

>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Abstract

There is an ongoing debate on how to relink manual labour to food production and reproduction of biological resources; i.e. using bio-physical resources instead of using fossil fuel inputs in farming and creating negative externalities. Especially a focus is on humans who work for nature sustaining ecosystem services in less fertile areas such as mountains. Currently food production is part of profit led agri-business aiming at cost minimization and selling food at market prices without recognizing sufficiently labouring for nature. In peasant economies, objectives were broader, including reproduction of humans and nature. We use this notification for a revision of objectives and delineate a behaviour analysis based on effort minimization and bio-physical goals, such as nutrition as well as sustaining population. The hypo-thesis is: reproduction and production (as goals) are to be con-nected. Technically the paper ex-plores how one can apply programming techniques to derive beha-vioural equations based on energy spen-ding and alternatively we get shadow prices as incenti-ves for reproduction. The paper shows that be-havioural equations can be adjusted in system analysis including metabolism and the emphasis is on optimal labouring for food and sustainability.

A question addressed is: what are al-ter-natives to pure human utility maximization? As there is a long discussion on utility maximi-zation vs. pro-fit ma-xi-mi-za-tion in peasant economies, pure profit maximization is reckoned a special case. We go beyond, refer to reproduction and offer a rationale, which is embedded in ecosystem services. Working for reproduction is important for food systems, which include living organisms and have to sustain biological resource balancing bio-physical aspects.

Against that background it is the aim of this paper to explore joint aspects of production, reproduction and behaviour in a formalized model on peasantry. This model shall be applied to a typical mountain farming environment with smallholders. A new mode of objective function for-mu-lation is offered and we pro-vide a conceptual outlay for more sustainable farming. Furthermore we look at policy implications and will show how labour recognition can be a matter of payment for sustaining farming, i.e. in areas of high biodiversity.

The paper is ordered in five parts. (i) We talk about background and concept. (ii) A mo-del--ling fra-me-work is introduced. (iii) Production is modified along reproduction. (iv) Empiri-cal grounding is discussed and (v) scopes for uses are deliberated. It is a conceptual paper on biologi-cal aspects of labour and shows a new way for peasant farming system.