

innovations. Respondents were managers and CEOs of firms developing and commercialising radical eco-innovations in the early market stage. This survey included 88% of SMEs as respondents in 23 European countries. This survey primarily focused on eco-innovations in the ready-to-market, early market and prime unfolding stages of the innovation life cycle.

Structural change strictly refers to changes of the economic aggregates over time. Changes in the structure of the aggregates arise primarily from innovation, changes in the structure of demand and displacements on international patterns trade. There is yet not sufficient longitudinal data on eco-innovation to make an appraisal of eco-innovation effects in the structure of the economy. Despite this is possible to obtain a picture of the emerging patterns of technology diffusion and where this is leaning to. Eco-innovation by definition must contribute to give solutions to environmental issues while generating economic rents. In this paper we gauge where eco-innovation is contributing the most in environmental terms and what sectors of the European economy are having the highest churning, as an early symptom of structural change. For doing it so this paper presents the results of an eco-innovation survey on four aspects on the potential for Eco-innovation and structural change in twelve sectors of the European economy. In particular, we look at: (1) what eco-innovation opportunities are currently deployed in a wider number of sectors; (2) what type of eco-innovations are being developed by strategic eco-innovators (process, service, organisational, marketing); (3) the multiplier effect or structural change factors induced by early market eco-innovations (activity, firm, industry and market levels); and, (4) the contribution of eco-innovations to seven eco-innovation priority areas (greenhouse gas reduction, energy efficiency, material efficiency, waste minimisation, eco-design, new advanced eco-materials and recycling and reuse). Finally implications for policy are provided

### **Beware of negative social impacts on small scale enterprise**

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This paper explores the social dimension of climate change mitigation instruments as they impact small scale enterprises in developing countries. The current focus on the environmental dimension of sustainable development leads to a focus on large scale enterprises and on transfer of innovative technologies. Small scale enterprises, however, play an important role in developing economies not only with regard to emissions, but also as a resource for income generation that is crucial in the livelihoods of the poor. Existing institutions and policies designed from a top-down environmental perspective either neglect and thereby passively disadvantage small scale enterprises, or actively oppose small scale enterprise operation in favour of cleaner production by larger scale enterprises. This is true both for international and national and local policies and policy implementation. At international level, the first of the UNFCCC objectives of sustainable development to avoid dangerous anthropogenic interference with the earth's climate system is receiving due attention, whether or not triggered by national energy security and economic development motives; with many different policy mechanisms being developed and implemented. The second UNFCCC objective: the need for developing countries to achieve sustained economic growth and eradication of poverty, is reduced to a potential, but not essential, positive secondary effect of the first. This paper shows how the discourse of sustainable development in this international forum have an inherent bias towards large scale rather than small scale enterprises. It also shows that the policies at national level has targeted or impacted small scale enterprises in different ways than it has medium- and large scale enterprise, sometimes intentionally, and often unintentionally. Both at international and national level, innovation theories and discourse on innovations for sustainable development have a technological fix approach, which may lead to an increase in poverty rather than sustainable development.

An analysis of specific policy instruments and sector cases of energy efficiency in small scale enterprises in developing countries show how the economic discourse has been translated into an institutional structure and policy instruments that are inappropriate to target environmental and social sustainability improvements for this large section of the economy. The impacts of regulations, often claimed to be beneficial for economic development through the effect of stimulating innovations, is studied based on the Chinese Regulations on Promoting the Adjustment of Industrial Structure. The impacts of market based mechanisms such as Energy Service Companies (ESCOs) is based on experience in China and India. The impacts of policy instruments based on training and awareness programmes for energy efficiency in China, India and on the African continent. Empirical evidence from India indicates that the pronounced efforts for the stimulation of small scale enterprise on the one hand, and improving energy efficiency on the other, are not yet aligned.

The subsequent discussion shows that such a mismatch between policy sectors is not unique, but rather inherent to the system in which environmental benefits are defined in terms of economic utility, neglecting the social sustainability dimension. Recommendations are made to redefine the system for sustainable development to include small scale enterprises in such a way that a transition to a more environmentally sustainable society is less harmful to social sustainability.