The increasing multifunctionality of Agricultural Raw Materials: Three dilemmas for innovation and adoption

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Management Studies
WASS

Refereed Article in a scientific journal

2011

sustainability - convergence - diffusion - industry - systems - foods

Agricultural raw materials are increasingly being used for multiple industries or sectors beyond the traditional fiber and nutrition industries: energy in the form of ethanol and biodiesel, industrial products such as polymers and bio-based synthetic chemicals and fibers, and pharmaceutical/health products such as functional foods, growth hormones and organ transplants. A combination of the new science of biotechnology, the new potential end uses of the products of that science and the broadened social/public goals that these products can respond to surfaces at least three fundamental challenges or dilemmas: (1) the competing goals dilemma, (2) the incumbent vs. new entrant competition dilemma, and (3) the industry boundaries dilemma. This paper reviews the innovation and adoption research related to renewables and the bio-economy, and then frames the three dilemmas with the objective of identifying important research issues and the conceptual frameworks that might be useful to analyze these issues.

Although this may present a challenge, it should not hamper the adoption of GI policy tools and its use on the ground, but stimulate progress in developing assessment tools and adaptive evaluation methods to measure the impacts of GI. S. It is the multifunctionality of GI that sets it apart from the majority of its ‘grey’ counterparts, which tend to be designed to perform one function, such as transport or drainage without contributing to the broader environmental, social and economic context (Naumann et al., 2011a). As such, it could be included in the section covering GI’s role of promoting ecosystem services, but with the increasing importance of this role, it is described here in a separate section. In turn, this maintains the structures, material and energy flows of ecosystems which can be included in the section covering GI’s role of promoting ecosystem services. Keywords: Multifunctionality, Indicators, Collecting data on multifunctionality. 1. Production sectors. The agriculture as primary function of production of products of first necessity has today new functions as that environmental, cultural, landscape, also sustained by the community politics. This new functions are known as the multifunctionality of agricultural holdings. Figure 1: Products and services of the multifunctional farmer. PRODUCTIVE FUNCTION.