

## Book Review

P.K. Jha et al. (200) *Environment and Agriculture : At the Crossroad of the New Millennium*, ECOS, Tribhuvan University, Kirtipur, Kathmandu, pp 578 including Author Index, price not mentioned.

The book under review, edited by P.K. Jha is an outcome of seminal writings in the field of Agriculture and Environment covering a wide range of topics such as Ecological Interaction in Agriculture, Changes in Net Primary Production in Asian Countries, Cereal Production and Nitrogen load to the Environment, Agri-Business and the Environment, Policy Challenge in Mountain Agriculture, Agriculture and the Nexus Between Economic and Ecological Process and Sustainable Agriculture.

The book is divided into five parts. Part first includes concept papers Agriculture and Environment second part includes Environment and Agriculture in Nepalese Perspective, Third part includes Climatic Studies part fourth includes Environment and Agriculture Studies and part fifth incorporates conference details. Altogether the book includes sixty one peer reviewed papers. The book contains the keynote address of Toni Hagen which throws the light that the last century has brought to mankind an unparalleled wealth of technical inventions innovations and developments, possibly more that mankind has experienced within the several thousands of years in its history. The fundamental changes of civilisation and society involve almost every human being on the planet and has impact on every aspects in humans every day life, technically, economically and socially. Yet science and high technology had not been sufficient to achieve human development, for there are still limits of sustainable and fair human development.

The book puts the question mark on the globalisation of Green Revolution in rice production which was great success in south and southeast Asia. There is water available in abundance in these area and, the damages of the soil through chemical fertilizers, insecticides and pesticides are not so serious because the fields are flooded every year through the monsoon rains and thus flushed out, a natural cleansing soils and prevention of salination alkalisation. Three rice crops per year on the same rice fields, as it is frequent in Bangladesh, are only possible because the muddy monsoon waters flooding the rice fields bring a package of very valuable natural nutrients. Such regular nutrition of the rice fields prevents exhaustion and degrading of the soils, and grants a perfect natural sustainability of soil fertility. Beyond monsoon areas, specially in arid and semi-arid regions, like Sahel in Africa, without flooding the alkalisation and salinisation, and creeping poisoning of the soils through chemical insecticides and pesticides are inevitable. Consequently, all attempts to introduce southeast Asia style of intensive rice production, green revolution, in Africa have failed.

Similarly, agricultural systems provide an important lesson for our understanding of the functioning of ecological system which is an increased understanding of the role of disturbance in the determination and maintenance of diversity and land scape heterogeneity. Disturbances of varying intensity and scale are known to be critical for the maintenance of diversity in many plant communities and consequently influence the ecosystem function. The book presents vividly that more diverse systems are expected to be more stable and resistant to disturbance than are the simple, relatively species of poor communities. The chronic disturbance and management that typifies production level agriculture reduces the diversity of agricultural fields compared to unmanaged areas. This undoubtedly effects important ecosystem such as nutrient cycling - both directly by increasing the nutrient loss and indirectly by affecting soil microbial communities. An important, yet often unappreciated consequence of intensive agriculture production is its long-term effects on soil carbon stores and the concomitant effects this has on soil fertility and nutrient cycling. This is direct consequence of removal of nutrients and organic matter from the soil from tillage and harvesting, erosion, and the reduction in the diversity of inputs. In this context the book suggests to understand and develop management strategies that both reduce losses of soil carbon and match nutrient demands of the crop to the activities of the microbial community, which still remains a critical important area of research in developing an ecological paradigm for sustainable agriculture.

Coming to the environment and agriculture in the Nepalese perspective the book pleads for an urgent need to have sustainable management policy of land, water and agriculture resources. Due to rapid population growth growing cultivation on the marginal land there has been wide spread land degradation phenomenon in Nepal. Further, the transfer of forest floor biomass to the agriculture system and overgrazing in mountains of Nepal have caused excessive leachnig of nutrients, increased surface run off, gully formation and soil erosion. In this context the book reaches to the conclusion that along with human activities these factors have resulted in eutrophication of waterbodies, soil structure deteriorating in terms of organic matter and nutrient content. Thus, sound nutrients replenishing measures should be employed to sustain soil productivity and opines to reverse the process of nutrients transfer from forest lands to agriculture field to aquatic bodies to from the aquatic bodies to agriculture land to balance the nutrient in terrestrial and aquatic ecosystems.

At last the book is very useful for those economies which are primarily based on agriculture but faces environmental threats and special important one for agriculturalists who finnd an enriched literature of agriculture and environment.

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