

Review Paper (SS-I)**STRATEGIC TRANSFORMATIONAL TRANSITION OF GREEN ECONOMY, GREEN GROWTH AND SUSTAINABLE DEVELOPMENT: AN INSTITUTIONAL APPROACH****José G. Vargas-Hernández**

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*Received December 29, 2017**Accepted April 09, 2019***ABSTRACT**

This paper aims to analyze a strategic transformational transition of green economy, green growth and sustainable development from the institutional perspective. The analysis begins questioning the implications of the concepts and principles of green economy from different perspectives in the transformational transition considering the investment, trade and capacity building through the design and implementation of strategies and policies as well as measures from an institutional analysis. The methodology followed was the analytical review of the literature to derive inferences, challenges, proposals and conclusions. It is concluded that the green economy concept addresses current challenges delivering economic development opportunities and multiple benefits for the welfare of all human beings

Key Words : Green economy, Green growth, Sustainable development, Emissions

INTRODUCTION

The green economy has been criticized by being wonderful slogan which does not always lead to wonderful actions¹. Emergence of greener development pathways may have critical effects on the reduction of emissions and the use of natural resources. The framework of green economy and practices are relevant to the ongoing debates in economic growth, social justice and environmental sustainability reorganization. The green economy is an imperative framework for all economic activities that affects sustainable development supported by coordinated action of government, private sector and civil society.

The green economy is a means and enabler of delivering sustainable development between the intrinsic links between economy and environment. From this perspective, green economy improves well-being, lessens social and economic inequality and reduces environmental risks and ecological scarcities.

Green economy is environmentally friendly, sensitive to preserve natural resources, produce more ecosystems services and products and reduce emissions and pollutants that create environmental crisis.

The transition to green economy has environmental priorities to restore, preserve and enhance ecosystems and promote natural resources efficiency supporting the shift towards a low-carbon and climate resilience. The development of green economy depends on the capacity to design sustainable ecosystem service programs. Ecosystem services scheme may promote stakeholder's acceptance and participation in a green economy.

The green economy provides the instruments required to transform economic activity in more growing and inclusive economies with more social justice and healthier and environments. The green economy relaunches the global economy with higher rates of economic growth than the current model.

This paper has the aim to analyze a strategic transformational transition of green economy, green growth and sustainable development from the institutional perspective. It begins analyzing the evolution of concepts and definitions of green economy, green growth and sustainable development, to continue with the principles that support the transformation transition towards a greener economy. It continues analyzing some requirements in terms of investment, trade and capacity building for the strategic and policy formulation and implementation of a green economic development plan, from the institutional approach. It also takes into consideration some specific challenges before some concluding remarks.

Evolution of the concept of green economy

The concept of green economy has emerged in the last decade as a policy framework for sustainable development and poverty eradication. The concept of green economy was coined and used in 1989 in the report *Blueprint for a green economy*² commissioned to advice on the applications, projects, policies and measures of sustainable development.

On the midst of the economic crisis in 2008, green economy was presented as a means to reduce the growing social inequality and achieving sustainable development. The concept of green economy rises in the aftermath of 2008 global financial crisis challenging a radical transformation of development practices³. The concept of green economy was initially a response to the financial crisis⁴, and an operational policy for growth based on sustainable development at the environment– economy nexus¹.

After the financial crisis of 2008, green stimulus programs were launched as an incentive for investments in green energy sources and technologies. The global recession has led to design green energy sources. The United Nations Environmental Programme (UNEP) launched the green economy initiative in climate change mitigation. Green economy aims to improve human well-being and social equity while significantly reducing environmental risks and ecological scarcity

according to the concept of The United Nations Environmental Programme (UNEP).

In 2009 was proposed the Global Green New Deal as a strategy to revive the global economy, mitigate climate change and environmental degradation and reduce poverty. The objective UNEP's GE Initiative (GEI) was to provide policy support for investing in greening sectors and environment. Green economy delivers transformations for more egalitarian and inclusive societies and shared economic prosperity.

In 2011, The UNEP published the *Green Economy Report "Towards Green Economy - Pathways to Sustainable Development and Poverty Eradication"* stated the conceptual basis for policy action of green economy as one which is resource efficient, low carbon and socially inclusive aimed to capture the environmental, economic and social dimensions of sustainable development. Green economy is defined as the "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities"⁵.

The report of the United Nations Conference on Sustainable Development¹² (UNCSD) that took place in Rio de Janeiro in 2012 had intended to promote green economy and sustainable development policies to reduce poverty. The Rio+20 declaration focused on green economy and sustainable development as relevant tools aiming to poverty eradication. The Rio +20 conference articulated the elements needed for a green growth policy framework more oriented towards developing countries. The Rio+20 Conference held in 2012 framed and promoted the green economy as tool for sustainable development, driving economic growth, creating employment, and poverty eradication, whilst maintaining the healthy functioning of the bio ecosystems.

The United Nations Conference on Sustainable Development¹² (UNCSD, or Rio+20) in 2012 emphasized a green and inclusive economy but missed the opportunity and vision⁶⁻¹¹. The Green Growth Knowledge Platform (GGKP) was established in 2012 by major international institutions to spread and share strategies, policies, tools, data and practices developing technical and human

capabilities to support governments in the transition to green economy.¹³

The concept of green economy is broad and of multilevel governance including the definition of economic measurement. Green economy, green growth, green companies or green jobs are imprecise terms that some countries do not yet recognize them and have not yet included new emerging green sectors. The concepts of green economy and sustainable development have contextual interpretations depending of the priority of economic efficiency, social equity, environmental issues and community ownership, as well as the international agreements and standards.

The Green Economy concept emphasizes the finite environmental limits. The concept of green economy recognizes that economic development and environmental policies are interrelated¹⁰. The green economy is “an economy in which economic growth and environmental sustainability work together in a mutually reinforcing fashion while supporting progress on social development” (International Chamber of Commerce Green Economy Task Force). The concept of green economy is considered to be at the intersection between environment and economy by some authors while for others is green economy is a subsystem to society and thus, to the environment.

The concept of green economy is being promoted by international organizations, non-governmental organizations, academic and research institutions and partnerships. The concept of green economy policy has been analyzed and discussed in the international arena on the context of negotiations and issues involving the fields of ecological and environmental economics. The concept of green economy relies on future technologies to generate action in industrial policy and not in the Brundtland sustainability criteria¹⁴. The green economy should reflect the different economic, social, cultural and environmental contexts.

Green economy concept responds to significant national differences and priorities on environmental and social challenges¹⁵⁻¹⁸. The green economy concept is related to an

economic model in transition towards green growth and low-carbon development as the foundations for the benefits of a sustainable environment, social equity and economic efficiency.

The concepts of green growth and green economy are left deliberately imprecise in unresolved transitional tensions. The concepts green growth and green economy are ambiguous and contested discourses among different organizations that have led to post-growth and transformational concepts¹⁹. Green economy practices conflict with the assertion that green economy is not part of the economy at large because the whole economy needs to be green to maximize value and growth²⁰.

A SWOT analysis of the Green Economy concept has been elaborated by Fosse, Petrick et al.,²¹ which is being reproduced literally considering it is well developed:

Some strengths of the green economy concept are:

Broadly popular concept at international level
Positive impact on environmental, economic and social transformation

Cross-cutting approach thus promoting cross sectoral integration

Uses local/regional practices and knowledge

Promotes stakeholder engagement and empowerment of local communities

Some weaknesses of the green economy concept are:

No global definition of green economy

Situational concept and characteristics vary according to the area under consideration

Lack of full understanding of the financial gains of transitioning to a green economy

Unknown damages to conventional business models, “brown” jobs and incumbent economic actors.

Some opportunities of the green economy concept are:

Addresses climate change and sustainability issues

Creates qualified, stable and fair jobs

Revitalizes economies and opens up new business opportunities

Contributes to energy independency as well as water and food security

Reduces poverty, promotes equitable distribution of wealth and social equity
Increases societal resilience to internal and external shocks

Some threats of the green economy concept are:

Lack of public and private funding
Challenges to changes in consumption and production patterns and life styles
Resentment to change by those who feel that their interests may be compromised or threatened.

There have been published numerous reports on the concept of green economy providing working definitions and guiding benefits. Green economy concepts and initiatives have the capacity to bring benefits to citizens²². It has also been criticized that the current concept of green economy is based on the trickled down principle of traditional economic growth theory.

DISCUSSION

Green economy has not been well defined, and depending of the context is poorly understood. The definition of green economy is in tension and still in development between competing discourses focusing more on transformational green economy given the sustainable development goals, but defaulting its measurement in the interactions between economy, society and environment. Green economy, society and the natural environment are interrelated and inter dependent.

Green economy has been defined by different authors and organizations according to their purposes which can be cleaner economic grow, reducing carbon emissions, climate change economy; resource efficiency, social equity and justice. One of the most accepted definitions of green economy is the “one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon resource efficient and socially inclusive⁵”.

Another well accepted definition is “Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-

being relies.” The UN Environment Management Group in 2011 identified and clarified the use of the term green economy in the publication working towards a balanced and inclusive green economy.

The International Chamber of Commerce Chamber of Commerce defines green economy as the one in which economic growth work together with environmental responsibility mutually reinforcing each other to support social development. The Green Economy Coalition has defined green economy as the resilient economy providing better quality of life for all within the ecological limits. “An economy that provides better quality of life for all within the ecological limits of the planet” (Green Economy Coalition).

The concept of green growth

Green economy and green growth are emerging concepts used to foster low-carbon, natural resource efficiency, social inclusive and environmentally sustainable development associated with other multidimensional benefits. Green growth and green economy are similar concepts that have been promoted in recent years. The crisis represented an opportunity for green growth as being more attractive than brown growth alternative to economic recovery²³, although it came with re-legitimization of statist and intervention¹⁵ evolving into a policy framework. Green growth emphasizes economic and market oriented instruments and metrics, rather than on changing and greening the whole economic model. Green growth depends more upon the creation of enabling conditions for grassroots green innovation and local developed technology.

Green growth pursues the economic growth for environmental sustainable development mitigating the collateral damages and ensuring that natural resources provide the environmental services needed for the human well-being. The aim of an inclusive green growth is to bring the creation of green jobs to benefit the living standards of the poorest in terms of clean water supply, less pollution, healthy soils, under the assumption that trickle-down economics and not necessarily addressing the equity issues. Green Growth

aims at sustainable production and consumption and resource efficiency but not necessarily guided by ecological principles. The efforts to pursue sustained green growth are concerned with delivering higher incomes, social benefits, reduce environmental degradation and vulnerability to climate change.

The institutional green economy approach is not detached from conventional economic growth¹⁹. The concept of green economy is related to the concept of green growth in the international context of sustainable development. The institutional green economy approach is not detached from conventional economic growth¹⁹. However, Ferguson identifies some tensions in the green economy concept and concludes that the concept of green growth is different from green economy and should be separate discussions. Green growth relies on harnessing the green economy. For green growth policies, inclusive green growth to be environmentally sustainable over the long term must consider local development contexts. However, there is criticism and skepticism about these concepts of green economy and green growth²³⁻²⁵.

Green growth is more incremental than radical development policy concerned with poverty reduction and socio-economic development. However, the economic growth approach does not integrate local communities and societal stakeholders into the policy analysis and formulation processes.

Green economy, green growth and sustainable development

The green economy concept is called the next oxymoron after sustainable development because they overlap each other²⁶. Conference on Sustainable Development (Rio+20) in 2012 agreed that in the context of sustainable development, the concept of green economy should be promoted. The transition to a green economy has economic and social justifications for public and private actors to contribute offering opportunities for investments and green procurement by providing new market-based incentives and mechanisms.

Environmental sustainability and economic growth are compatible. Green

economy prioritizes well-being for the present and for future generations and not necessarily is sufficient the efficiency of improved technology. A green economy is essential to sustainable development, improving social equity, human well-being, reducing ecological scarcities and environmental risks. The Global Green New Deal report based on green economy proposed policy actions to stimulate a sustainable economic development. Identification and eradication of unsustainable activities in different economic sectors to enhance an enabling environment, are necessary actions of the green economy.

Green economy supports sustainable development aimed to replace the social and environmental costs of the current economic model that is reaching limits in terms of greenhouse gas emissions, use of natural resources, water, land, forests, etc. Green economy transformation and inclusive greener growth strategy initiatives are needed to pursue the economic and social benefits of sustainable development while reducing negative environmental, inequality and poverty impacts, sustainable management of natural resources, reduce greenhouse gas emissions, climate change, resilience to natural disasters, improve public services, etc. Green economy and sustainable development strategies strengthen the resilience of communities and regions.

Green growth responds to critical emerging issues by facing the global challenge of environmental sustainability. However, the elements of the green economy concept are already integrated in strategic documents focused on achieving sustainable green growth, rather than merely achieving a green economy. Green growth is based upon the sustainable development strategies used to support the transition to green economy defined as the process of improving the economic, social and cultural and environmental well-being of future generations.

Green growth fosters economic growth and development, ensures natural assets providing the resources and environmental services to the benefit of humanity well-being focusing on the synergies and tradeoffs

between the environmental and economic sustainable development. The interactions between society and the environment drive forces for change and transformation for the green economy as an opportunity to achieve sustainable development and human well-being. Green economy is worth to pursuit as an opportunity to prioritize well-being and sustainable development for the present and for future generations.

Green economy is one of tools used to achieve sustainable development goals (SDG) of end poverty, hunger and food security, good health and well-being, education, gender equality and women's empowerment, water and sanitation, energy, economic growth, infrastructure, industrialization, inequality, cities, sustainable consumption and production, climate change, oceans, biodiversity, partnerships, etc. The socio-ecological and SDGs' indicators of the green economy outlined moves beyond the GDP as the transformational concept to measure the wellbeing^{19,27,28}. Green economy visions are relevant for the legitimacy and global green economy under the SDGs.

The post-2015 development agenda and The Sustainable Development Goals (SDGs) overcome inherent conflicts emerging from the implementation of the green economy concept at different spatial levels. The SDGs created the imperative for the implementation of the green economy beginning to deliver changes. The SDGs is a platform to reintegrate the green economy into the sustainable development agenda. Green economy framework has universal goals flexible to be adapted for different contexts and aligned on monitoring green growth²⁹⁻³³.

Green sectors and industries have the potential to become engines of green growth by reducing the use of fossil fuels as climate climate-resilient development. Some of the most relevant sectors to green economy are agriculture, energy, water management, tourism, waste, etc. Green growth policies promote economic growth and environmental development ensuring that natural resources provide environmental services to human well-being.

Green economy is acritical component of sustainable development which implies a greening change in the social construct of all the economy sectors. Details about the scale of the greening of specific sectors of the green economy development and implementation are required to be explicitly for absolute decoupling. Rural and urban development programs are a vehicle for enabling the transition from traditional rural and urban economy to a rural and urban green economy. Locally led development programs and group actions can often respond more effectively to local needs in the transition to the green economy. Urban green brands are already developing focusing more on green growth and low carbon economy which may be stronger and attract greater interest.

Green economy approaches offer economic opportunities of low carbon transitions under the framework of an agreement of a collective carbon finance goal. Resource and energy efficiency supports green products, services and low-carbon green economy as part of the transition to deliver economic, social and environmental benefits. Low carbon actions are part of a transition towards green economies can make the most of the resources available. The transition towards a green economy by investing and preserving the natural capital to generate growth, create jobs and eradicate poverty. A green job is defined as one that works with information, data, technologies, and materials, and requires specialized knowledge, training, skills, and experience for activities that minimize environmental impact.

The green economy concept is mutually complementary between different dimensions of sustainable development and poverty eradication to enhance convergence through different approaches, among which are the internalization of externalities, systemic economic structure, reconciling social goals, policies and objectives and the macroeconomic framework of development strategy³⁴.

The design of green economy to contribute to sustainable development is away from the dysfunctionalities of traditional mainstream economy and results in human

well-being and equitable access to opportunities safeguarding economic and environmental economic integrity. Green economy contributes to sustainable development with different forms of implementation for different countries. Resource efficiency is a green economy process is supported by environmental awareness and technological green innovation, although the increase in consumption may occur when efficiency gains are lost leading to the so called Jevons paradox, which may be addressed by specific policies on fiscal mechanisms and education.

Green economy principles

Guiding principles of a Green Economy helping practitioners in the application of the green economy concept are sustaining that it is a means for sustainable development, is equitable, just and fair, creating green jobs, protects biodiversity and ecosystem services, provide green resources and efficient green energy within the ecological limits, delivers well-being, access to essential services, poverty reduction, livelihoods, social protection. The principles of a green economy that according to GEC deliver a sustainable, inclusive and participative green economy are: sustainability, justice, dignity, healthy planet, inclusion, good governance and accountability, resilience, efficiency and sufficiency and generations.

The sustainable development and green economy strategies and policies is a model based on the core principles of economic efficiency, equity, social inclusion, environmental sufficiency and accountability which requires dialogue among all the involved stakeholders and participative policy design.

Also, these principles consider the measurement of green economy using appropriate metrics and indicators, internalizes externalities, improves governance and the rule of law being democratic, participatory, inclusive, transparent and accountable and more other principles. A good indicator of the relevance of green growth and economy for a specific society is to identify the number or share of population involved in any form, as employee, consumer, etc.

Equitable green economy is linked to sustainable development supported by principles and informed by policy and market decisions. Green economy principles must be integrated in sustainable development programs and initiatives such as in pollution prevention and sustainable production and consumption. Green economy principles aimed to develop a fair and inclusive economy to provide a better quality of life are the sustainability, justice, dignity, healthy planet, inclusion, good governance and accountability, resilience, efficiency and sufficiency and generations principles³⁵.

Green economy principles can be applied to urban sustainable development by coordinating some deliverables with other organizations and donors relating to methodologies, platforms, best practices and tools that contribute to poverty eradication¹².

Green economy principles must be developed after engaging in discussion with the different stakeholders to meet the vision, priorities and needs of each sector. A set of green economy principles emerging from dialogue can serve as guidelines for making decisions which can be applied across sectors and institutions to operationalize a green economy. Social equity, ecological limits and community ownership are core principles for green economy.

Transformational transition of green economy

The transition towards green economy can solve the interconnected economic, social, and environmental crises. Green economy and transformation as enabling approaches are related to potentially create dynamic change^{36,37}. Green economies integrate economic, social and environmental activities. The concept of green economy represents a transition for more environmentally friendly and resource-efficiency technologies to tackle environmental degradation by reducing carbon emissions and mitigating the effects of climate change³⁸.

Transition to green economies require that green activities and investments in the interlinkages between rural-urban areas can contribute to green economic growth. Public

and private funding of green economy has to be scaled up at all institutional levels and sectors supporting sustainable and responsible green investments in green business and companies, clean technology, green investments, etc. green company is defined as a company that produces goods and services designed to reduce their environmental impact.

Green technologies should be developed with government financial support and subject to wider dissemination. Private investment flows in green technology should ensure that achieve full potential in spin-off benefits. Any percentage of global GDP invested to green economy sectors increase the growth, employment and reduce water, energy, etc. Public and private investments in green economy, promote revenue growth and employment from a rational use of natural and financial resources and energy efficiency that reduce carbon emissions and pollution and prevent loss of biodiversity and environmental services.

Development programs structured according priorities supports transition to the green economy in practice although the term may not be explicitly used, planning authorities may use different approaches and measures. Design and implementation of rural and urban and urban development programs support the transition of business activities to the green economy and the environmental performance. Development programs can provide financial support to support the transition towards a green economy with impact in long-term business opportunities. Business can foster practices that contribute to the green economy transition.

Equitable green economy is a transformation process in constant dynamic progression, although it has been questioned if green economy is equitable. One of the four green economy typologies is green transformation of economic growth through political interventions¹⁵. Building on Ferguson's typologies based on weak/strong green economy, the UNEP's concept is more transformational providing enabling conditions for green economy transitions⁵. Transformational green economy renders strong green economy and growth concepts

deployed as organizing principles for climate change³⁷.

The term green economy comprises the application of some economic instruments which requires social, institutional and political contexts to harness economic activities in support of sustainable development goals. Design of development plans can contribute to the transition to the green economy activities such as mitigation of climate warming, sustainable water and waste management, sustainable infrastructure, ecosystems services and buildings, investment in natural resources and capital, renewable energy feedstock and energy efficiency, green research, green tourism and eco-innovation, agricultural and forest land management, forestry and fisheries (bio economics) green manufacturing and supply chain green public procurement, etc.

The transition to the green economy makes sure that agriculture and forestry are both economically and environmentally sustainable activities for the long-term. For example, the use of procurement policies for the greening of business. Green agriculture requires natural and physical capital assets, knowledge and financial investments and enhance the capacity building in efficient and sustainable management of soil fertility, water use, farm mechanization, crop and livestock diversification; etc. the analysis of investments measures benefits and costs of green economy and green energy policies taking into account capacity building, management, operation, research and development, expenditures in infrastructure, incentives, etc.

Measures for business and farm diversification can support transition activities to green economy. The sectors considered to have green potential are energy renewable, water, waste/recycling, sustainable farming and forestry, fisheries, public transport, green buildings, tourism, health care, education and training, green finances, etc.

Greening the fishery sector requires strengthening the fisheries management and financing fishing activities to maintain sustainable stocks within biological limits limit the environmental impact. Assessment of the impact on the dynamics of the fishing and

marine ecosystem and biodiversity using quantitative indicators for socio-economic factors is required for a more effective exploitation of fisheries.

Greening the sector of forestry must be focused on reducing deforestation and increasing reforestation in accordance with economic and market mechanisms including payments for ecosystem services, certified benefit sharing and other schemes, community-based partnerships, sustainable forest management instruments aimed to carbon reduction, enhance protection of forests against fires and pollution, biodiversity and forest ecosystems, provision of environmental services, etc.

Greening the industry and manufacturing sector implies design to extend the useful life of goods and recycling them to support the use of by-products and alternatives for substitution to achieve a circular economy with a close-loop manufacturing in eco-industrial parks.

Greening the building sector requires a policy framework with instruments for development of sustainable building capacities and standards, cost-efficiency and incentives. Greening building requires investment and incentives for energy supply and renewable performance for sustainability of new and renovated buildings.

Greening transport policies intend to integrate land use and transportation planning for more environmentally efficient modes shifting to non-motorized transport and improving vehicle and fuel technology, avoiding or reducing trips and using water and rail transport for freight. All these policies are aimed to reduce the negative environmental and social effects. A greening transport policy framework to enhance sustainability through greener and efficient roads includes a strategy focused on the cost of transport in terms of environmental damage to society and reducing noise pollution.

Greening the tourism sector can be done by increasing the involvement of the local community in the tourism value chain and the interplay between internal factors and structural conditions.

Greening the waste management sector requires decoupling waste from economic growth and addressing the challenges of increasing the recycle rate of electrical and electronic equipment or e-waste, turning bio mass waste into recovered energy and other valuable resources, reducing food waste in the food chain, etc. The treatment of waste in the whole cycle from waste generation to waste disposal, should emphasize recovery for reuse and recycling of waste materials. Strategy for the prevention of industrial waste are based on industrial symbiosis resulting of collaboration to facilitate the exchange of by-products, water, energy and other materials.

Greening the water sector requires water management based on quality standards, to increase investments with better financial arrangements, to achieve a more efficient water supply, to improve the institutional arrangements and allocation systems, entitlements and use of payments for ecosystem services.

Green economy transition is relevant to all economic sectors and requires a change in their economic activities perspective. Green economic transformation should be supported by new institutional forms for organization and decision making supported by participation and collaboration structures between public, private and community agents and actors for sharing resources and knowledge in green economic activities.

Investment, trade and capacity building

The term green economy was used as a green public packages-policy response of the financial crisis of 2008 to identify opportunity areas for large scale public investment. Investments in green economy growth can improve resource efficiency, generate employment and income, reduce carbon emissions and loss of biodiversity. Global green economy was considered an international response launched as a transformational tool for economic recovery of multiple crisis.

Green economy focuses on the creation of green employment in fields resulting on building resilience to climate change and adapting the effects of mitigating carbon emissions. Green economy relies on an

ecosystem approach to the use of technology, management practices and capacity building to improve biodiversity conservation, efficient renewable energies, carbon sequestration, better land uses in agro-ecological practices, to avoid soil erosion, air and soil pollution, water contamination, etc. Capacity building on green economy and related research activities are a major institutional concerns at all levels of government to develop a robust socio-economic model. Voluntary agreements as a tool of green economy involving different stakeholders is an alternative to regulations and rules and more inclusive solution.

The Green Economy Initiative supported a policy for investment in greening resources and investments. A green economy creates incentives for economic activities to ensure environmental sustainability and social inclusion. Private actors can take investment opportunities from the green economic policies.³⁹ has identified some priority areas for the transition from traditional economy to green economy, among which are: education, science, culture, information, oceans and the water systems in a new green economy. The blue economy is vital for the provision of food, water and energy coming from seas and oceans to people living in and near coastal areas and islands.

Public and private finance institutions and flows, regulations and policies are all relevant in attracting and mobilizing investments into green economy. However, the investments flows on green finance flows are difficult to estimation due to their complexity of aggregated data.

The UNEP's model of investment in green economy transition to influence economic transformation is supported by heterogeneous economic thinking for funding projects, responding to different challenges of context. However, the model is criticized by Victor and Jackson⁴⁰ because the model assigns more funding to the green economy on the assumption that growth faster.

Trade and investment policy and the position that trading partners have in pursuing green economy are two factors that contribute to green economy. Trade and investment policies are drivers in the green economy and

green growth with low carbon activities, considering the need to reduce the contentions nature of the process and covering some essential economic measures. Green protectionism concerns about socio-economic changes to correct market dislocations.

The new green protectionism is an option in the interplay between trade, investments and green economy policies conformed with green regulations and standards, avoiding the asymmetric relationships between takers and makers. Natural resources should focus more on greener activities and away from brown activities through instruments such as local content, financing, carbon taxes, tariffs, subsidies, etc. The measures of green protectionism should promote the transition to greener economy and reduce the eventual emerging trade tensions.

New green protectionism has been propelled by commercial tensions and dispute settlements in import-restricting measures and export restrictions. Export restraints justified as green environmental protection is a form of green protectionism amidst the requirements for some materials fueled and the deployment of green energy technologies. Transition towards inclusive, an equitable and development-led green economy require to be practical to prevent new forms of green protectionism and comprehensive to support the participation of developing countries.

Green technologies licensing and patented green innovation knowledge protection require also more flexibility aimed to facilitate the dissemination subject to the different domestic environments and access to finances. Drivers of green innovation and profits are creating green growth and are having market opportunities using technologies more suited to the needs of emerging economies more than the notions of corporate social responsibility policies. Greener products with low cost green innovation are accessible for a large share of the consumer market.

R & D efforts must focus on fostering green innovation and absorbing green technology to local needs, are key policies to

sustaining economic growth. Green technology transfers benefits from international collaboration on research and development. Green technologies transfers require more flexibility in the regime of global intellectual and industrial property.

Strategic and policy implementation: An institutional approach

Green economy exists at a microeconomic and macroeconomic levels. At microeconomic level, green economy concerns with emissions trading, externalities, taxes, subsidies, etc. The revenue raised from taxes can be used to promote green economy activities and tax incentives / exemptions can provide preferential support for new market, technology and practices development in a larger framework evaluated in terms of equity and social justice. Green tax system requires phasing out government policies and regulations supporting for environmentally harmful products, services and activities, which perpetuate wasteful production and consumption patterns that are costly to society. At macroeconomic level, some issues are relevant in environmental effects, intergenerational welfare, supply and demand protection policies, structural change, etc.

The foundations of the green economy in strategic orientations are found with different levels of commitment across the strategic and sectoral policy frameworks. Sustainable development policies and green economy strategies have been designed at the different local, national and global levels and supported by civil society organizations, governments and business and implemented through communities' and stakeholders' engagement.

The green economy concept becomes more supportive for economic transformations towards a more sustainable development and its implications for institutional arrangements and socioeconomic and environmental impacts on policy related to specific issues such as renewable energy and climate change strategies. Local and sectoral green economy and sustainable development strategies must be supported and endorsed by stakeholder consultations undertaken during the analysis, design and implementation processes. National

local governments, businesses and civil society organizations are the main promoters and drivers of sustainable development and green economy strategies, policies and initiatives.

The green economy coexists at different levels with sustainable development concepts at global, national, regional and local contexts, which it is relevant to differentiate priorities and visions of institutional structures in the implementation of strategic plans. Sustainable urban planning institutions are instrumental in mainstreaming green policies in development strategies and policies. Green economy strategies have to be robust and involving a wide range of owned stakeholders developing green entrepreneurship aimed to generate environmental, social and economic co-benefits in high-tech sectors like water, solar and wind energy renewable.

The design and implementation of sustainable development and green economy strategies, policies and initiatives frameworks not only requires the commitment of all stakeholders involved but also financial instruments and support for investment, technological, organizational and political capacities, and good communication tactics on the issue from the public authorities to all the stakeholders involved. Development of green technology serving sustainable development and greening of the economy should be supported by the appropriate policies and strategies. Green economy policies and green innovation enable local communities to generate more value, while maintaining the natural bio diversity and ecosystems that sustain it.

Green economy approaches should be supported by stakeholder's mechanisms for developing green policies, partnering in agreements of collaboration and cooperation through political process mechanisms and processes such as the use for planning platforms, inclusive dialogues, etc. to legitimate green economy strategies. Participatory processes of green policy formulation and implementation outcomes have to be transformed to be feasible and meaningful to public⁴¹. An integral part of green economy policies is the engagement, participation and cooperation of stakeholders

and the forging of public, private and community partnerships.

The policy making framework used for the concept of green economy considers it is a new tool for transition of development in the logic of sustained growth to solve the environmental crisis supported in the existing power and market structures and mechanisms. Sustainable development and green economy strategies, policies and initiatives they need not only being in place but actually implemented and extended into assessing and evaluating the impact. The proposed methodology to assess the strategies, policies and initiatives on green economy and sustainability begins with the identification, description and assessment of the issues through literature research and conducting a survey to get feedback. Green economy policies responding to national contexts where appear to be transformational but are of economic growth make some governments skeptical.

Green economy policy formulation, implementation, assessment and evaluation requires the analysis of potential trends of the specific economic sectors related to the natural environment, analyzing the underlying causes and impacts on the well-being of the population, advantages and disadvantages, etc. An incremental approach to green economy policies takes into consideration the constraints and limitations over the issue-driven analysis, design and implementation of green economy strategies. Designing effective green economy policies requires a framework to support the services and tools required to cover the needs in a contextual approach and specific cases, as well as the cross-sectoral impacts of green policy interventions.

Green economy transition has as priorities the strategic support for natural resource efficiency, reducing climate change and promoting greener economic activities. Encouragement of investments for sustainable management of natural resources in all scales of the economic sectors should contribute to green economic growth in resource efficiency and low-carbon and creating jobs. Public and private investments in the green economy reduce carbon emissions and pollution, enhance natural resources and energy

efficiency, ecosystem services and biodiversity, and drive growth in income and employment.

Developing economies required not only technical but financial support in terms of environmental development investments. An inclusive green economy in developing and emerging economies may use the social economy as a tool. Some emerging economies have implemented green growth policies and taken actions in the process of developing infra-structure and manufacturing systems towards greener solutions.

Developing economies should make trade analyses on institutional regulations and policies identify their own comparative advantages for the production, distribution and export of green goods and services of their own green sectors. The impact of global trade on the transitions toward green economy has uncertain positive and negative effects in terms of increasing emissions to the environment and natural biodiversity from production to consumption of natural resources. Some opportunities that trade offers for a green economy transition are the increasing of efficiency, reduction of costs, waste and in general negative environmental impacts.

Green economy strategies aligned with sustainable development refocusing on global environmental challenges is supported by sustainable urbanism and natural capital valuation. Natural capital is a critical economic asset that requires rebuilding policies calling for investments and measures to be enhanced by the formulation and implementation of biodiversity and ecosystem services strategies. Green Economy implementation phases out brown incentives, subsidies and initiatives to enhance economic, social and environmental sustainability, taking care of the natural and financial resources.

The implementation of green economy policies to drive growth resource-constrained is based on 10 conditions: Economic, social and environmental green innovation and collaboration between government, business and civil society sectors, integrated coordination of governance, economic growth, social equity and environmental protection, short and long-term strategies to reconcile

shared values and profits and multilateral approaches⁴². The relation between green economy, society and the environment gives the foundation to governance. Green economic governance, policy and practice is experimenting an evolution process based on the supporting demands of stakeholders connected and in communication directly to people in a green economy agenda to gain the political support.

Institutions for sustainable development play a relevant role in governance opportunities and challenges of green economy⁴³. The institutional frameworks and means are required with clearly defined roles within the context of equitable green economy as well as the responsibilities and accountability of empowered actors and stakeholders, contributors and beneficiaries of green economy⁴⁴. The green economy connects global and multi stakeholder actions at government, finance business and civil society levels to transform economies in the benefit of all human beings and the planet⁴⁵

To meet the sustainable development and green economy visions and goals require higher levels of commitment and dedication of public authorities, business and financial sector, civil organizations and the community at large. The green economy vision can be conceived and implemented through the stakeholders and communities' involvement and engagement. Local governments must promote funding to green economy sectors aimed to provide green economic recovery stimulus, poverty eradication, reducing carbon emissions and ecosystems degradation, among other goals and actions. Green fiscal stimulus provides the foundations for sustainable growth⁴⁶.

Governments pursue green policies in the production and consumption of new green goods and services. Low carbon development strategies are forward-looking national economic development plans and strategies that encompass low-emission and/or climate resilient economic growth (OECD).

Green economy can also contribute to poverty eradication involving interested stakeholders in the formulation and

implementation of innovative policies and practices. Several existing platforms and initiatives based on green economy knowledge propose goals, structural governance arrangements, best practices, promotion of networks and partnerships connecting knowledge providers and seekers, sectoral issues, etc.⁴⁷.

The core elements of the green economy concept must be integrated into its own strategic and policy-making framework to be implemented in different sectors. The use of indicators as a tool for implementing green economy policies helps to identify issues, analyze them, formulate and assess policy options, implement and evaluate their performance in a specific geographical, economic, social and cultural context. The analysis and implementation of cross-sectoral indicators using various data sources and the stakeholder's involvement in designing and implementing inclusive green economy policies. A critical element of green economy policies is the access to information, the improvement of data availability and quality.

Measurement of green economic transformations

A policy framework in place must provide a basis for measurement of transition to green economy aiming to make more sustainable sectors such as agriculture, fisheries, forestry, water, energy supply, industry, building, tourism, transport, waste management, etc. Measuring green economy transformations requires better and improved economic, society and environmental measurement interactions. The relationships between natural and social capital⁴⁸, and the green economy to measure the transformation in terms of income and wealth. Green economy requires new methods to measure wealth to encompass what needs to achieve in terms of human well-being and environmental sustainability.

Measurement of green economy transformations requires better measures of development, green economic transformations, interactions economy-society-environment interactions, data sources and methodologies to analyze the composition, growth and quality³⁰. Measures in rural and urban economic development can be used as an instrument to

promote a transition to green economy with economic, environmental and social benefits. Measurement of the greening of the agriculture sector includes the promotion of agri-environmentally sustainable rural development and farming practices.

Green economy management concepts should advance the transformational green economy supported by measurement of indicators between the economy, society and environment interactions. Green economy is much more than the environment which is not possible to equate with spending. The use of macroeconomic and sectoral sustainability indicators is a supporting tool for the green economy and the integration of environmental matters on some specific policy areas such as biodiversity, agriculture, fisheries, forestry, industry, building, transport, tourism, natural resource efficiency, water, renewal energy efficiency, waste management, climate change, cohesion policy, etc. The Environmental Performance Index (EPI), focuses on the development of the environmental green economy towards greening and efficiency sectors and social implications.

Indicators of green economy measurement must measure the economic opportunities and challenges for policy adoption and implementation. Measuring green economy transitions should capture the potential for creating and restructuring economic activities. Some output indicators for green economy must estimate and measure the feasibility of each policy making option. The area or percentage of green zones and surfaces such as organic and agro-ecological agriculture and the number of farmers cultivating are good indicators.

Current economic measurement approaches of green economy visions to assess the economic impact and practices may limit their transformative potential by extending the data collection to traditional environmental sectors. Transactional data may contribute to economic measurement of green economy transformations. Data constraints and capacities of green economic measurement does not necessarily measure green economy transformations but entrenches weak visions of the green economy. Green economy data from

official sources causes some concerns by entrenching path dependency towards different weak green economy visions.

The EGSS methodology measures the green economy performance of a country with national statistics that may not capture all the green uses from biodiversity and ecosystems limiting the indicators of green economy measurement. EGSS, green R&D, environmental innovation and green patents are measures of the OECD framework⁴⁹. Technological research, innovations and patents are relevant indicators to green economy and growth. EGSS may be a green economy opportunity related to SEEA, although some analysis concludes that the EGSS neither accurately reflect the scale of green economy opportunities nor the green economy transitions. Innovations in green economy and environmentally related practical uses and applications have a high impact on development.

The measurement of the transformational green economy contribution is limited and it is not possible to identify and capture due to the complexity of using standard statistical classifications⁵⁰ which may lead to distortions⁵¹. Measuring the transformational green economy does not necessarily is aligned with measuring the environmental sector and ecosystem services. The economic greenness of industrial sectors, regions and countries can be compared by measuring green economy transformations using different scales for different priorities and contexts. Local governments and businesses are playing increasingly roles to implement greener growth actions and developing a green city index despite the lack of data and reporting availability on indicators related to green economy.

Transformational green economy is a policy proposal to ensure inclusive measurement of economic growth, social justice and environmental sustainability. Indicators may measure transitions but not trade-offs of decision-making processes for green economy transformations of socioeconomic systems. Green economy indicators to measure the natural capital can be incorporated into environmental policy-making for sustainable development to assess trends in use of natural resources, emissions to the environment, economic

activities for environmental purposes, etc. Measurement of growth and composition of green economic activity is relevant for decision-making.

Measurement of green economy policy outcomes should measure the opportunities and effects of the environmental and the economy interactions. International comparison of policy performance can contribute to green economy transformations either through a weak approach of economic growth or addressing the structural issues of the greening economy. However, policy performance measurement linked to the environment not necessarily leads to green economy transformational effects.

The green economy framework for actions might be complemented by a measurement framework including policies and indicators⁵² such as The Green Growth Knowledge Platform (GGKP) used to measure green growth and environmental policies and opportunities⁵³. The indicators must measure the green economy concepts and goals to determine the levels of effort support more than the GDP growth of the greening economies¹. Some green growth indicators are identified in environmental life and resource productivity, natural resources, economic opportunities and policy responses. A narrow measurement approach to environment and economy interactions favors the green economy concepts. Green economy was estimated in 2011 by United States institutions using narrow measures^{54,55}.

Measurement of transformational green economy actions requires a strong approach and data availability towards a vision^{51,56-58}. Data collection may limit the support of inclusivity in green economy transformations such as the adoption of fora and climate change to emphasize the connection between businesses and communities. The green economy definitions of the UNEP, the Organization for Economic Co-operation and Development (OECD) and the World Bank are aligned to current systems using oversimplified models and absent measurements of green economic activities⁵⁹.

Measuring the economic scale of green economy activities can measure the opportunities of green economy transformations. Policy monitoring and evaluation aims to measure the impacts and effects of policy implementation in relation to the environmental development and ecological system. The Earth Observation (EO) approach has potential for cost-effective monitoring in green economy measurement. The short term costs associated to green economy transformation makes it not always considered a viable objective. EO has a role in measuring green economy transformations.

EO supports the green economy and SDG measurement in traditional earth system and social applications such as forest cover⁶⁰, disaster risk management⁶¹ wetlands⁶², sustainable urban development planning⁶³, public health⁶⁴. Green economy measurement using the same SDG between nations may cause the greenness to improve interactions between the environment and the economic activities.

Green economy outcomes can be measured by any of the proposed approaches as the green growth framework, indicators for policy-making, the WAVES Partnership and the international environmental economy accounting. The national accounting for green economy using measurement frameworks for different contexts has serious limitations. Using metric indicators beyond the GDP will have an impact on delivering green economy transformations. Alternative measurement approaches of green economy have the indicators to measure the transformation of the economic growth-based green economy approach. Unavailability of indicators is problematic for the measurement of transformational green economy, and the framework permits not to measure transformational issues such as inequality and environment–economy interactions.

Finance evaluation of green economy focuses mainly on climate finance and renewable energy, which are useful for other green economy sectors. International financial flows are also relevant to green economy and growth. Green subsidy regulations and support schemes for renewable energy have a relevant

effect on the promotion green economy. Agricultural subsidies are an economic tool that should be considered to implement for progress toward a green economy. Triple bottom line (TBL) of green economy assessment of performance standards in economic investments are based on economic, social and environmental benefits.

Measures to promote the environmental concern of green economy is in tension with protection from competition in the context of the WTO framework and outside to achieve an agreement on acceptable trade green economy policies. The applicability of the WTO rules to green economy for environmental protection focusing on non-discrimination is at stake.

Efforts toward the measurement of green economy transformations may be obstructed by other visions and deliver unintended consequences. Different measurements of green economy obstruct its vision and interactions with the bureaucratic and political contexts⁵¹. Recording and reporting green economy activities is important to keep track of development.

Challenges

The green economy concept addresses current challenges delivering economic development opportunities and multiple benefits for all human beings. The green economy concept in the context of sustainable development, poverty eradication and equity challenges. Identification of challenges and opportunities for greening economies can include sectors using low carbon profile, renewable energies, waste management, ecotourism activities, agriculture and farming, forestry, sustainable urban spaces, etc., through the implementation of green policies and incentive mechanisms. Climate change is social, community and business risk and the response is a low-carbon, socially inclusive and resource efficient implemented in a green economic growth that cannot be separated from social, community and business well-being.

Some identified barriers and challenges to transitioning toward a green economy are the political disincentives, inadequate legal and regulatory frameworks,

declining human resources, weak bottom-up demand. Green trade can be boosted trade barriers on environmental goods and services. The relationship between international trade and the green economy is a complex interaction that bears challenges and opportunities for the transition.

To become effective and transformative, green economy initiatives and activities should be promoted as a form of active citizenship alongside accountability⁶⁵. Addressing the green economy challenge for most of the sectors of an economy implies to take into account the recommendations in strategy and policymaking framework for a successful transition.

Green growth policy framework is a real challenge that should be supported by learning, participation, consultation and consensus of all the involved stakeholders. Stakeholders have the challenge to exploit the opportunities and strengths while reduce the threats and weaknesses, in order to maximize the contribution on well-being and sustainable development that makes to the transition toward a greener economy.

Emerging economies have a lot of concerns on the conceptual green growth agenda and the related global and international cooperation. Emerging economies have a lot of concerns on the conceptual green growth agenda and the related global and international cooperation. Transitioning toward a green economy enhance international cooperation and accelerate sectorial changes creating jobs by increasing taxes on pollution rather than on labor, which anticipate skills gaps. Also international cooperation to promote trade on green economy products and services require further agreements on trans-border adjustments, public and private labels, subsidy rules.^{66,67}

Green innovative approaches to a green economy should promote intergovernmental transitional policy frameworks practical in essence and relevant to international cooperation on research and development, technology transfer, greening agriculture, manufacturing, services, finance, etc., in support of the transition towards green economy.⁶⁸⁻⁷⁰

An international cooperation forum, as an institutional space on trade-related green

economy issues and challenges is required to be created aimed to create capacity building of issues related to green economy and trade, generate new trade approaches and develop practical rules. International cooperation in bottom-up policy approaches is required to promote the green economy on relevant global environmental issues such as the climate change.⁷¹⁻⁷³

CONCLUSION

The objective of turning to a smart green economy, sustainable and inclusive, must be committed to absolute decoupling, with sector-specific strategies and policies aimed to deliver high levels of social cohesion, productivity and employment. The green economy is in line with the green growth strategy, where the economic growth is an imperative that has resulted in further liberal economies aiming more to improve production efficiency rather than sufficiency of consumption. Green growth strategy provides measurement tools and recommendations to achieve economic growth and development while ensuring that natural resources provide ecosystem services. Support should be aligned and consistent with the existing rules and the objectives of the green economy.

Green economy transition strategy is centered on transformative actions responding to economic, social and environmental challenges. A shift from more traditional economy to a more resilient and green economic development for long term prosperity requires more effective natural and ecological resources management, democratic foundations and equitable distribution of benefits. Transformation towards green economy must provide green growth strategy initiatives which should be economically viable and socially inclusive and other benefits.

Some measures are needed to promote both green jobs and green energy, but may be prohibited such as the subsidies under the WTO Agreement on Subsidies and Countervailing Measures (ASCM) and by some regional trading agreements. Trade policies must be improved to support the green economy initiatives in specific issues such as trade barriers, subsidies,

investment measures, export restrictions, government procurements, etc.

The core elements of the green economy concept should be formulated into strategies and policy orientations for the different sectors. The biodiversity strategy and policy addressed to specific sectors must aim to implement elements of green economy such as the efficient natural resource use decoupled from and value creation and growth within the limits of environmental thresholds. In fact, green economy inclusive approaches have limited impact due to the green economic framework has not clear inclusive green objectives. More countries have no current sources of data and information regarding the characteristics of green sectors operating on green economy.

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