

GREEN ENTREPRENEURSHIP: THE MISSING LINK TOWARDS A GREENER ECONOMY

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Abstract

Most international organizations - including the World Bank, UNCTAD, OECD, UNIDO, WTO and FAO - share the view that there needs to be a global transformation towards a greener economy. However, in the aftermath of the Rio+20 UN Summit, some key issues about the green economy must be clarified to reach a global consensus for collective action. In this article, it is argued that a Green Economy cannot be mandated from above but needs to be driven by entrepreneurs that respond to policy incentives through innovation in management and technology. These private sector investments in green innovation do not just generate private profits but also (create) large positive externalities for society and the environment as a whole, especially when they do not contribute only to the creation of a small niche market, but have the potential to be scaled up to reach the sustainable transformation of an entire industry. In this article, it is therefore argued that the emphasis of the term 'Green Innovation' must be on 'innovation' rather than what is generally perceived to be 'green'. This would imply that governments focus more on the creation of an enabling environment for large-scale innovations that contribute to the global green transformation of an entire industry rather than merely subsidizing green niche markets.

1. Introduction

In this article, we will address the pressing need to promote new generations of entrepreneurs who are able to identify and take advantage of green business opportunities. The perspectives of developed and developing countries on this issue are often diverging, due to conflicting interests and unanswered questions.

Firstly, there is widespread concern that the need to promote a greener economy will mainly be used by developed countries as a new excuse for protectionism and for imposing conditionalities on developing countries (UNCTAD

2011b). How can we minimize the risk that the term "green economy" will not just become a new vehicle for developed countries governments to re-package their economic interests in the guise of the new language of "sustainable economic development"?

Secondly, until now the development of green products that meet the needs of poor consumers has been limited. Do we have to assume that green entrepreneurship and green innovation are mainly about the production and trade of environmentally friendly but expensive products to affluent consumers in developed countries? Will the large number of green projects currently implemented in developing countries continue once the funding from international donors is withdrawn?

Thirdly, even though niche markets for green products contribute to more sustainable consumption and production patterns, they will not lead to a global transformation towards a green economy until they reach the masses. How can we make sure that the models used in welfare economics take into account the positive externalities generated by social and green entrepreneurship through private sector activities, and acknowledge such welfare gains?

2. Defining Green Entrepreneurship

In the past few years considerable interest and research have been devoted to understanding the determinants of green growth. However, an important and relevant issue seems to have escaped the attention of both economists and policy-makers: ultimately, green products and technologies are to be introduced into the marketplace by 'green' entrepreneurs. These are the economic actors who make it possible to turn ideas into a reality, by transforming prototypes into commercially viable products. However, the majority of policy mechanisms that have tried to enable green growth are aimed at identifying the technological innovations capable of mitigating the human impact on the environment

and addressing global environmental issues - such as climate change, land degradation and loss of biodiversity. From a policy perspective, less attention has been paid to technology commercialization and to the need to subsidize the "public good" component of green entrepreneurship. From an analytical perspective, a series of key questions still remain, namely: what are the traits of green entrepreneurs? In what kind of institutional environment do they best flourish? Are the drivers of green entrepreneurship common in both industrialized and developing countries?

Indeed, there is an essential difference between the way of looking at green entrepreneurship in developed countries and developing countries. Developed countries and international organizations tend to put more emphasis on the term 'green' and on market opportunities, while developing countries tend to focus more on the term 'entrepreneurship' and on market needs. Chinese and Indian entrepreneurs, for example, are genuinely transforming the emerging economies by developing affordable products that meet the needs of the poor, but still need to become more green (Khanna 2011). Developed countries tend to spend large amounts of money on green innovation projects, but then face the missing link of entrepreneurs who move the product from a prototype to a commercially viable product (Macilwain 2011).

Entrepreneurs are business people who envisage new business opportunities and ventures by taking risks and converting their ideas into commercial reality. Entrepreneurs introduce innovation, adoption and new ideas to the economy as well to the society. Entrepreneurial activities are related to Schumpeter's (1934) notion of 'creative destruction', in that entrepreneurs promote change in the economic and business environment and overtake the old ways of operating. Yet, there seems to be no clear definition of entrepreneurship in the literature, especially with regard to the degree of innovation and size of a particular activity that is necessary to count as entrepreneurial (Ulijn & Brown 2003). There is a general consensus that an entrepreneur generally acts on a valuable opportunity and is driven by a special motivation (Miller 2003). Thornton (1999) defines entrepreneurship as the creation of new organizations, which implies a certain degree of innovation and size. This creation occurs as a context-dependent, social and economic process.

The entrepreneurship literature can roughly be divided into a supply side perspective that looks at the availability of individuals with traits that make them potential entrepreneurs, and a demand side perspective, that looks at the number and nature of entrepreneurial roles that need to be filled in a society (Thornton 1999). On the supply side there is a wide body of literature that tries to capture entrepreneurial orientation (Kreiser et al. 2002) and motivational constructs that are linked to individual value orientation (Schwartz 1992). They represent individual traits and personal values that apply across cultures and time. On the demand side, research is mainly focused on how institutions (Williamson 2000) and culture (Hofstede 1980, Hayton

et al. 2002, Shane 2003) either enable or hinder entrepreneurial activity in a particular region or country. Often the supply and demand side analyses of entrepreneurship are eventually combined; for example by unearthing the cultural orientation within personal traits. It then reflects the embeddedness of the economic environment in social and structural relationships (Granovetter 1985). All these insights were mainly gained from empirical research in developed countries. There is only scarce research on entrepreneurs in emerging economies (Tan 2001) and even less so in least developed countries.

The research literature on green entrepreneurship is even less widespread and lacks a broad empirical foundation. This may also be related to the difficulty to draw the boundaries between green and non-green entrepreneurship. It was not until 1990s that the studies on green entrepreneurship emerged. Bennett (1991), Berle (1991) and Blue (1990) first adopted the notions 'environmental entrepreneur', 'green entrepreneur', 'eco-entrepreneur' and 'ecopreneur' in their studies. Based on the review of such literature, the basic characteristics of green entrepreneurs are:

- Green entrepreneurs undertake new business opportunities and ventures, which usually involve a very high risk. The outcome of these business ventures is often unpredictable.
- Green entrepreneurs are intrinsically motivated. Their business activities have an overall positive effect on the natural environment and on economic sustainability, and consciously aim at insuring a more sustainable future.

Green entrepreneurs often struggle to survive, due to an unstable commitment from the public sector, whose support is being easily overturned by everyday changes in politics and lobbying.

Just to cite a few examples, the solar and wind energy business emerged in the 1970s, mainly in the United States due to the government's response to the oil crisis. The big improvements in solar and wind energy technology happened in public sector research and policy incentives led the private sector to further invest in the commercialization of these emerging technologies. However, once the oil became cheap again, most government efforts to further strengthen the green economy sector were abandoned and investment in alternative energy technologies decreased rapidly (OECD 2011b). The same is true for the promotion of sustainable intensification in agriculture. Large public sector investments in agricultural research and development took place during the Cold War period. But once the communist threat disappeared at the end of the 1980s, most governments lacked the will to further invest in agriculture and left it to the private sector to further invest in agriculture. The global food crisis combined with the unsustainable agricultural practices is to a great extent the result of this neglect of agriculture over the past two decades (Aerni 2008).

3. Stimulating Green Innovation

The concept of “green innovation” is often associated with renewable energy (e.g. wind power and fuel cells). However, the shift to a post-carbon economy depends on much more than technological improvements in energy related technologies: it needs a watershed on several levels, from innovation in lifestyle to innovation in investment and governance (Kemp, 2011). Additionally, non-technological innovations are at least as relevant, considering the case of new business models that develop new organizational approaches.

Before Prahalad (2004), most economists believed that markets always fail to address the needs of the poor. They doubted that there was any growth opportunity at the bottom of the pyramid. Many of the reports on the green economy today are similarly sceptical about the ability of the market to address environmental concerns and to provide enough stimuli to incentivize green innovations (UNEP 2011, FAO 2011, OECD 2011a). Yet, there is evidence that green innovation existed throughout the 20th century, even in the absence of government interventions (Silverthorne 2011). Successful green innovators had an intrinsic motivation to improve through experimentation and, at the same time, were able to create successful businesses. They also invested most of their profits again in the improvement of their green product or technology. By doing that, they created large social and environmental welfare gains while ensuring the commercial viability of their business (Aerni 2010).

Today, despite the modest results achieved by large international forums and the retreat of public finances, green business is creating new economic opportunities for both multinational corporations and small and medium-size enterprises (SMEs). The private sector, stimulating economic growth and development, is increasingly playing an essential role in bringing solutions to global sustainability challenges (ICC, 2012). Green enterprises are increasingly successful in proving to shareholders and stakeholders that sustainability is not just a cost but rather an opportunity to increase revenues and customer loyalty while protecting the environment. To reinforce the business core for sustainability and promote a culture of innovation within all staff divisions, all kinds of companies have been looking at sustainability comprehensively, taking steps in the direction of water conservation, carbon neutrality, solid waste reduction, post-consumption recycling, while measuring rigorously the costs and benefits of each business unit. In some cases, companies have also managed to leverage governments to improve standards, education and labour skills.

Large and well-established corporations often associate green innovation primarily with ‘green labels’, corporate social responsibility and private standards, designed to avoid risk and enhance public reputation (Freidberg 2007). New players in the market, instead, are more often focused on investing in R&D in order to launch innovative and more resource-efficient products that have the potential for increasing returns (Shellenberger and Nordhaus 2007, Lovins 2011). Indeed, international corporations, in particular service-oriented companies and big retailers,

are undertaking innovative new commitments, investing an increasing amount of their budget to improve systematically the management of internal processes along the entire value chain, often involving suppliers directly. Among many other global companies which have gone green, the giant retailer Wal-Mart, is for instance adopting since 2005 more planet-friendly practices to reduce its footprint and the use of natural resources. As in the case of similar initiatives (Tesco, Migros, Coop, Woolworth, IKEA, etc), green efforts like more efficient trucking fleet, energy-saving lighting and refrigeration, reduced packaging, recycled materials, renewable energy micro-plants and cogeneration, etc., have resulted in enormous cost reductions or even profits as from the reuse of waste (Humes, 2011). Equally, leading clothes and sport footwear global retailers (Nike, Puma, Adidas, H&M, etc.) have joined forces to detox their supply chains from nine classes of hazardous chemicals (“Zero Discharge of Hazardous Chemicals by 2020 – Ø ZDHC”). Nevertheless at Rio+20 Business Day, Carlos Busquets, ICC Deputy Director, has particularly highlighted the fact that SMEs can play a critical role in green growth and environmental responsibility, for being a crucial component of larger corporations’ global supply and value chain, as well as a major source of innovation and employment.

It is important to note that although Western-centric approaches might have influenced so far the discussions looking at companies combining profits with debatable green “labels” or arguing that “green” is a rich-world luxury or rather a conspiracy of industrialized countries, green enterprises are also growing in emerging and developing markets. In BRIICS countries, (Brazil, India, China, South Africa, etc.) and rapidly developing countries such as the TIIMBs (Turkey, Indonesia, Mexico, etc) business may suffer from weak infrastructures, not fully reliable supply-chains, limited access to finance, inefficient institutions or burdensome regulations, but domestic SMEs are increasing called to meet the needs of new customers without compromising the local environment, and to increase their organizational and productive efficiency by reducing consumption of natural capital.

To this regard, an increasing number of highly profitable businesses from the developing world are turning eco-consciousness in a competitive advantage, demonstrating that they can be just as green as their Western rivals. They were identified by a new study of the World Economic Forum (WEF) and the Boston Consulting Group (BCG), which argues that these “new sustainability champions” are using unique practices for doing business in resource-constrained and population-stressed environments, pro-actively turning constraints into opportunity through innovation. The study points out that sustainability is often embedded in the company’s culture. When benchmarked against their peers these new green champions are demonstrating superior financial performance, and proved that green enterprises creating unconventional and profitable ways to enhance sustainability and new market solutions may achieve higher-than-average margins for economic growth.

The WEF-BCG report includes a few interesting cases of successful emerging-world companies. The Chinese Zhangzidao Fishery Group has, for example, adopted an Integrated Multi-Trophic Aquaculture (IMTA) farming method to increase production and economic diversification while creating a balanced relation with the marine ecosystem, reducing waste and raising levels of carbon sink. The Indian cement company, Shree Cement, in introducing an intelligent energy system to recover heat along with an innovative treatment to reduce waste and use of water, has achieved impressive energy efficiency results, enabling the company to perform well financially and environmentally. The Brazilian cosmetics manufacturer, Natura, promoted the re-use, refill and recycling of its packaging while using sugarcane-based plastic to reduce GHG emissions, and is promoting resource-efficiency and conservation adopting FSC certificated raw materials.

Therefore, while it seems clear that sustainable economic changes need to come from the bottom up, the transition to a green economy requires the simultaneous integration of top down incentives-regulations and bottom up solutions. The holistic vision which underpins the capability of innovation to create new ways and combinations, as well as the interdependency between the economic, social and environmental aspects of development (“the three strands of sustainable development”), and the economy itself, characterized by globally connected and cross-cutting value chains, require combined efforts from the public and private sectors.

As a matter of fact integrated governance and a conducive institutional framework reduces the uncertainties for green entrepreneurs and allows all actors to deliver on their shared responsibilities and to address the missing links within the marketplace. To this regard governments must shape the context creating a supportive Research and Development (R&D) infrastructure. The OECD report ‘Fostering Innovation for Green Growth’ contains some important policy recommendations. Governments should introduce adequate regulatory incentives to strengthen markets for green innovation, and a well-functioning Intellectual Property Rights (IPR) system to foster private sector investment and diffusion of green innovation. They should also promote more entrepreneurship in the private sector and enhance public sector support for R&D to facilitate sustainable technological change (OECD 2011b).

The OECD report also points out that existing production technology and consumer behaviours can only be expected to produce positive outcomes for the economy and the environment if innovation is able to decouple growth from natural capital depletion. This is also the basic conclusion of New Growth Theory and its more recent emphasis on the importance of institutions (Jones & Romer 2009). The main argument is that population growth as such might not necessarily be a problem, if it also leads to more investment in the education of people. This investment is then likely to increase the number of good ideas on how to address the problem

of scarcity, which will universally be adopted if a conducive institutional environment is in place.

Recently many countries, in their transition to a low-carbon economy, have been adopting strategies and policies to develop new opportunities and to attract new green investments. To this regard very diverse economic entities have emphasized the role that the public sector can play to influence markets towards sustainable paths without increasing pressure on tax-payers or altering competition among different industries. Although additional research is needed to understand how to create a more conducive environment for sustainable development and to explore the potential of sovereign wealth funds (SWFs), governments are increasingly encouraging public-private partnerships to attract green investments and creating competitive locations for green Foreign Direct Investments (FDIs). While green special economic zones (SEZs), designed to operate in a sustainable way, usually target specific activities in the value chain creating Cleantech Parks for research, development and commercialization (WIF, 2012), budget-constrained authorities have been opening to private investments and new ways of finance to reduce the environmental and economic bill of public infrastructure. For instance, under the Chicago Infrastructure Trust (CIT), a \$1.7b private-public partnership to improve public infrastructure and overcome budget deficit, an initial private investment of \$225m is aimed at making city buildings more energy-efficient and is expected to be repaid off by an estimated \$20m annual saving in energy costs (Keyser, 2012).

Governments have also provided positive incentives to markets, channelling public expenditure into procedures of Green Public Procurement (GPP). In particular, the European Commission has set specific green criteria for public tendering procedures. Europe's public procurers, with a collective annual budget of €2 trillion or 17% of the EU's GDP, can contribute significantly to foster the establishment of sustainable production and consumption. Given that they encourage consumption by both individuals and organizations of environmentally friendly products and services owing to scientifically proven sustainability advantages (AEA, 2011).

A lesson to be learned from past attempts to promote a green economy is that not all types of government interventions manage to fostering green entrepreneurship and innovation. For example, Germany decided to promote the growth of its solar industry through subsidies and price guarantees for solar electricity rather than investment in R&D. The result is that the German solar industry has not become more but less competitive. In 2011 it suffered from the competition of cheaper solar panels from China (Wiesmann 2012). The relationship between strict environmental regulation and private sector investment in more environmentally friendly products is also not very clear (Bernauer 2006). Often big corporations prefer to invest in green marketing rather than green innovation (Aerni 2009). Therefore, it is all the more important to understand and clearly define the patterns of green entrepreneurship and to make essential distinctions about the degree of innovativeness, the different types of policy in-

tervention to promote it, and the potential for growth and job creation.

Multilateral approaches across countries and sectors as well as integrated governance at all levels to combine economic and social advances while protecting the environment, are fundamental conditions to drive growth in a resource-constrained world. In order to avoid the collision between strong demographic and economic growth, strategies of short-medium-term profits will have to be balanced by longer-term shared values (ICC, 2012).

So far accounting methods have made a substantive progress. Several specific certificate systems and sustainability reporting standards are already broadly diffused in operational corporate schemes to assist green enterprises with lifecycle assessments and to provide relevant, verified and comparable information about the environmental impact from goods and services, e.g. Forest Stewardship Council (FSC), Totally Chlorine Free (TCF), Environmental Product Declaration (EPD), Global Reporting Initiative (GRI), etc. However further analysis, better disclosure and reporting as well as accounting measures and metrics are needed to assess costs and benefits beyond the pure economic single data, including enlarged review of correlated costs. Entire life-cycle assessment approaches and indicators, enabling comparison across nations and sectors, are the way forward to provide more analytical information and to turn the green economy fully operational (ICC, 2012).

4. Conclusions

“Green entrepreneurship” is an increasingly relevant phenomenon from a development perspective, but still largely under-researched. While global inequality and rising unemployment pose major challenges to policy makers, the widespread destruction of wildlife and natural habitats, together with the emerging effects of climate change and the rapid loss of biodiversity, compound the vulnerability of already burdened social groups and ecosystems. The negative impact that environmentally-inefficient economic activities have on the environment and consequently on the economy have induced policy makers and scientists to emphasize the urgent need to move toward a more environmentally-sustainable development path by encouraging the adoption of sustainable practices and “cleaner technologies”. In this article, we have argued that fostering the development of green enterprises and enhancing the resilience of economies and natural ecosystems necessitates a more in-depth analysis of conditions and factors that influence green entrepreneurship. This is also inline with the outcomes of the Rio+20 Conference.

In particular, there is a need to define the boundaries of “green entrepreneurship” and “green innovation”, to study the impact of system failures and to better understand how formal-informal networks determine the performance of (green) small and medium-sized enterprises (SMEs). These are of crucial importance to the economy as they make significant contributions to job creation, are the engines of change and have been credited for introducing innovation, adapting to new ideas and responding to changes more rapidly, flexibly and efficiently than larger

organisations. Moreover, the patterns of technology development and adaptation are considerably influenced by the evolving nature of innovation and its determinants. The recent advance of new information technologies and the globalisation of economic processes have drastically modified the traditional methods used by enterprises to innovate. Although impressive advances have been made with technological research and implementation as well as with environmental accounting and reporting, the gap towards sustainability is still significant. It is important to understand the pre-conditions for the creation of “green innovation”, the factors that act as barriers and triggers, and how changes in access to information, new technologies, resources and markets impact on or change the dynamics of innovation and management.

Systemic change is needed to foster progress in economics, accounting and legal frameworks. Although as pointed out by a survey of Accenture (UN Global Compact-Accenture, 2010), sustainability has become a central worldwide component of corporate business plans, acknowledged by executives as being highly relevant for the future of their businesses (98% in Asia Pacific region compared with a 93% average), the global transition to a green economy is only at the beginning and the earth can no longer wait. The next decades will see rapid growth in global population, industrialization and economic development. Resources are limited and we must meet the needs of people. Green entrepreneurs are delivering on their commitments to provide efficient and safe operations while being environmentally and socially responsible.

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