



17th International Input-Output Conference

TITLE: ANALYZING THE ENVIRONMENTAL BENEFITS OF JOINT PRODUCTION CHAINS BY THE ENTERPRISE INPUT-OUTPUT APPROACH

AUTHORS: YAZAN, DEVRIM MURAT ; DIETZENBACHER, ERIK; ALBINO, VITO

EMAIL: dyazan@poliba.it

COUNTRY: ITALY

KEYWORDS: JOINT PRODUCTION CHAINS ; ENTERPRISE INPUT-OUTPUT ; MATERIALS/ENERGY FLOW ; ENVIRONMENTAL BENEFITS ;

PAPER CONFERENCE CODE: 205

FULL PAPER IN CD?: NO

ABSTRACT:

Increasing levels of natural resources and fossil energy consumption force the governments and policy-makers to be tight on legislating issues. As a result of tighter laws, companies have been paying more attention on the environmental sustainability of their production processes. However, to fit in with such laws companies may explore collaboration with the upstream and downstream production chain actors. Collaboration may be extended to material and energy exchange among two or more production chains creating new opportunity to satisfy environmental constraints. In this framework, joint production chains (JPCs) can be created through reuse, recycle, and remanufacturing activities. In this paper, we propose an enterprise input-output (EIO) approach to classify JPCs. Some types are recognized depending on the specific combination of input-output flows between chains. Design and management problems of each type of JPCs are described and analyzed. Environmental benefits are pointed out and evaluated in terms of reduction of primary inputs, and of waste and by-products. Some case examples related to food, renewable energy, marble, and concrete JPCs will be presented to illustrate the utility of the EIO approach in JPCs analysis.