

**Tilburg University**

## **Internal Regulation of Innovation Externalities for Development**

Voeten, J.; Naudé, Wim

*Publication date:*  
2013

*Document Version*  
Early version, also known as pre-print

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*  
Voeten, J., & Naudé, W. (2013). *Internal Regulation of Innovation Externalities for Development: Lessons from Vietnam*.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# **Internal Regulation of Innovation Externalities for Development: Lessons from Vietnam**

Working paper prepared for the International Workshop and Journal Special Issue: “New Models of Innovation for Development”, Thursday 4 July 2013, University of Manchester, UK

## **Authors:**

Jaap Voeten (corresponding author: Tilburg University, Tilburg, The Netherlands  
[j.voeten@tilburguniversity.edu](mailto:j.voeten@tilburguniversity.edu))

Wim Naudé (Maastricht School of Management, University of Maastricht, and UNU-MERIT, Maastricht, The Netherlands, [naude@msm.nl](mailto:naude@msm.nl) )

## **1. Introduction**

Innovation is the ‘putting into practice of inventions’ (Fagerberg et al., 2005). Such inventions are perhaps most often technological but can also include the exploitation of new markets and the development of new ways to organize business. Following Schumpeter (1911; 1942) and the substantial scientific literature in evolutionary economics and endogenous growth theory (e.g. Aghion and Howitt, 1998; Freeman, 1994; Nooteboom, 2000) there is general agreement that innovation matter for development (see also Szirmai et al., 2011).

More recently however a number of authors have started to point to the fact that innovation can also have negative, undesirable consequences for development, and that innovation may not matter so much for the poorest countries, that it matters more for growth and productivity gains in advanced economies. For instance after Baumol (1990) pointed to the occurrence of “destructive” entrepreneurship, a number of authors have elaborated on the fact that when entrepreneurs innovate, it is to raise their own status and wealth, and this can actually come at a cost to the rest of society (see Desai et al., 2013; Sanders and Weitzel, 2013). And a central implication in endogenous growth theory is that advanced economies with their superior systems of innovation profit more from investment in knowledge than less advanced economies. It is more specifically argued that growth in poor countries are more resource and factor driven, rather than being “innovation” driven growth as in advanced economies. Indeed, “common” measures of innovation such as R&D suggest that innovation is overwhelmingly concentrated in the most advanced economies (Szirmai, 2008).

In this paper we focus on the conjunction of these two issues, i.e. innovation in developing countries, and the potential negative impacts of innovation on development. We draw some lessons and

perspectives from Vietnam. We do this because first, we believe, as does for instance Szirmai et al (2011) that “innovation in developing countries is often vibrant and important”. Moreover, as Keilbach (2009) pointed out ‘the literature on entrepreneurship and innovation, however, has largely ignored developing countries’. Partly, this may have been due to the difficulty of measuring innovation in developing context, and partly also because in advanced economies innovation studies have mostly studied innovation as described by Schumpeter Mark II innovation i.e. where innovation is large done by large oligopolistic firms and in R&D laboratories. In developing countries, such as Vietnam, innovation is indeed vibrant, and important as we will argue, but also largely more in the nature of Schumpeter’s original 1911 “Mark I” conceptualization of innovation being done by individual entrepreneurs and smaller firms.

Secondly, our concern with innovation in developing countries and the relevance of negative impacts on innovation is motivated by our hypothesis that the context of innovation is a determining factor of the extent to which negative spill-over effects may be limited. For instance, in the case of Mark II innovation, there may be less societal breaks and controls on the impacts of innovation than for instance in the case of Mark I innovation, driven by small businesses and entrepreneurs who may be more embedded in a local society.

This paper explores how contexts in developing countries could limit the negative spill-over effects of innovation. In the next paragraphs we discuss innovation in developing countries while acknowledging possible harmful consequences. We add micro evidence from Vietnam for developing a societal process model of internal regulation and conclude policy implications.

## **2. Innovation in Developing Countries**

We mentioned in the introduction that the scientific literature on innovation has relatively neglected developing countries (e.g. Keilbach, 2009). In this literature the received wisdom about innovation in developing countries are that (i) productivity and economic growth is largely resource and factor-driven, and not innovation driven; (ii) innovation tend to be of the “new to the firm” rather than the “new to the world” variety, i.e. imitative in nature; and (iii) innovation tend to be incremental rather than radical or disruptive and (iv) national innovation systems, a prerequisite for high and sustained innovation-driven growth, is largely lacking in developing countries.

Some of these ‘stylized facts’ about innovation in developing countries have recently come under criticism. Innovation is increasingly considered to be more important than previously thought for productivity growth and competitiveness in developing countries (Gellynck et al. 2011; Wolf 2007; Szirmai, et al., 2011). On the one hand there are an increasing number of authors recognizing the potential importance of technological innovations allowing developing countries to ‘leapfrog’, i.e.

achieve accelerated development by skipping less efficient or more polluting technologies and industries and moving directly to more advanced, cheaper or greener ones (Lewis 2007). Mobile telephony in Africa is an often used example. On the other hand, a number of studies have found hard evidence for the contribution of innovation on the firm level to foster greater productivity and efficiency in developing countries. For instance Van Dijk and Sandee (2002) signal innovation in the Kenyan food processing sector, furniture making in Nicaragua and tile manufacturing in Indonesia that highlight patterns of innovation adoption and diffusion. These enterprise upgrading efforts resulted in increased entrepreneurs' ownership and secured incomes. Gebreeyesus (2011) discusses innovation and micro-enterprise growth in Ethiopia. Research in India has focused on the country's role as global innovator for ICT and hi-tech products (Dutz 2007). The studies do however confirm that innovation is a complex activity that is not easy to define and measure (Kline and Rosenberg 1986; Szmytkowski, 2005).

If, as can be concluded that innovation matters more in developing countries than general assumed, and that innovation is in fact more widespread in developing countries and prevalent amongst small businesses, the question can be raised what do we understand or know about the potential harmful consequences of innovation in developing countries?

### **3. Innovation as Two-Edged Sword**

Richard Feynman once quoted a Buddhist proverb stating that 'to every man is given the key to the gates of heaven; the same key opens the gates of hell.' Innovation and entrepreneurship has the same two-sided nature. Nuclear energy, the automobile, guns, and modern medicine are all cases in point. More recently the global financial crisis of 2008 has been ascribed to innovations in financial derivatives that allowed banks to take more risks, but also made it more difficult for consumers and bank supervisors and regulators to evaluate risks that the innovative bankers were taking.

Hence, and also in developing countries one has to acknowledge the possible harmful societal consequences of innovation. In developing countries the nature of innovation as described in the previous section may imply – and they often do - in the form of harmful environmental or social consequences such as uneven distribution of economic benefits or hardship to some members of society (Witt, 1996). This means that, *a priori*, poor people may not necessarily always participate in or benefit from innovation. And poor people are much more vulnerable to and susceptible to environmental degradation and social economic uneven distribution issues. New models of innovation for development are to be verified against modern notions of development such as capability, empowerment and fulfilment of basic needs and environmentally sustainable development (Sen, 1999; London, 2007; Alkire, 2007; Elkingthon, 1999; Hart, 2007; World Bank, 2008).

An economic-perspective on dealing with the harmful effects of innovation is to argue for regulation and/or taxation of the undesirable consequences of innovation. More generally environmental and social regulations have been developed and implemented various degrees of success over the years. Regulations of the external sort by governments in environmental policies do however have their limitations. Per definition, innovations bring a new product or service to market and the effects of these may not always be known to external regulators. Innovative entrepreneurs may be able to avoid detection, taxation or effective regulation. Moreover, in developing countries offer cope with weak formal institutional structures for developing and enforcing external regulation mechanisms. Hence, one option is to seek new models of innovation for development that are based at least partly on internal regulation by firms and entrepreneurs themselves, and a greater role and interaction between international regulation and societal oversight. The greater ethical business behaviour implied by the aforementioned has been made explicit in concepts such as Social Corporate Responsibility (CSR) (Bowden 1953; Frederic 1960), stakeholders interests (Freeman, 1984) and ‘people-planet-profit’ (Hart, 2007; Elkington, 1999).

The internal regulation “option” is supported by various economic and sociological studies on human interaction and behaviour involving role of institutions – the rules of the game (North, 1990). These point out that a society is only partially governed by formal institutions of a central authority and associated policies. Informal institutions shape the context and basis for internal regulation in times of societal frictions and conflict. In fact, there are various examples of internal conflict resolution mechanisms (regulation) in informal sector contexts - by some referred to as social capital (Putnam, 2000). Examples exist of small entrepreneurs imbedded in a local context facing incentives to apply internal regulation so as to try to limit negative impacts of innovation. Since it is not always possible for governments in developing countries to formalize and enforce policies, it might be an interesting to look into internal resolution systems and how harmful innovation outcomes are addressed. Instead of overruling these, see how policy can complement and strengthen internal regulation mechanisms. This leads to our research question: how does internal regulation of negative innovation spill-overs take place in informal settings relevant for development? What can we learn (policy) from the experiences of developing countries in this regard?

In the remainder of the paper we will take the case of Vietnam to identify the nature and contribution of innovation to development, and how societal process of internal regulation could be important to limit some of the harmful consequences of innovation through policy.

## **4. Lessons from Vietnam**

### **4.1 Background Vietnam**

Over the past two decades, Vietnam has become an emerging economy in Southeast Asia after many troubled years: a war with America, hardships during the socialist post-reunification era and political and military tensions with Cambodia and China. In 1986, Vietnam initiated an economic reform campaign (*Doi Moi*) setting in motion a transition process that would shift the economy from its socialist orientation towards a free and more open market economy, linking up with globalization. Since *Doi Moi*, the Vietnamese economy has experienced a considerable growth. In 1986 Vietnam was listed among the poorest countries in the world with per capita GDP of \$203. GDP growth averaged 7.8 % in the period 1995 - 2008 and per capita GDP has quadrupled since the reforms<sup>1</sup>.

Rapid growth implied new societal problems viewed from a macro perspective. The quality and sustainability of the developments is a source of concern, given the resource-intensive pattern of growth, high levels of pollution, lack of diversification and value addition in exports and the declining contribution of productivity to growth (World Bank, 2012). Poverty is still common in rural areas. Increasing urban affluence has stimulated migration from poor rural provinces into the cities adding to the social problems. Wages for low-skill jobs are minimal and unemployment is high and increasing as the country progressively adapts to the world market economy. While the country grows and overall poverty drops, the rich urban dwellers benefitted more than the rural communities and a wide income disparity exist between the rich and poor (Cling et al., 2011). Environmental degradation and pollution is increasingly considered critical. Some of the rivers and lakes in urban areas are little more than open sewers, and levels of heavy metal and other industrial pollutants are well above safe levels in some areas. Flora and fauna are not only threatened by pollution and habitat encroachment, but also by poaching and illegal logging, particularly in poor rural areas.

Micro, small and medium-sized enterprises (SMEs) play a significant role in Vietnam's economy in terms of number of businesses, employment creation and contribution to GDP. Cling et al. (2011) reports that the informal economy is predominant. In 2007, the informal sector accounted for almost 11 million jobs out of a total of 46 million. This represents nearly a quarter of all main occupations, with nearly half of non-farm work found in the informal sector. Cling et al. (2011) estimate that the informal sector contributes to 20 per cent of GDP, without knowing what share is already included in the national accounts.

Recognizing the importance of the informal sector in economic development, the Vietnamese government is paying special attention to promoting and supporting the development of micro- and household-based crafts businesses in the country. In the course of the agricultural collectivisation in

---

<sup>1</sup> International Monetary Fund (IMF), World Economic Outlook Database, April 2008

the 50s, private sector activities were restricted and craft villages were converted into cooperatives. With the introduction of the economic reform policy in 1986, the people in the craft villages faced the challenge of re-organising their networks and, where appropriate, adjusting their production to modern market demands. New markets were made accessible and some craft villages changed their production completely indeed.

In addressing the issue of innovation and development, the informally organized craft villages in Vietnam are exemplary in the encounter of the issues discussed above: poverty exists along with new economic dynamics and opportunities of globalization. In addition, there are emerging societal problems in the villages including pollution, social injustice and emerging income disparities. With a view to build theoretical insights from micro evidence, we carried out an empirical analysis in a four craft villages in the Red River Delta in northern Vietnam.

## **4.2 Methodology**

We analysed at cluster and household (micro) level the process of introducing new products, technology and new business management concepts that created value along with theoretical analysis and comparison. We spend considerable time in the villages to understand the nature of innovation. Through a *grounded theory* approach (Glaser and Strauss, 1967), we inductively and understanding and an operational definition of innovation in these contexts, which enabled us to identify a number of innovation cases in small producers' clusters (Voeten et al., 2011a). Moreover, we investigated and discussed new research challenges surfaced along the road: although the innovation implied value creation for the communities, it brought along new 'inconvenient' problems such as environmental pollution and uneven distribution of the economic benefits. We discussed the harmful outcomes how the various actors perceived these, how conflicts emerged and whether internal regulation was taking place.

## **4.3 Cases**

### *Van Phuc silk village*

Van Phuc is a semi-urban craft village 12 km south west of Hanoi specialised in silk weaving. The silk industry village was collectivized in the socialist command economy and silk products were sold to state-owned intermediaries. After the introduction of the free market economy in the 1990s, silk weaving households changes marketing practise and opened retail shops in the village's main street and benefitted from the growing demand for silk products. This resulted in an increase of home-based silk production, many new clients and tourists visiting the village and economic prosperity in the village. Over the years, overall silk production in Van Phuc has tripled and sales in small shops account for 40% of overall sales.

By and large the village benefitted from advantage of the new marketing practices although some actors in the value chain claim that the distribution of benefits is unfair. The silk weavers and silk dye workshops in the village enjoy higher and more stable incomes than before, but not to the same extent as the shop owners. Competition is increasing and the shops have to compete more on price and lower their quality standards. This implies the need for higher production volumes per business.

Although the silk shops do not affect the environment directly, increased silk production in Van Phuc has caused serious environmental problems, particularly water pollution. The weaving workshops and shop owners outsource the dyeing to several specialized workshops in the village. The latter use more toxic chemicals for the dyeing process to obtain fashionably bright colours. The waste water from this process is discharged directly into the sewage system and river without any treatment. According to many villagers, this results in severe pollution, black river water and new and more health problems.

Although the villagers are aware of the environmental problems, most of them are not fully convinced that the pollution problems are the result of the silk production. There are many polluting new factories around the villages. There is a growing mood in the village that the pollution is a problem that violates people's right to live in a safe environment. However, the general attitude among the small producers and shop owners is that the problem is an acceptable trade-off for increased economic prosperity. The dye workshop owners do not want to take any action to change their practices. As individuals, they consider themselves as small players in a larger complex. The small producers assume that pollution in Van Phuc can only be addressed by the government and that it is the government's responsibility to do something about it.

#### *Duong Lieu cassava products village*

In cassava noodle producing craft village Duong Lieu groups of households traditionally processed cassava tubers into starch as an intermediate product, and sold it to other groups of households producing noodles within the village. Recently, several households switched to new end products made from starch: children's candy, medicine pills and soft drinks. The candy production in particular has been quite a success in the village. Candy production involves much lighter and quieter work, in contrast to the harder and dirtier tasks associated with starch and noodle production.

Candy production adds more value to the processing of cassava starch than noodle production. The sweets are sold at a 'good' price to agents in Hanoi who distribute them to new profitable markets within Vietnam, such as shops, mini-markets and super markets. They compete with imported sweets and provide the households with higher overall sales revenues than from noodles.

There is also an emerging pollution problem in the village. New end products have increased the demand for starch, resulting in more organic waste being discharged into the open sewage system. Several government research centres and NGOs have carried out environmental studies in Duong Lieu



which indicate a worrying pollution of soil and surface water associated with newly emerged diseases in the village. However, the many small producers ignore these reports and they do not want to discuss the negative consequences with outsiders, including journalists and researchers.

#### *Phu Vinh rattan and bamboo village*

For decades the craft village Phu Vinh has produced traditional bamboo and rattan articles for the domestic market. Some 10 years ago, export companies were established around the village and successfully initiated exports to US and Europe. The export companies outsource the orders to middlemen in the village who subsequently engage small producers for the actual production. The small producers do the weaving and deliver the semi-finished rattan and bamboo products to the middlemen and export companies who then do the final colouring and varnishing, as the last step before shipment overseas. This implies a significant shift to producing higher quality and more expensive rattan and bamboo products with a large increase in value created.

For the export companies and middlemen it is very profitable business. However, the innovation has worked to the disadvantage of the small household enterprises. They get a lower unit price, have to work harder and more family members are now involved in the production work - including children who work after school and old people - and they still earn less than before. These changes are driving the small producers into poverty, as they say, and making them feel marginalized.

The export companies take a hard-line business attitude and do not see that they have a role to play, or a responsibility to modify unit prices to reduce poverty. They see poverty alleviation as the role of the government. The small-scale producers have a different view and blame the export companies for offering such low prices, arguing that they could share more of their profits. The village administration recognizes and sympathizes with the problems of poverty faced by the small-scale producers, yet is unable to interfere with the economic process and the free market price setting mechanism. In addition, they are closely connected - through family ties - to the export companies. There are more and more disputes and frictions between the export companies and the household producers.

#### *Bat Trang ceramics village*

Bat Trang is a ceramics and pottery craft village in the Red River Delta. In the old days, small producers in the cluster baked ceramic products in traditional pottery kilns, fired with wood and charcoal. The smoke emissions from the traditional charcoal kilns produced a lot of air pollution in causing many cases of respiratory diseases. Dirty storage areas for charcoal polluted the streets. By then reports identified Bat Trang as one of the more polluted craft villages in the Red River Delta. Some ten years ago, small producers began to introduce new kilns technology based on firing with Liquefied Petroleum Gas (LPG).

Better control of baking temperatures combined with more intense heat resulted in the production of thinner and smoother ceramics with fewer defects. The new technology also allowed a broad variety of contemporary and popular design, types, shapes, colours and designs of ceramics are now produced. The new technology enabled higher production volumes, higher quality ceramics (which can be exported) and saves on energy costs. The innovators have created surplus value in the village and new employment opportunities for poorer people.

The new production process has led to a significant improvement in the village's living environment. The LPG kilns emit less pollution than the charcoal kilns. Today the air is much cleaner and there are fewer dirty storage areas for charcoal in the streets. According to the villagers, the village is now a greener and a more pleasant place to live.

There is a collective concern for a clean environment. All community members see the clear link between the innovation and the cleaner air and act accordingly. The discussions in the village about the societal implications have come about naturally because the inhabitants of Bat Trang feel strongly connected through family ties and their shared history in ceramic production. In this sense the innovation process was a collective process and the villagers recognized their responsibility, rather than looking to the government for a solution. They have not sought much external assistance to help them move forward.

## **5. Discussion: Towards a New Model of Innovation?**

The innovation cases confirm several stylized facts of innovation in a developing country as reviewed by Keilbach (2009). The innovations involved new products, practices and techniques in existing traditional craft production systems. The innovations were incremental, path dependent and did not concern radical technological breakthroughs. The newness was not new to the world; the innovations mostly involved copying, imitating, adapting and adopting from technology elsewhere. The innovation process was initiated, managed and owned by firms and entrepreneurs themselves. Globalization played a critical role in all four innovation cases; small producers were able to create value by joining global value chains and linking up with global markets. As a result, poor small producers were able to appropriate the innovation value and to increase their incomes.

It is worth noting that the innovation process in the villages did not take place at firm-level but was more an interactive process with various actors at cluster level, which characterizes the innovation process as an informally coordinated (societal) process evolving in a cluster context. The cluster provided extra context in terms of cooperation, trust and information and this enabled learning and shared risk taking in the joint process of innovation. The cases show several particular similarities and differences how negative innovation spill-overs were perceived and addressed.

- The pollution was initially not viewed as a problem in Van Phuc silk village because of positive externalities (income security and stability) of the innovation. However, over time negative health consequences have appeared. An issue is emerging among the villagers in interpreting and valuing the pollution. This was complicated because the exact link with the innovation is not clear.
- For most innovators and most villagers in Duong Lieu cassava village it was clear that the water and soil pollution are consequences of innovation. However, these are sufficiently compensated by the value created and other positive externalities. The villagers do not mind and accept this as a trade-off for the economic benefits of innovation. Actually, it is ‘not done’ to mention the harmful outcomes in the village.
- There surface new poverty problems in Phu Vinh rattan and bamboo village as a result of the uneven distribution of the innovation benefits. The small producers perceive this an uncompensated negative consequence of innovation. The export companies enjoy the economic benefits and do not see it as such a problem, but as part of the new economic reality. This creates a discordant situation and conflict in the village.
- In Bat Trang, the pollution was increasingly considered as a negative consequence, which was at a point in time not compensated by the incomes and other positive externalities. A societal problem emerged. The small producers acknowledged responsibility and introduced LPG kiln technology. Clean air was perceived as a positive externality by all in the community members on top of the economic benefits.

In the first three cases we see that there is no indication of an internal regulation mechanism addressing the negative innovation spill-overs, the actors concerned perceived and valued the innovation spill-overs differently<sup>2</sup> and expect and await external intervention by the government. The fourth case is contrasting; the ceramics producers in Bat Trang took the initiative and responsibility for introducing a clean technology.

By comparing the cases, identifying patterns and observing the different pressures we modelled the process of internal regulation; internal regulation happens once innovators acknowledge or were encouraged or enforced to acknowledge responsibility for the broader consequences of their innovations. This empirically-grounded model presented in annex 1 thus suggests one explanation how internal regulation evolves in these informal settings. It includes the perceptions of community

---

<sup>2</sup> We concluded that it was impossible to develop an objective (positivist) ‘societal impact’ measurement instrument due to the complexity and diversity of innovation consequences and the different normative framework shaping the perceptions of the different actors.

members assessing and valuing the outcomes and consequences of innovation against their own local normative frameworks. The model is adapted from Voeten et al (2012).

Essential in the explanation is the mechanisms how the (positivist) innovation outcomes interact and shape the constructed perceptions and attitudes of the actors. Actor-Network Theory (ANT) proved to be a useful tool in capturing the human and non-human interactions since it acknowledge agency both to material artefacts and human evolved into actor networks (Latour, 2005; Voeten et al., 2011b): internal regulation results from a situation in which all relevant human and non-human ‘actants’ in the community are enrolled in a network. The human actants join the network and support the innovation from a basis of free choice from which they enjoy - from their perspective - sufficient benefits. In the case of harmful consequences, the community members may feel adequately compensated by other benefits derived from an innovation and accept this as some form of trade-off. This leads to a situation where innovation takes place and is accompanied a concern by all parties to identify and to accept of societal consequences, and is followed by the integration and continuous tracking of these social, environmental and economic outcomes.

## **6. Implications for policy**

Desai (1998) and Blackman (2008) have observed that government policies in emerging economies have often prioritized economic growth and underplayed any harmful societal consequences of economic development. Thailand, China and India are cited examples where high rates of economic growth have been achieved with little consideration given to environmental and social consequences. Blackman (2008) observes that ‘development’ involving broader societal implications is gaining a more prominent place on the policy agenda in emerging countries. We believe that the internal regulation societal process model may offer an additional or a complementary policy approach.

Evidence-based policy making is dominant these days and reflects the ‘modernist’ faith in policy informed by reason - *what matters is what works* (Pawson et al., 2005). There are several overall policy development approaches and models, such as the ‘policy cycle’ (Jann and Wegrich, 2007) and the logical model (McLaughlin and Jordan, 1999). Policy frameworks are usually embedded in larger theoretical principles and perspectives typically developed from fundamental research. Within these broad frameworks, policy-makers use a wide range of qualitative and quantitative research sources - including many different research procedures, techniques or methods - for generating evidence, setting priorities and making specific policy decisions (Howlett and Ramesh, 1995; Nutley et al., 2000; Fisher et al. 2007).

With regard to *innovation policy*, the dominant principle guiding policy development is based on innovation systems theory (Lundvall and Borrás, 2005; Edquist, 2002). This sees innovation as

surrounded by a complex of supporting institutions that provide technology, education, finance and the necessary regulatory frameworks. The institutions within these innovation systems exist to overcome obstacles, create trust and stability, structure actors' interactions and provide information to (potential) innovators. The formulation of innovation policy requires an understanding of causality within the specific problems and constraints, institutions, innovation capacity and outputs. Innovation policy typically focuses on technology transfer and encouraging R&D expenditures through subsidies, tax incentives, setting technical standards, training and technology development, access to finance, innovation platforms and patent protection in SME and large firms (OECD, 2005).

The macro and evidence-based approach to policy making for innovation has been challenged on the grounds that it does not pay sufficient attention to the complexity and dynamism of practical realities and constraints (Sanderson, 2002). Nill and Kemp (2009) have suggested the need for evolutionary approaches to support sustainable innovation policies. Dunlop et al. (2001) have developed a policy model to reflect the dynamism of roles and policies (and subsequently of emerging conflicts) for large enterprises working in chaotic environments. They emphasize the fluidity and complexity of interactions faced by enterprises working in such environments. In the internal regulation model provides a basis to develop policy in dynamic and complex contexts by a policy focus on the facilitation and the monitoring of the societal process, instead of anticipating on outcomes.

The policy challenge is to facilitate a community to move swiftly through the five stages of the societal process model towards a situation of internal regulation. In concrete terms, the policy should support a community: to assess the harmful societal change (stage 1); to understand the link with an innovation (stage 2); to weigh the positive and negative outcomes of the innovation (stage 3); to mediate and encourage innovators to behave responsibly (stage 4), and; to involve third parties to enforce or to provide incentives to innovators to acknowledge their responsibility (stage 5).

Along the five stages of the model there are various possibilities for policy intervention facilitating and safeguarding the quality of the process.

**Stage 1:** Whether there is a perception of a harmful societal change or not. The community is not able to assess and agree whether there is a harmful or beneficial societal change. Policy makers scan societal changes and inform villagers accordingly. They could organize multi-actor meetings to present information about the change, involving external 'neutral' partners. They keep the long-term impacts on health, environment and social structure stemming from innovation under review. Villagers can identify, bring forward and discuss the problems in multi-actor platform meetings.

**Stage 2:** Whether the societal change is a consequence of the innovation or not. The community is not able to agree that the societal change is a result of the innovation. Policy makers involve external research institutions - that are considered neutral - to provide analyses on the causality between an

innovation and any harmful societal changes. Policy makers present information from these different sources and organize meetings and facilitate the villagers in interpreting whether or not there is a link.

Stage 3: Whether the societal change is considered as a trade-off or if a conflict is emerging. The community is not able to assess or agree whether the harmful consequences of innovation are compensated by the benefits of the innovation. Policy makers present as much information as possible about the costs and benefits of the innovation, so that villagers themselves can balance and judge according to their norms. The interpretations of such cost-benefit analysis are discussed in multi actor meetings. Policy makers make the potential conflicts explicit.

Stage 4: Whether innovators behave altruistically or opportunistically. The innovators are not explicit about whether they are behaving altruistically or opportunistically. There is ambiguity in their attitudes and behaviour. Policy makers challenge the innovators to take a position over whether they acknowledge responsibility or not. Policy makers encourage the innovators to behave altruistically and call them to account.

Stage 5: Whether there are external parties to enforce innovators to take responsibility. There are no third parties or existing institutional arrangements to enforce the innovator to acknowledge responsibility. Policy makers sort out and facilitate juridical procedures, mobilize existing institutions or encourage institutional change/reform.

There is an additional policy challenge; the innovation societal consequences may vary considerably from village to village. What is acceptable in one village may be the cause of conflict in another. The negative spill-overs of innovation will unfold differently in different locations and thus a macro policy, with a *one size fits all* approach will probably not be effective. It is for these reasons that Brundtland (1987) suggested that there was no single blueprint for sustainable development because what is sustainable is determined by the characteristics and conditions found in a given context. The current research suggests the need to develop micro-level policy responses that are context-specific if the policy objective is to promote development through innovation at the community level. In terms of the Vietnamese cases, these could manifest in an 'independent' policy making and implementation entity at the village level. Such an entity within the village administration would be able to analyze and understand the innovation outcomes, their societal consequences and locals' perceptions.

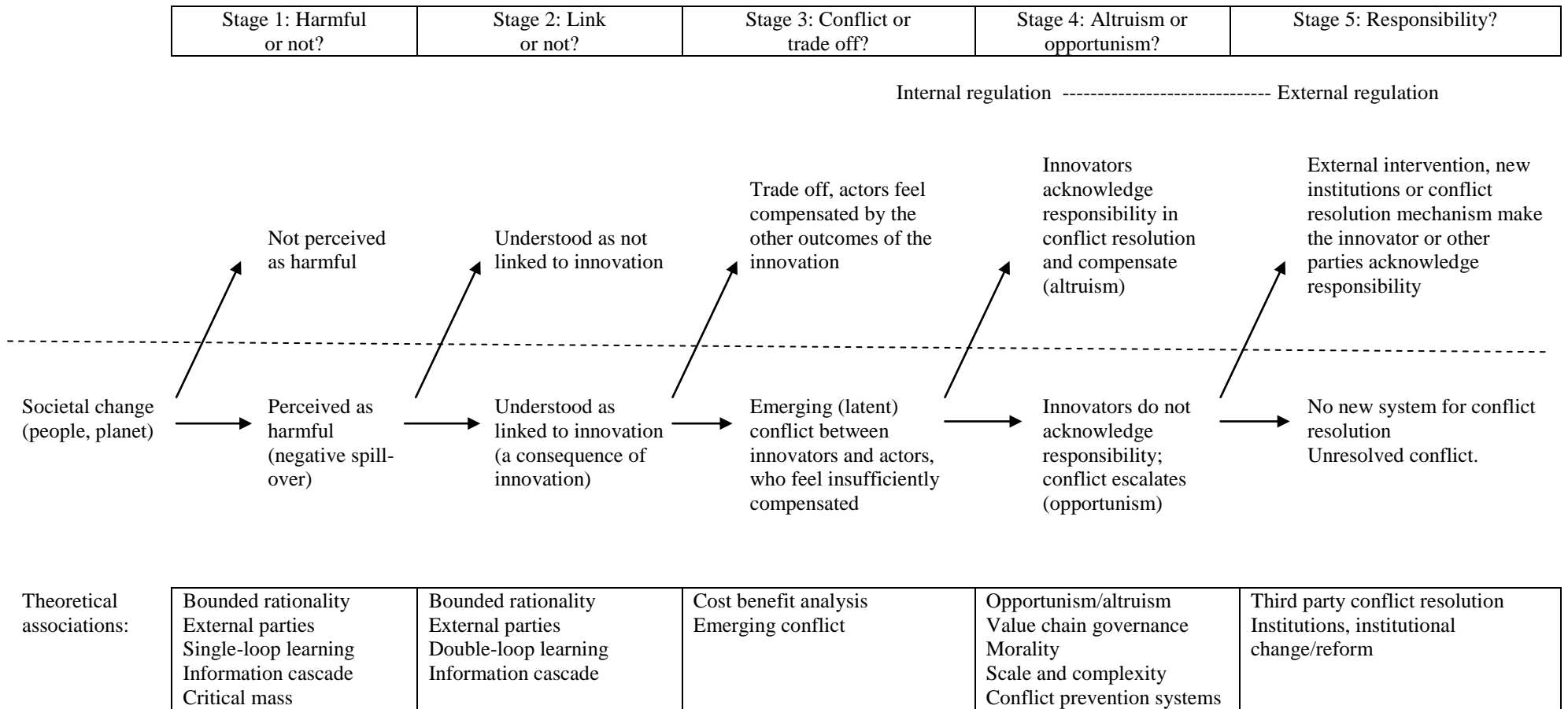
The credibility of the policy making entity at village level will depend on its autonomy and ability to interpret the innovation manifestations, societal outcomes and perceptions and to autonomously develop and implement context-specific innovation policy measures. Moreover, context specific policy measures should be monitored on an on-going basis so as to respond quickly to emerging issues in the innovation societal process (this in line with the policy cycle approach).

## **7. Concluding remarks**

The paper starts to point out that innovation in developing countries is often vibrant and important and likely implies undesirable consequences for development. We explored the hypothesis whether the context of innovation could be a determining factor of the extent to which negative spill-over effects in small business' contexts may be limited. We found empirical evidence confirming the possibility of such internal regulation mechanism. To understand the underlying mechanisms, we modelled internal regulation as a societal process where innovators eventually acknowledge responsibility for the societal consequences of innovation.

Contrasting to existing theories on CSR and the stakeholder approach, the internal regulation in these contexts is an emerging process. Hence, acknowledging responsibility for negative innovation spill-overs is not a strategic decision taken at firm level but the result of is the societal process involving close interactions and informal coordination among actors at cluster level. The paper shows that the informal institutions shape the context and basis for facilitating the internal regulation. However, concluding and defining a required (absolute) set of institutions is not possible due to the context specific nature of the innovation process and the perceptions of the actors involved. Lessons learned include that policy support internal regulation en eventually complemented by external regulation. The suggested policy interventions are about improving the quality of the process, rather than providing incentives, or setting rules and regulations for anticipated outcomes.

**Annex 1: Internal regulation conceptualized as a societal process**



Adapted from Voeten, J., N. Roome, G. de Groot and J. de Haan. 2012. "Resolving environmental and social conflicts – responsible innovation in small producers' clusters in northern Vietnam." In *A stakeholder Approach to Corporate Social Responsibility: Pressures, conflicts, reconciliation* edited by Adam Lindgreen, Philip Kotler, Joëlle Vanhamme and François Maon, 243-261. Aldershot (UK): Gower Publishing.



## References

- Aghion, P., and P. Howitt. 1998. *Endogenous Growth Theory*. Cambridge, MA: MIT Press.
- Alkire, S. 2007. Choosing Dimensions: The Capability Approach and Multidimensional Poverty. Chronic Poverty Research Centre Working Paper No. 88. <http://dx.doi.org/10.2139/ssrn.1646411>.
- Baumol, W. 1990. Entrepreneurship: Productive, unproductive and destructive. *Journal of Political Economy* 98: 893-921.
- Blackman, A. 2008. Can Voluntary Environmental Regulation Work in Developing Countries? Lessons from Case Studies. *Policy Studies Journal* 36(1): 119-141.
- Bowden, H.R. 1953. *Social Responsibilities of the Businessman*. New York, NY: Harper.
- Brundtland, G. (ed.). 1987. *Our Common Future: The World Commission on Environment and Development*. Oxford: Oxford University Press.
- Cling, J.P., M. Razafindrakoto and F. Roubaus. 2011. The Informal Sector in Vietnam. International Labour Organization
- Desai, U. (ed.). 1998. *Ecological Policy and Politics in Developing Countries*. Albany, NY: State University of New York Press.
- Desai, S., Z. J. Acs and U. Weitzel. 2013. A Model of Destructive Entrepreneurship: Insight for Conflict and Postconflict Recovery , *Journal of Conflict Resolution* 57: 20-40
- Dunlop, N., J. Indulska and K. Raymond. 2001. Dynamic policy model for large evolving enterprises. Paper presented at 'Enterprise Distributed Object Computing Conference 2001' (EDOC '01), 4-7 September, Seattle, USA.
- Dutz, M. A. (ed.). 2007. *Unleashing India's Innovation: Toward Sustainable and Inclusive Growth*. Washington: World Bank.
- Edquist, C. 2002. "Innovation policy - A systemic approach." In *The Globalizing Learning Economy* edited by Daniele Archibugi and Bengt-Åke Lundvall, pp. 219-238. Oxford: Oxford University Press.
- Elkington, J. 1999. *Cannibals with Forks, The Triple Bottom Line of the 21st Century Business*. Oxford: Capstone Publishing Limited.
- Fagerberg, J., D. C. Mowery and R. R. Nelson (eds.). 2005. *The Oxford Handbook of Innovation*. Oxford and New York: Oxford University Press.
- Fisher, F., G. Miller and M. S. Sidney. 2007. *Handbook of Public Policy Analysis - Theory, Politics and Methods*. Boca Raton FL: CRC Press Taylor & Francis Group.
- Frederick, W. 1960. The growing concern over business responsibility. *California Management Review*. 2(4):54-61.
- Freeman, C. 1994. The Economics of Technical Change: A Critical Survey. *Cambridge Journal of Economics* 18(4): 463-514.
- Freeman, R. E. 1984. *Strategic Management: A Stakeholder Approach*. Englewood Cliffs, NJ: Prentice Hall.
- Gebreeyesus, M. 2011. "Innovation and Microenterprise Growth in Ethiopia." In *Entrepreneurship, Innovation, and Economic Development*, edited by Adam Szirmai, Wim Naudé and Micheline Goedhuys. Oxford: Oxford University Press.
- Gellynck, X., B. Kühne and R.D. Weaver. 2011. Innovation capacity of food chains: a novel approach. *International Journal of Innovation and Regional Development* 3(2): 99-112.
- Glaser, B. G. and A. L. Strauss. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine Publishing Company.

- Hart, S.. 2007. *Capitalism at the Crossroads - Aligning business, earth and humanity*. Second edition. Upper Saddle River, NJ: Wharton School Publishing.
- Howlett, M. and M. Ramesh. 1995. *Studying Public Policy: Policy Cycles and Policy Subsystems*. Toronto: Oxford University Press.
- Jann, W. and K.Wegrich. 2007. "Theories of the Policy Cycle." In *Handbook of Public Policy Analysis - Theory, Politics, and Methods*, edited by F. Fischer, Gerald Miller and Mara Sidney, 43-62. Boca Raton, FL: Taylor and Francis Group.
- Kline, S.J. and N. Rosenberg. 1986. "An overview of innovation." In *The Positive Sum Strategy: Harnessing Technology for Economic Growth* edited by R. Landau and N. Rosenberg, 275-305. Washington, DC: National Academies Press
- Latour, B. 2005. *Reassembling the Social. An introduction to Actor Network Theory*. Oxford: Oxford University Press.
- Lewis, Joanna. 2007. Technology Acquisition and Innovation in the Developing World: Wind Turbine Development in China and India. *Studies in Comparative International Development (SCID)* 42(3-4): 208-232.
- Lundvall, B.Å. and S. Borrás. 2005. "Science, Technology and Innovation Policy ." In *Innovation Handbook* edited by Jan Fagerberg, David C Mowery and Richard R. Nelson, Chapter 22. Pages 599-631. Oxford: Oxford University Press.
- McLaughlin, J.A. and G.B. Jordan. 1999. Logic models: A tool for telling your program's performance story. *Evaluation and Program Planning* 22(1): 65-72.
- Nill, J. and R. Kemp. 2009. Evolutionary approaches for sustainable innovation policies: From niche to paradigm? *Research Policy Special Issue: Emerging Challenges for Science, Technology and Innovation Policy Research* 38(4):668-680.
- Nooteboom, B. 2000. *Learning and innovation in organizations and economies*. Oxford: Oxford University Press.
- North, D. C. 1990. *Institutions, Institutional Change and Economic Performance*. New York, NY: Cambridge University Press.
- Nutley, S. , H.Davies and P. Smith. 2000. *What Works?: Evidence-Based Policy and Practice in Public Services*. Bristol: The Policy Press.
- OECD. 2005. *The Measurement of Scientific and Technological activities - Proposed guidelines for collecting and interpreting technological innovation data*. Paris: Organization for Economic Co-operation and Development (OECD), Eurostat.
- Pawson, R., T. Greenhalgh, G. Harvey and K. Walshe. 2005. Realist review – a new method of systematic review designed for complex policy interventions. *Journal of Health Services Research and Policy* 10(1):21-34.
- Putnam, R. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
- Sanders, M. and U. Weitzel. 2013. Misallocation of Entrepreneurial Talent in Postconflict Environments, *Journal of Conflict Resolution* 57: 41-64
- Sanderson, I. 2002. Evaluation, Policy Learning and Evidence-Based Policy Making. *Public Administration* 80(1): 1-22.
- Sen, A. 1999. *Development as Freedom*, Oxford, Oxford University Press.
- Schumpeter, J. 1911. *Theorie der Wirtschaftlichen Entwicklung*. Leipzig: Duncker & Humblot.
- Schumpeter, J. 1942. *Capitalism, Socialism and Democracy*. New York: Harper and Row

- Szirmai, A. 2008. Explaining Success and Failure in Development. Working Paper 2008–013. Maastricht: UNU-MERIT.
- Szirmai, A., W. Naudé and M. Goedhuys. 2011. *Entrepreneurship, Innovation, and Economic Development*. Oxford: Oxford University Press.
- Szmytkowski, D. 2005. Innovation definition comparative assessment. (EU) DRAFT developed under GNU, free Documentation License. Brussels: European Union.
- Van Dijk, M. P. and H. Sandee. 2002. *Innovation And Small Enterprises In The Third World*. Cheltenham: Edward Elgar Publishing Limited.
- Vietnam Agenda 21 Office. 2008. *Sustainable Development Implementation in Vietnam*. Hanoi: Ministry of Planning and Investment (MPI) and United Nations Environment Program (UNEP).
- Voeten, J., J. de Haan and G. de Groot. 2011a. “Is that innovation? Assessing examples of revitalized economic dynamics among clusters of small producers in northern Vietnam.” In *Entrepreneurship, Innovation, and Economic Development*, edited by Adam Szirmai, Wim Naudé and Micheline Goedhuys, 96-121. Oxford: Oxford University Press.
- Voeten, J., N. Roome, G. de Groot and J. de Haan. 2011b. Understanding responsible innovation in small producers’ clusters in Vietnam through Actor Network Theory (ANT). Paper presented at a research workshop Understanding Development through Actor-Network Theory, 30 June 2011 at London School of Economics (LSE). Available from <http://www.cdi.manchester.ac.uk/ant4d>.
- Voeten, J., N. Roome, G. de Groot and J. de Haan. 2012. “Resolving environmental and social conflicts – responsible innovation in small producers' clusters in northern Vietnam.” In *A stakeholder Approach to Corporate Social Responsibility: Pressures, conflicts, reconciliation* edited by Adam Lindgreen, Philip Kotler, Joëlle Vanhamme and François Maon, 243-261. Aldershot (UK): Gower Publishing.
- Witt, U. 1996. Innovations, externalities and the problem of economic progress. *Public Choice* 89:113-130
- Wolf, S. 2007. Encouraging Innovation for Productivity Growth in Africa. Work in Progress Series 54, African Trade Policy Centre (ATPC), UNECA ATPC, Addis Ababa.
- World Bank. 2008. *Growth report: Strategies for Sustained Growth and Inclusive Development*. Washington: World Bank Growth and Development Commission.
- World Bank. 2012. Vietnam development report 2012, Market Economy for a Middle-Income Vietnam. Joint Donor Report to the Vietnam Consultative Group Meeting December 06, 2011