiency, and safeguarding the ecological boundary or ecological limit. Table 2 simplifies a framework for green economy assessment at the level of programs.

Table 2   Green economy assessment framework at the level of programs

Regional development plan elements	Green economy lens	Level/position
Shortlisted/Prioritised Programs	Economic growth (A)	1. Income generation
		2. Income generation +
	Environmental protection and resilience (B)	1. Greenhouse gases (GHGs) reduction
		2. Natural resource efficiency
		3. Ecological limit preservation
	Equity/Social issues and Quality of life (C)	1. No social action and analysis
		2. Supporting policy
		3. Co-design
		4. Total transformation

Note: + means with additional element of B and/ or C.
Source: Adapted from Bass (2013) and Raworth et al. (2014)

2.2.2 Transformation

Benson et al. (2014a) of the Green Economy Coalition develop steps towards green economy that is useful in assessing the extent of the contribution of an institution in the process of transformation towards a greener economy. Short-listed or prioritised programs, which are outlined in regional development plans and are relevant to green economy, needed to be further categorised. Each program may fall into one or more of the following categories:

1   *Research or information sharing*: Allocation of research schemes or implementation of research activities on green economy themes may fall in this category. It also includes seminar and dissemination of reserach outcomes to increase exposure of green economy idea to decision makers and the public in general.

2   *Consultation/dialogue*: This category includes any programs that aim to invite all strategic actors or relevant stakeholders to make a stronger commitment or come to an agreement to achive greener economy.

3   *Advice/consultation service*: This category covers any programs that involve transfer of knowledge and best practice on green economy to other parties.

4   *Advocacy/lobbying*: This category includes programs that aim to promote the green economy, especially through formal measures (e.g. the development of laws and regulations). This also includes programs aimed at building coalitions, such as the development of networks and alliances across institutions, sectors and actors.

5   *Investing*: This category refers to programs that allocate resource to fund on-the-ground activities, and produce outputs oriented to improving efficiency and conservation of natural resources and the environment. At the same time, it also produces co-benefits by increasing the welfare (e.g. income and well-being) of marginal communities and by reducing social inequality.

In short, this section has demonstrated that conformity and transformation are two essential dimensions that can be used to develop a framework for green economy assessment. It particularly allows government institutions to understand their achievements in moving toward a greener economy and to identify aspects that need further attention.

3   Methods

This framework was applied in land-based economic sectors in the Province of Central Java. Two case study locations from GE-LAMA-I project in the province are selected, namely the Districts of Banyumas and Purbalingga.

In operationalising the above assessment framework, the data was collected from a number of approaches including desk study, questionnaire survey and focus group discussions (FGD). In Central Java Province, desk study consists of two major reviews on medium-term development plan (RPJMD) of Banyumas and Purbalingga Districts. The review was directed to look at the consistency of the vision, mission and policy direction of the RPJMD with the green economy criteria. The desk study is also important to understand the conditions of development programs in land-based sectors (agriculture, plantation, and forestry).

Then, a questionnaire survey was conducted to explore information about both short-listed and prioritised government programs that have relevance to the green economy, especially those that have been or are being implemented. Most respondents of the questionnaire survey were government officers at the institutions that are responsible for programs in land-based sectors. Overall, 40 respondents participated in this survey. They represented District Agriculture and Plantation Agency, Forestry Agency, Mining and

Energy Agency, Environmental Agency, Water Resource Management Agency, and Trade and Industry Agency. Additionally, the respondents also include government officers at the Development Planning Agency (BAPPEDA) that recognise substances of various district development programs. A number of staff from government-owned agriculture and forest companies (e.g. PERHUTANI and PTPN) and representatives of farmer organisations also participated in this study. The selection of respondent was based on appointment from the head of each organisation. Three sets of questionnaire were distributed. The first two set of questionnaires employ likert scale from 1 to 5, and all respondents were required to evaluate the goals of short-listed programs based on designed green economy assessment framework. As for the third type of questionnaire, respondents were required to complete relevant checklists on the types or forms of short-listed programs. Table 3 illustrates all these three types of questionnaires.

Table 3 The concept of the study questionnaire

Questionnaire Type 1					
Short-listed district program	*Assessment score on the program's objectives*				
	GDP	*Job opportunity*	*GHG reduction*	*Resource efficiency*	*Ecological limit*
Program 1	…	…	…	…	…
Program 2	…	…	…	…	…
…	…	…	…	…	…
Program n	…	…	…	…	…

Questionnaire Type 2				
Short-listed district program	*Assessment score on the program's social objectives*			
	Compensation for the poor	*Co-design of economic activities*	*Fulfilment of the right of the poor*	*Governance reformation*
Program 1	…	…	…	…
Program 2	…	…	…	…
…	…	…	…	…
Program n	…	…	…	…

Questionnaire Type 2					
Short-listed district program	*Checklist on the types of the programs*				
	Research/information sharing	*Consultation/dialogues*	*Advice/technical assistance*	*Advocacy/lobbying*	*Investment*
Program 1	✗/✓	✗/✓	✗/✓	✗/✓	✗/✓
Program 2	✗/✓	✗/✓	✗/✓	✗/✓	✗/✓
…	✗/✓	✗/✓	✗/✓	✗/✓	✗/✓
Program n	✗/✓	✗/✓	✗/✓	✗/✓	✗/✓

Notes: Score information: (1) Does not have focus at all; (2) Has a little focus; (3) Has enough focus; (4) Has a substantial focus; (5) Has a very significant focus. Checklist information: (✗) No; (✓) Yes.

At the last stage, this study involved a Focus Group Discussion (FGD) at each district government. Respondents representing each institution were invited to participate in the FGD. They were informed the result of the questionnaire and evaluated the goals of selected programs separately. Therefore, in each FGD at the first section, participants were divided into three sub-groups to discuss and to build consensus within group. The second section of the FGD was directed to get consensus between groups to reflect a more solid current state of green economy prospect at district level.

4   Findings

4.1   Regional development plan's visions and missions from green economy lens

So far none of the vision, mission, and development policy direction contained in Central Java Province's RPJMD do not explicitly and specifically use words or phrases such as green economy, low-carbon economy, green growth, or resource efficiency. This fact also applies to the other two case study districts.

Assessments of the vision contained in RPJMDs show that generally development actors in the region have a strong aspiration for 'welfare and justice' as the ultimate goal of development. Their existing visions overlook one of the main objectives of the green economy, which is associated to the notion of 'environmental protection and climate stabilisation'. Therefore, it is possible to mention that development in Central Java Province and two case study districts have not been fully interpreted by development actors for the transition towards a greener economy. However, the term such as 'environmental friendly' is relatively often used in the RPJMD both at the provincial and the district level. Terms such as sustainable development and social justice are less mentioned, i.e. only one or two words in the whole document.

A number of missions and development policy directions have paid attention to green economy and the role of land-based sectors (e.g. agriculture and forestry). For example, the first and fourth missions of the RPJMD of Banjarnegara District, one of district in Central Java Province, aim to 'deliver an increased prosperity through agriculture-based development and potential locally competitive-based development [Mission 1] and to attain sustainable environmentally-sensitive development [Mission 4]'.

However, the translation of the regional development missions, which are apparently linked to green economy, needs to be further scrutinised because they are not relevant to the original idea of green economy at the level of development programs. For example, the translation of the fourth mission stated in the RPJMD of Banjarnegara District above – 'attain sustainable environmentally-sensitive development' – is all about development of physical infrastructure programs. The term 'sustainable environmentally-sensitive development' could be interpreted as efforts to maintain and possibly to increase the quality of the environment, in the process of the infrastructure development. Yet, all listed programs under this mission are entirely infrastructure construction, with limited environmental and ecological sustainability considerations. In other words, the construction of infrastructure gains central attention, while the preservation of natural resources and the environment remain a peripheral goal.

The same condition is also found in the Central Java Province and the district of Banyumans and Purbalingga. Table 4 presents the visions and missions of development contained in the RPJMD, which are relevant to the development of green economy, particularly in the land-based sectors.

Table 4 Summary of the regional vision and mission related to green economy

Region/government	Element in the RPJMD	
Central Java Province	Vision	To achieve Central Java Province as a prosper and self-sustained region based on transparency value and accountability spirit
	Mission	To deliver just and prosper community, poverty alleviation, and dealing with unemployment (Mission 2)
Banyumas District	Vision	To achieve Banyumas District which is health and just towards prosper, competitive, and civilised society based on believe and obedience to God
	Mission	To develop rural economic centres based on agriculture commodity as main business and others as supporting sector through better institutional arrangement, investment, human resource, market access, and state protection (Mission 3)
		To enhance competitiveness of agribusiness and small and medium enterprises (Mission 4)
Purbalingga District	Vision	To achieve Purbalingga District which is advanced, self-sustained, and competitive towards prosper, just and honourable society
	Mission	To improve Purbalingga's economic growth which is more qualified and fair through the utilisation of the entire potential of the region (Mission 4)
		To realize the preservation of the environment through improved natural resource management and the preservation of biodiversity (Mission 6)

4.2 Regional development program confirmity and transformation

Central Java Provincial Government in the development medium plan 2013–2018 carried out a number of green economy-sound programs, either mandated programs derived from their obligatory functions or non-mandated programs as their optional affairs. The obligatory functions of Central Java Province include public works, environment, land, and food security, while optional affairs include agriculture, forestry, energy and mineral resources, and tourism. In Central Java, however, industrial, social, and employment programs are still removed from the vision of green economy. The following is the list of development programs in Central Java Province that are relevant to green economy, particularly in land-based sectors. Some directly linked programs include:

- *Protection and Conservation of Natural Resources Program.* This program seeks to increase land conservation through the planting of conservation trees in protected areas, while planting local trees or plants outside the forest areas.

- *Green Open Space Management Program*. This program aims to improve the quality of green open space in urban areas.

- *Natural Resources Rehabilitation and Recovery Program*. This program addresses environmental degradation of coastal areas through development of erosion protective facilities, replantation of mangroves, provision of ambient air quality status information; the reclamation of mined land, and the construction of monitoring wells.

- *Forest and Land Rehabilitation Program*. This program seeks to reduce the percentage of critical forest and land. It also seeks to increase the percentage of forested areas, which are utilised for mixed-cultivation or agroforestry uses.

- *Forest Resources Utilisation Program*. This program aims to increase the number of certified forest management units, the percentage of the certified forest products (SVLK), and the contribution of the forestry sectors to the GDP.

- *Forest Development and Planning Program*. This program strives to prepare synchronised and controlled forest planning documents. It also aims to increase technical considerations in the process of stabilisation and forest stewardship.

- *Forest Biodiversity Conservation and Protection Program*. This progam seeks to increase the percentage of protected areas with increased quality management and to reduce the risk of forest biodiversity threats.

- *Forest Community Empowerment Program*. This program focuses on efforts to increase the percentage of forest community business units.

While indirectly linked programs include:

- *Development and Management of Irrigation and Swamp*. This program seeks to increase the percentage of irrigation networks with good condition and the coverage of irrigation areas, and to develop participatory-based irrigation management.

- *Rivers and Lakes Management and Conservation*. This program strives to increase the quality of rivers and lakes and to facilitate the construction of dams or reservoirs.

- *Capacity Building Program for Natural Resources and Environmental Management*. This program focuses on human resources development and institutional capacity building.

- *Information Quality Improvement Program for Natural Resources and the Environment*. This program seeks to increase the availability of and access to natural resource and environmental information in Central Java Province.

- *Land Arrangement Program*. This program focuses to develop better arrangement of land ownership and utilisation. This program seeks to increase the number of mapped land parcels, to address remaining land conflicts; to replace village's treasury land for public development, and to provide certification of public land in protected areas.

- *Food Security Improvement Program*. This program strives for food sovereignty. It seeks to provide supporting regulations and information on supply, prices and access to food in the region. It also strengthens main food supply particularly rice and increases protection to food-insecure areas.

- *Food Diversification Program*. This program focuses on both diversification of food supply and food consumption pattern.

- *Development of Renewable Energy and Energy Conservation Program*. This program attempts to increase the percentage contribution of renewable energy out of total energy consumption.

- *Human Resource Development Program in the field of Energy and Mining*. This program aims to increase the exposure of environmentally friendly planning and technique to stakeholders and practitioners who are involved in the energy and mining sectors.

- *Tourism Destination Development Program*. This program aims to increase the average length of stay and the average of spending of both domestic and foreign tourists.

- *Tourism Partnership Development Program*. This program attempts to increase the involvement of community-based organisations and local community groups and networks in developing tourism activities.

Governments at the district level have developed a number of policy directions, which are in line with green economy. Implicitly, these policy directions aim to support transformation toward green economy. These policy directions include: firstly, conservation, rehabilitation and the improvement of forest management in order to maintain their ecological functions and to increase their economic benefits for the community. Secondly, diversification of food for consumption and availability of food supply which is safe and affordable for the whole society. Thirdly, development of agribusiness with a focus on institutional revitalisation, improvement of the quality of human resources, and the adoption of technology innovation in order to increase the quantity, quality, and competitiveness of agricultural products. Fourth, development of tourist destinantions as a major driver of the regional economy by increasing the capacity, quality, and promotion of tourist destinations. Fifth, preservation of natural resources and environmental functions by improving the quality of management of natural resources and the environment. Finally, prevention of pollution and environmental damage through increased public and policymakers' awareness towards environmental conservation, utilisation of eco-friendly technology, and enforcement of environmental laws.

Table 5 summarises a number of development programs contained in the RPJMD of Banyumas (Pemkab-Banyumas, 2013) and Purbalingga Districts (Pemkab-Purbalingga, 2010), which have been linked to green economy, particularly in land-based sectors. It also confirms that Banyumas District has more sound green economy programs than the Purbalingga District. In Banyumas District, about 12% out of 170 regional development programs are identified as relevant to green economy. A smaller number of equivalent programs exist in Banjarnegara.

Table 5   Summary of the district's development programs related to green economy

Programs	Banyumas	Purbalingga
Improvement of quality and access to natural resources and environmental information	✓	
Prevention of pollution and environmental damage	✓	✓
Protection and conservation of natural resources	✓	✓
Development and management of irrigation and swamp	✓	
Rivers and lakes management and conservation	✓	
Green open space management program	✓	
Agriculture land use conversion control	✓	
Food security program	✓	✓
Farmers empowerment and technical assistance program	✓	
Land arrangement program	✓	✓
Land conflict resolution program	✓	
Farmers' quality of life improvement program	✓	
Improvement of value added and marketing for agriculture and agroforestry products	✓	✓
Agriculture and agroforestry technological modernisation	✓	
Agriculture and agroforestry production scale up	✓	✓
Agriculture technical assistant empowerment program	✓	✓
Agribusiness development program	✓	
Forest and land rehabilitation program	✓	
Increasing quantity and quality of forest-based products		✓
Forest protection and conservation		✓
Improvement of farming skills and farmer's institution management		✓
Spatial planning and controlling		✓

5   Discussion

In general, this study suggests that the regional development programs of the land-based sectors in these two districts are already above the average or 'somewhat green'. These programs are not yet at the highest level or 'totally green'; they have not put adequate and significant attention to all goals specified in the green economy framework. Consensus-based assessment process conducted within and between groups shows that the economy of Banyumas District is greener than Purbalingga's economy (see Figure 1).

Figure 1 Consensus-based assessment against the programs' objectives of the land-based sectors in Purbalingga and Banyumas districts

Purbalingga District   Banyumas District

This assessment has indicated that the goal of green economy in Banyumas is to create jobs and improve regional income or GDP. In Purbalingga, the existing program has given more emphasis to the generation of regional income, but other four components of green economy objectives are relatively underdeveloped than those in Banyumas. Overall, there is a potential to further develop all objective elements in the existing regional development programs.

This assessement corresponds to empirical data and identified challenges, either at the provincial or district level. In Central Java, the agricultural sector is increasingly marginalised and this has been marked by changes in the composition of regional economy structure and employment. The agricultural census conducted by the National Bureau of Statistic or BPS (2013) shows a similar trend, where the absolute number of farming households declined significantly. The number of agricultural labors has decreased by approximately 74.5% since 2003 or it has fallen by 8% in comparison to previous year. It is suspected that labors from agricultural sector have shifted to the industry and construction sectors, whose labors increased respectively by 9.55% and 13.5%.

In the period of 2009–2013, rice-harvested areas in Central Java decreased, almost covering 130 thousand hectares (BPS, 2013). Areas available for rice crop plantation are getting limited. For example, in 2013 approximately 67 thousand hectares of rice field area available in Banyumas District and it is now about 64.5 thousand hectares left (BPS, 2016). During the same period, the rice field areas in Purbalingga also decreased slightly and remain less than 40 thousand hectares.

Structural poverty is found in Banyumas District to have affected the livelihood of farmer households, as the average of agriculture land ownership per household is relatively low, at about 0.1 hectares per household. About 50% of farmer households in Banyumas District fall into this category. In a single plantation season for about 4 months, farmers effectively work only about 1.5 months, and then leave 2.5 months without any other activities. Without any policy intervention, they will remain poor and cannot be more productive. Many land owners and farmers are elderly, so they are not able to manage their land optimally, while young generations are reluctant to participate in agriculture sectors due to poor career prospects.
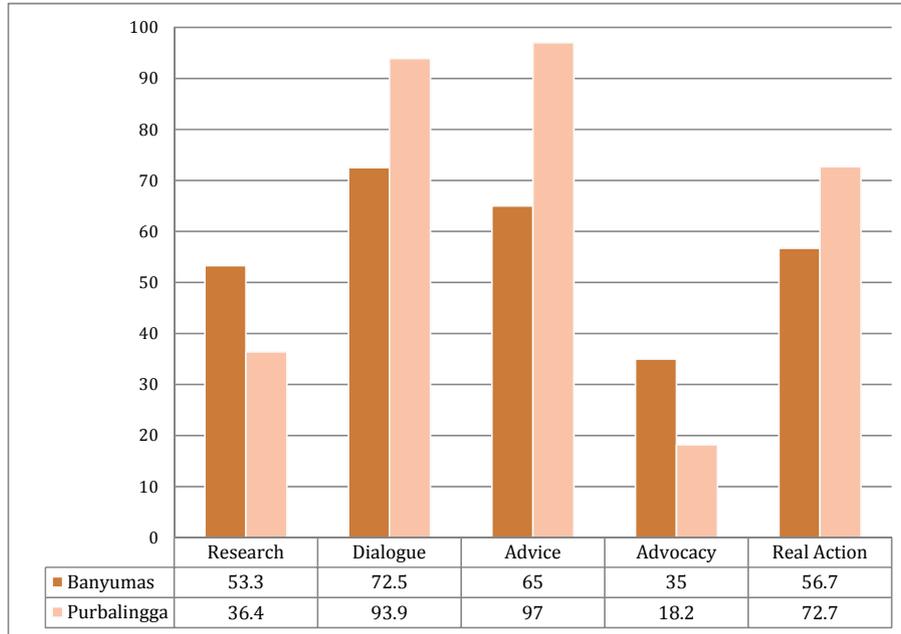
In Purbalingga, although the agriculture sector accounts for the largest share of GDP, the GDP growth from this sector has been relatively low compared with other sectors. In 2013, for example, it was recorded at 2.4% compared to financial and services sector at 10.8% or manufacture sector at 6.2%. However, some have interpreted the declining share of contribution in agriculture sector as a natural phenomenon and even consider this as a sign of progress. They argue that it is a signal of transition from traditional economy (agriculture) towards modern economy (e.g. industry). The agricultural sector is considered incapable of reviving the regional economy and accommodating employment. Additionally, they argue that measures to increase the efficiency of agricultural sector are always associated to a decline in labor absorption.

The agricultural sector in Central Java contributes to 6.4 million tonnes of CO_2e. In the midst of a number of limitations in the implementation of the Regional Action Plan for GHG Reduction (Sugiri, 2015), Central Java is one of the provinces that are categorised as aggressive in reducing GHG emissions. Central Java Province is now trying to achieve its reduction target. One of the initiatives aims to recover its forestry sector. In Central Java, in 2012, forest areas nearly cover 1.4 million hectares, which consist of approximately 651 thousand hectares of state forest and 743 hectares of community forests. This forest coverage has increased by 26% compared to the 2008 coverage, which were only slightly above 1 million hectares (Pemprov-Jateng, 2013). This achievement is supported by the success of forest and land rehabilitation program, which is integrated with community-based plant nursery program and the Indonesian One Billion Trees Movement. However, at the same time the destruction of in 2012 continued and has increased by approximately 28.5% from 2008, with about 5900 hectares of forested land damaged, either by illegal logging and forest fire.

The contribution of forestry sector to the GDP of Central Java in 2012 is only 0.5% (Pemprov-Jateng, 2013). This value is certainly less significant due to convetional calculation of the GDP, which excludes social benefits and environmental values of the forest ecosystem. Social programs related to the green economy are relatively limited in both case study districts. These are limited in the form of supporting policies only, and have not yet reached the co-design stage or even total transformation. Regional development programs in the district of Banyumas and Purbalingga are mostly presented in the form of dialogue, advice – gaining rather than providing advice – and investment or real activity. These exisiting regional development programs, however, have given little attention to green economy research and advocacy. Thesi situation may pose barriers to the green economy transformation in both districts.

In order to accelerate the transformation to greener economy, research is needed particularly to build deep understanding or knowledge on green economy. This understanding is not only about problem solving but also other knowledge, which is highly crucial for agent of change, particularly in convincing that green economy is sensible option. Weible et al. (2012) classify three types of knowledge that must be developed by the agents of change, namely: analytical knowledge, local knowledge, and knowledge of other sub-systems or wider sub-system. Sub-system is a network of actors within and outside government in a single policy domain and they may influence or be influenced by policy development.

Figure 2 The percentage of green economy type in Banyumas and Purbalingga districts

	Research	Dialogue	Advice	Advocacy	Real Action
Banyumas	53.3	72.5	65	35	56.7
Purbalingga	36.4	93.9	97	18.2	72.7

Analytical knowledge consists of knowledge to give reasons, to explain causal relationships, to evaluate the connection between interventions and outcomes, and to describe phenomena. This analytical knowledge is important because basically human, including policy makers and business actors, have limited time and skill to generate information and comprehend all available informations for analytical purposes. Therefore, research to expand analytical knowledge on green economy either at the provincial or district level needs to be fostered. In this context, the research should inform policy makers, business actors, and broader public on: (i) Why does green economy matters? (ii) How can green economy bring prosperity? (iii) What factors contribute to the green economy and what undermine this endeavour? and (iv) What are success indicators of green economy and how to measure it? How to evaluate it? Additionally, empirical research to deliver best practice of green economy is also essential.

The second type of essential knowledge to transform green economy is local knowledge because of variation in geographical, social and economic conditions from one district to the other districts. Weible et al. (2012) argue that basic condition of a region has a contribution to influence the outcome of a policy. In other words, a similar policy may result in different outcome due to this basic varation. Agent of change needs to be aware that each policy actor in each district is unique, and so their social, economy and institutional configurations. Therefore research to help agents of change to aware on this reality needs to be encouraged. Some important research themes include: (i) Key actors or leading sectors to promote green economy; (ii) The existing framing of green economy in the government and business actors; (iii) The best communication strategy to draw attention policy actors on green economy; and (iv) Strategic or potential locations which are required to implement particular green economy projects.

The last type of knowledge is the knowledge of other sub-systems or wider sub-system. In principle there is no a single policy which is independent of other policies. Green economy policy is extremely connected for instance to water resource management policy, land and spatial policy, export and import policy on agriculture and forestry product, international certification policy, etc. Research exploring the connection of these policy domains including causal impacts oneone policy to other policy is needed.

Research is important to facilitate the transformation of economy towards greener directions. However, policy actors, either at provincial or district level, have their own values or ideologies when interpreting the concept of green economy. Their values are determined by their principle in views the relationship between nature and human, and between the role of government and market, and other priority in life such as freedom, equity, security, culture, identity, and religion (Weible et al., 2012). These values are difficult to change. Research outcomes are sometimes marginalised as Weible et al. (2012, p.10) state 'many technical and scientific disputes are actually disputes about values'. Specifically, Read (2007) states that scientific discussion about economy is not science, it is a philosophy. Thus, advocacy is necessary to gain greater understanding on these values. With the ability to recognise these various values, the agent of change has advantage to comprehend the basic assumptions of the other parties in making decisions and allows mutual understanding with the parties that have similar or overlapping values and ideologies to flourish.

This paper has presented some arguments that can be further articulated to promote green economy. These include: (i) Humans are part of nature and so is the economic system that is basically developed by humans to meet human needs; (ii) The current economic model could be made environmentally friendlier with the support of the government through gradual and systematic adjustments to market distortions on the products and services that are environmentally friendly; (iii) Economic players have a basic freedom to choose the best economic model for their business without eliminating the opportunity for other economic players who are eager to develop a greener economy; (iv) Economic welfare and security or peace influence each other – and therefore it is absolutely necessary to promote the distribution of economic welfare, including the welfare of those who livelihoods depend on ecosystem services; (v) Green economy can provide benefits and bring wealth even greater and in longer-term in comparison to the current conventional economic models; and (vi) Development of a green economy does not contradict religion principles, even it challenges the implementation of religious values.

6   Conclusion

This study shows the status of regional development vision of Central Java Province and by presenting a detailed assessment of the regional development programs of land-based sectors (e.g. agriculture and forestry) in two selected districts from a green economy perspective. This case study shows that development vision of the districts has been dominated by the idea to achieve 'welfare and justice' instead of 'environmental protection and climate stabilisation'. In other words, the development programs in land-based sectors have been limited to the generation of the regional revenues and incomes. Environmentally sound programs have been concentrated on improving the efficiency of the use of natural resources. Yet they have not been directed to determine the ecological

limits of the existing resources, which in fact are useful for planning and ensure a level of utilisation of natural resources. Additionally, the purpose of the existing development programs at the province and district levels, is not specifically directed as efforts to reduce GHG emissions.

This assessment indicates that regional development programs at the district level have put more than enough attention to dialogues, getting advices and real investments, although they are open for further improvement. This paper highlights the urgency of research and advocacy on green economy as future challenges that have to be faced to make the local economies in Central Java greener. This paper lays a number of research themes or questions to support the acquisition of three important types of knowledge – analytical, local and sub-system – with regards to green economy. Green economy advocacy needs to be built with acknowledgement of various existing worldviews on the relationship between human and nature, and between the role of government and market, and other fundamental principles so constructive engagement particularly to communicate and promote green economy ideas become effective.

References

Bass, S. (2013) *Scoping a Green Economy: A Brief Guide to Dialogues and Diagnostics for Developing Countries*, IIED, London.

Benson, E., Bass, S. and Greenfield, O. (2014a) *Green Economy Barometer: who is doing what where,and why*? Green Economy Coalition.

Benson, E., Best, S., Pozo-Vergnes, E., Garside, B., Mohammed, E.Y., Panhuysen, S. et al. (2014b) *Informal and Green? The forgotten voice in the transition to a green economy*, IIED, London.

Bertrand, F. and Larrue, C. (2005) 'Regional sustainable development in France: assessing the environmental implication', *European Environment*, Vol. 15, pp.282–293.

Bonilla, S.H., Almeida, C.M.V.B., Giannetti, B.F. and Huisingh, D. (2010) 'The roles of cleaner production in the sustainable development of modern societies: an introduction to this special issue', *Journal of Cleaner Production*, Vol. 18, pp.1–5.

BPS (2013) Sensus Pertanian 2013, BPS, Jakarta. Available online at: http://st2013.bps.go.id/dev2/index. php/ site?id=3300000000&wilayah=Jawa-Tengah

BPS (2016) Central Java Province in Figures 2016, Central Java Bureau of Statistic, Semarang.

Brand, U. (2012) 'Green economy – the next oxymoron? No lessons learned from failures of implementing sustainable development', *GAIA*, Vol. 21, No. 1, pp.28–32.

Cai, W., Wang, C., Chen, J. and Wang, S. (2011) 'Green economy and green jobs: myth or reality? The case of China's power generation sector', *Energy*, Vol. 36, pp.5994–6003.

Carrillo-Hermosilla, J., González, P.R. and Könnölä, T. (2009) Eco-innovation: When Sustainability and Competitiveness Shake Hands, Palgrave Macmillan, Basingstoke.

Chambwera, M., MacGregor, J. and Baker, A. (2011) The informal economy: a primer for development professionals on the importance of the informal economy in developing countries, IIED, London.

IFAD (2013) Smallholders, Food Security, and the Environment, IFAD.

IISD (2005) Introduction to sustainable development. Available online at: http://www. sdgateway.net/introsd/

Kennet, M. and Heinemann, V. (2006) 'Green economics: setting the scene, aims, context, and philosophical underpinning of the distinctive new solutions offered by green economics', *International Journal of Green Economics*, Vol. 1, Nos. 1/2, pp.68–102.

Milbrath, L.W. (1996) 'Building sustainable societies: a blueprint for a post-industrial world', in Pirages, D.C. (Ed.): Changing the Way We Think, M.E. Sharpe, Inc., New York.

Pemkab-Banyumas (2013) Medium-term Developmen Plan (RPJMD) Banyumas District 2013-2018, Banyumas Distric Government.

Pemkab-Purbalingga (2010) Medium-term Development Plan (RPJMD) Banjarnegara District 2010-2015, Purbalingga District Government.

Pemprov-Jateng (2013) Medium-term Development Plan (RPJMD) Central Java Province 2013-2018, Central Java Province Government, Semarang.

Raworth, K., Wykes, S. and Bass, S. (2014) 'Securing social justice in green economies: a review and ten considerationsfor policymakers', IIED Issue Paper, IIED, London.

Read, R. (2007) 'Economics is philosophy, economics is not science', *International Journal of Green Economics*, Vol. 1, Nos. 3/4, pp.307–325.

Setiadi, R., Puspitasari, T. and Atmoko, W.D. (2008) 'Penerapan kebijakan lingkungan dan pro-konservasi: apakah merusak tatanan ekonomi kota dan wilayah?' *Tata Loka*, Vol. 10, No. 4, pp.410–426.

Shearlock, C., James, P. and Phillips, J. (2000) 'Regional sustainable development: are the new regional development agencies armed with the information they require?' *Sustainable Development*, Vol. 8, No. 2, pp.79–88.

Sugiri, A. (2015) 'Preparedness in implementing action plan for reducing GHGs: the case of Central Java', *American Journal of Environmental Sciences*, Vol. 11, No. 1, pp.13–27.

UNEP (2011) *Forests in a Green Economy – A Synthesis*, UNEP.

UNEP (2012) *Measuring Progress towards an Inclusive Green Economy*, UNEP.

UNEP (2014) *Green Economy: A Guidance Manual for Green Economy Indicators*, UNEP.

UNEP (2015) *Indicators for Green Economy Policymaking – A Synthesis Report of Studies in Ghana, Mauritius and Uruguay*, UNEP.

Weible, C.M., Heikkila, T., deLeon, P. and Sabatier, P.A. (2012) 'Understanding and influencing the policy process', *Policy Science*, Vol. 45, pp.1–21.

Wilton-Park and IIED (2014) *Real Green Economies*.

Zhang, J. (2012) *Delivering Environmentally Sustainable Economic Growth: The Case of China*, Asia Society.