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REVIEW ARTICLE

UNDERSTANDING SUSTAINABLE RURAL LIVELIHOOD SECURITY IN INDIAN CONTEXT: A REVIEW

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ABSTRACT

Economists of all over the world have been shown a great concern on livelihood security of the rural people living in developing countries. Conceptually 'livelihood' denotes the means, activities, entitlements and assets by which people make a living. Assets are defined as natural (land and water), social (community, family and social networks), political (participation and empowerment), human (education, labour, health and nutrition), physical (roads, clinics, markets, schools and bridges) and economic (jobs, saving and credit). Livelihood security has been interpreted in different ways by various scholars. This is a very broader arena and often misjudged with income security. Therefore, this paper is aimed to critically examine the existing literature and draw meaningful interpretations regarding the different facets of livelihood security.

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INTRODUCTION

Livelihood has been defined as an adequate flow of resources (both cash and kind) to meet the basic needs of the people, access to social institutions relating to kinship, family and neighbourhood, village and gender bias free property rights required to support and sustain a given standard of living. Livelihood security has been understood to encompass ownership of or access to resources and assets to offset risks, ease out shocks and meet contingencies (Chamber, 1989: Redelift, 1990; Chamber and Conway, 1992; Long, 1997; Complain, 1998; Ellis, 2000; Huq, 2000). More precisely, livelihood security is about sustainable socio-economic-cultural and political systems along with their constraints, vulnerabilities, marginalization and risks. Till the beginning of the nineties, not many studies assessing the livelihood security across the globe were available in literature. More recently, however, few studies have attempted to develop measures to assess livelihood security raising different methodological issues (Bouis, 1993; Haddad *et al.,* 1994; CARE, India, 1997; Drinkwater and Rusinow, 1999; Frank, 2000; David, 1999; Rahman and Alam, 2001; Christina *et al.,* 2001; CARE, USA, 2002; Fazeeha, 2002; Matshali, 2002; Ellis *et al.,* 2002).

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Distinction between livelihood diversification with Income diversification

Livelihood Diversification has come under increasing scrutiny because of its powerful and pervasive impact. Livelihood diversification is not synonymous with income diversification. Income diversification can be defined as the composition of household incomes at a given instant in time. Whereas, livelihood diversification (LD) refers to a continuous adaptive process whereby households add new activities, maintain existing ones or drop others, thereby maintaining diverse and changing livelihood portfolios. Thus, "r*ural livelihood diversification is defined as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living* (Ellis, 2000). It is a key strategy by which people in many parts of the world try to make ends meet and improve their well-being. The literature on livelihood diversification, which crosses several related fields and disciplinary approaches, is characterized by many terms and definitions.

Livelihood security approach is an integral part of many organizations working for the poor. This approach evolved from Sen's (1981) theory on entitlement. Entitlement refers to the set of income and resource bundles (e.g. assets, commodities) over which households can establish control and secure their livelihoods. The evolution of the concepts and issues related to the theory of entitlements eventually led to the development of the broader concept of household livelihood security (HLS). There is diversity in defining HLS; many of the definitions were being derived from the work of Chambers and Conway (1992). In their early work they defined livelihoods as "*the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable when people can cope with and recover from stress and shocks, maintain or enhance their capabilities and assets, and provide sustainable livelihood opportunities for the next generation*". Household livelihood security may also be defined as a family's or community's ability to maintain and improve its income, assets and social well-being from year to year the relief to rehabilitation to development continuum (Frankenberger, 1996).

Since the early-1990s, the concept of sustainable livelihood is dominating the issue of rural development. Among the first contribution to this area was by Chambers (1987). The concept of sustainable livelihood has been interpreted in various ways (Ellis, 2000). The sustainability of livelihoods becomes a function of how men and women utilize asset portfolios on both a short and long-term basis. Sustainable livelihoods are those that are able to cope with and recover from shocks and stresses such as drought, civil war and policy failure through adaptive and coping strategies (Jirli *et al.,* 2008). Capability, equity and sustainability combine in the concept of sustainable livelihood. The "*livelihood becomes sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base*" (Scoones, 1998).

The concept, Sustainable Rural Livelihood (SRL) is an attempt to go beyond the conventional definitions and approaches to poverty eradication. These had been found to be too narrow that many researchers focused only on certain aspects or manifestations of poverty, such as low income, or did not consider other vital aspects of poverty such as vulnerability and social inclusion. It is now recognized that more attention must be given to the various factors and processes which either constrain or enhance poor people's ability to make a living in an economically, ecologically and socially sustainable manner. The SRL concept offers a more coherent and integrated approach to poverty alleviation. To achieve sustainable rural livelihoods different livelihood capitals such as human capital, social capital, natural capital, physical capital and financial capital would play a greater role to cope with shocks and stresses and maintain or enhance the individual's capabilities and assets both in present and in the future without degrading the natural resource base (Dadabhau and Kisan, 2013).

Nature of livelihood diversification found in rural households

Diversification in rural livelihoods is the subject of conceptual and policy-based research because income from farming has come under pressure due to population explosion (Barrett *et al*., 2001; Davies, 1993; Ellis, 1998; Bryceson, 1999). It is being realized for some time that rural people no longer remain confined to crop production, fishing, forest management or livestock-rearing but combine a range of occupations to construct a diverse portfolio of activities (Dercon and Krishanan, 1996; Ellis, 2000; Unni, 1996). Growth of agriculture and its diversification are crucial for the growth of non-agricultural sector as well as overall economy and also for reducing inter-regional economic disparities. Promotion of the livestock based integrated farming system and the efficient and effective self-help groups are the key initiatives to make farming a profitable and less risky venture, thus sustaining rural livelihoods and reducing regional inequalities (Kumar *et al*., 2006). People diversify their income by adopting a range of activities. Thus, income sources may include 'farm income', 'non- farm income' (non-agricultural income sources, such as non-farm wages and business income), and 'off-farm income' (wages of exchange labour on other farms –i.e. within agriculture, including payment in kind) (Ellis, 2000). Barrett, *et al.* (2001) explained that exploiting these off – farm opportunities could offer a pathway out of poverty for the rural poor. The rural economy is not based mainly on agriculture but rather on a diversified array of livelihood activities and enterprises. Elsewhere, a common pattern for the very poor and comparatively well off to have the most diversified livelihood, while the middle ranges of income display less diversity (Ellis, 1999).

Socio-economic composition of rural households

Singh (2013) collected farm household income data in Uttar Pradesh by taking a sample of 3474 farm households selected from 24 districts, 42 blocks and 84 villages. Out of the total farm households surveyed, 60.0 per cent were marginal farmers, 25.0 per cent were small farmers, 11.4 per cent were medium farmers and 4.4 per cent were large farmers. In this context Saha and Bahal (2010) made a modest attempt to demonstrate that farm and off-farm activities are carried out by a significant proportion of adults and make an important contribution to livelihoods in West Bengal. It shows that there is a high involvement of farm households in different non-farm income sources along with agricultural income (76.25%). There was a high involvement of women (24%) also in different diversification activities. Okere and shittu (2013) observed that majority of the farm households were in their economically active years (below 50years of age) and hence can actively involved in livelihood diversification.

The study clearly indicated that male members dominate agricultural activities and engaged more in diversified livelihood activities in the study area. Joshi *et al.* (2006) examined that the biggest advantage for smallholders is the availability of their family labour. Smallholders owned about 4.5 persons/ha as compared to 1.2 persons/ha on medium farms and 0.5 persons/ha on the large farms. The smallholders thus had comparative advantage in switching-over to more remunerative and labour-intensive crops. It was observed that cultivation of vegetables required 58 per cent more labour than that by cereals. On an average, vegetable production required approximately 64 mandays/ha in comparison to 41 mandays for

cereals. Earlier, Von Braun (1995) had concluded that commercialization of agriculture benefits the poor by directly generating employment and augmenting their income. The impact of diversification and commercialization would have direct bearing on poverty alleviation and nutritional security of the poor households in the developing countries.

Singh (2004) examined the livelihood concerns in Rajasthan for scarce water resource management. The availability of work force and its deployment determines the level of production, consumption, investment and saving pattern of the households. In the development process of the agriculture sector, the availability of labour force becomes crucial for the households. The proportionate availability of labour force varies between about 59 to 64 per cent across the selected irrigation schemes. In Ranpur project area, females have the leading position in the availability of labour force as compared to other schemes. In Panwar area, they were lagging behind in proportionate terms from their male counterparts with larger proportion whereas there was slight difference in Awan and Parsoli project areas. The analysis shows that the households living in the command area are endowed with earning hands than consumptives. The deployment of available labour force is bifurcated into farm and non-farm sectors. There exists a large variation in the deployment of available labour force between these two sectors across the irrigation schemes.

In Parsoli project area, the farm sector was a major absorptive of available labour force whereas in Ranpur project area, this sector provided employment to only 42 per cent of the total labour force engaged in this sector. It is becoming increasingly evident that sustainable development can be meaningful only if it takes both men and women into its fold (Rathore *et al.*, 2000). In many development projects, extension agencies address only men since they are not sensitised to comprehend the role of women in the development process. This resulted in a weak link between women's participation and development of natural resources for the enhancement of productivity in the agricultural sector (Shah, 2000). The rate of female participation in the farm sector was substantially higher as compared to males across all the schemes. In Ranpur and Panwar project areas, more than half of the total labour force was engaged in nonfarm sector. In case of Ranpur, it is because of the fact that there are substantial opportunities for non-farm employment due its location near Kota City. In case of Panwar, large labour force is deployed in various activities related to irrigation project at Bisalpur in Tonk district.

Different sources of livelihood diversification adopted by rural households

Diversification is an integral part of the process of structural transformation of an economy. Within the agriculture, some of the sub-sectors are progressively occupying a more significant place than the crop production, and within the crop-mix, the so-called superior cereals are progressing faster than the inferior cereals. However, the factors promoting diversification and the speed with which the changes occur vary under different situations (Vyas, 1996). Singh (2004) revealed a positive relationship between farm size and level of income with the exception of small and large size of farm in Ranpur and Panwar project areas respectively. Poor households (marginal) derive their major share of income from wage employment and non-farm activities. It is because of the fact that they have limited size of land holding and have to be dependent upon other sources for their livelihoods whereas, the subsistence level of income is concerned, the marginal size of households in Panwar and Awan project areas were nearly at par marginally below from the annual required subsistence income estimate, i.e., Rs. 20,000 per rural family.5 The economic condition of the poor households was comparatively better in Ranpur and Parsoli project areas. The per capita income in different schemes ranges from Rs. 5,840 to Rs. 8,906. In the comparison of state level estimates of per capita income, i.e., Rs. 9,819 during the reference period, the prevailing per capita income was lower with the certain exception of medium size of households in the different project areas.

The condition of the poor households in respect of income was noticeable. In Panwar project area, the per capita income of larger size households was also very low that is because of the abnormal size of family, viz., 11 persons. With the given facts, it may be considered that existing irrigation facilities do not contribute to farm income as should be expected. Khatun and Roy (2012) estimated the average annual household income was Rs. 48372 in West Bengal. They found that the major source of livelihood for 57.28 percent of households was crop farming followed by service (27 %) followed by non-farm wage income (14 %). Singh (2013) examined that the average household income of a farm household in Uttar Pradesh was Rs. 129775. Out of this total income, crop husbandry contributed Rs. 66,437 (51.19 %) followed by livestock sector with Rs. 16959 (13.07 %). The non agricultural income sources such as industry and trade, service, wage labour constituted the rest 35.74 percent of annual income.

Kumar and Upadhyay (2009) estimated the profitability of goat farming with low cost technology in the arid areas of Rajasthan. The farmers earned an annual net income of Rs 1,539 to Rs 1,654 per goat and this enterprise contributed almost 40 percent of the farm income for the sampled household. The goat and sheep rearing activity generated a total of 200.6 and 240.6 human-days per annum. In a similar kind of study, Singh *et al.* (2013) found that goats are reared by more than 75 per cent rural households in the form of mixed farming system in the Bundelkhand region. Goats have been found contributing 17 percent share to annual household income in the study area. Prophylactic supports to all livestock species and fodder interventions have provided additional income of Rs. 3744 per household/year. The integrated goat-rearing could generate employment of 224 person-days annually besides milk for household consumption. Whereas Gangwar *et al.* (2013) analyzed socio-economic impact of poultry based farming system on farmers for their livelihood security and women empowerment. They found that rearing a small unit of 10-15 birds in backyard poultry gives a net income of Rs. 11470/ annum. The study has revealed that adoption of integrated poultry-fish farming fetch additional income of Rs. 4000-5000 and employment opportunities for 45-50 human days in addition to the consumption of eggs/fish and meat adds to food quality and livelihood security of the resource-poor family.

Salim *et al.* (2013) assessed the level of livelihood security of the fisherfolk in India by taking a sample of 4555 fisher households selected from six fisheries sectors (marine capture, inland capture, mariculture, fresh water and brackish water aquaculture and marketing and processing) in 19 states of India. It has been found that for a better livelihood security, the respondent households have diversified their income sources beyond fisheries, the major ones being labour, agriculture, and business and non-farm activities. The average monthly income across all sectors was about Rs. 6500, in which about 73 percent was from fisheries. For economic security, a considerable number (around 40%) of fisher households had average savings of Rs. 4200 per fisher household. Saha and Bahal (2010) identified trading (grocery, stationary, tea stall etc.) as the most prominent diversification activity followed by livestock especially goat rearing followed by casual labouring out and rural artisans. It was found that diversification activities make a greater contribution to cash incomes for poorer households, as the proportion of total cash income from off-farm and nonfarm activities is larger for poorer wealth groups. Women were also engaged in small scale trading in various markets. They were mostly involved in assisting trading and handloom activities. Similar observations were made by Murthy (1983) and Carswell *et al.* (2000).

Measuring techniques and extent of livelihood security

The idea of measuring well being at the household level is hardly new. For example, both Belcher and Sewell began developing scales for measuring levels of living at the household level in the 1950s (Belcher, 1951, 1972). In the last two decades the frameworks for household livelihood security have been explored and developed in a variety of institutions like the International Food Policy Research Institute (IFPRI) and in many departments of applied anthropology (Drinkwater, 1994; Frankenberger, 1992, 1996; Maxwell, 1994). In the last decade Frankenberger and others have effectively adapted them as useful programming tools for not-for-profit relief and development organizations (CARE East Africa, 1996; CARE India, 1997). A wide range of approaches has been even further refined during 1997–2000 (Frankenberger *et al*., 2000).

Lindenberg (2002) analysed livelihood security areas under five broad dimensions: economic security, food security, health security, educational security and empowerment. Akter and Rahaman (2012) proposed to develop a composite set of HLS indices (HLS) at the household level utilising a set of indicators representing each of these dimensions using an approach similar to Hahn *et al*. (2009). Stressing on agricultural diversification in favour of livestock economy, L.D. Hatai, C. Sen and H.P. Singh have evaluated the sustainable agricultural development for rural livelihood perspective in different districts of Orissa. They constructed sustainable Agricultural Development Index (SADI) to establish inter-district priority for the allocation of resources and upliftment of the rural poor (Kumar *et al*., 2006). Thus, the extent of livelihood diversification can be measured through various indicators, and indices like number of income sources and their share, Simpson index, Herfindahl index, Ogive index, Entropy index, Modified Entropy index, Composite Entropy index etc. (Shiyani and Pandya, 1998).

Simpson index as a measuring technique of livelihood security

The pattern of diversification across states/crops in India has been schematized and various determinants of diversification have been deciphered by Singh *et al.* (2006). To objectively confer the empirical resonance, values of Simpson index have been estimated. The diversification index (SID) has been found to range from 0.47 (WB) to 0.90 (Karnataka) in 1990-91 and from 0.40 (Orissa) to 0.92 (Karnataka) in 2000-01. The increase in diversification Index signifies shift towards non-foodgrain crops. In Karnataka, though the Index has increased, but the similar increases in area under foodgrain imply shift from coarse to fine cereals. Saha and Bahal (2010) worked out Simpson Index (SI) for studying the extent of diversification in West Bengal. The average diversification index in the study area was found out 0.46. Majority of the diversifiers (60%) had medium extent of diversification as against only 21.74 per cent of diversifiers adopted high extent of diversification.

It was found that for a vast majority of the rural population, livelihood diversification was distress driven. Khatun and Roy (2012) employed Simpson Index (SI) for studying the extent of diversification in Burdwan and Purulia district of West Bengal. The average diversification index in Burdwan district was found out 0.56 which is far higher than the diversification index of Purulia district (0.21), indicating that the households of Burwan districts were engaged in more diversified activities for income and livelihood than the household of other district . Torane *et al.* (2011) used Simpson index to find out the farming system diversification in North Konkan Region of Maharashtra. The diversification index of farming systems ranged from 0.12 to 0.90, indicating a wide variation in distribution of per-farm income. Of the total farming systems in the study area, 52 per cent have been found as the diversified farming systems. Also, the area which is nearer to the sea coast has shown higher diversification than the area away from the sea coast. The diversification has revealed a positive co-relation with profitability which underlines the importance of combinations of enterprises. Similar results were obtained by Talathi (2002) in case of fruits and vegetables in Thane district of Maharashtra.

Herfindahl index as a measuring technique of livelihood security

Okere and shittu (2013) assessed the level of diversification of each of the households' livelihood activities among farm households using Herfindahl index in Odeda Local Government Area, Ogun state, Nigeria. The study found that income from non-farm sources accounted for 67.1 percent of the farm households' income and only a few (22.9 %) of the farm households dependent on only one income source. The results show that low farm income is a critical factor encouraging livelihood diversification in the study area. Pavithra and Vatta (2013) measured the extent of income diversification in rural Punjab using Herfindahl's diversification index. They found that the landless and marginal farm households derive a sizeable proportion of their income from non-farm activities. The non-farm income sources have been found to contribute towards reduction in income

inequality. Whereas the same index used by Sharma *et al.* (2006) to evaluate the farming systems of mountain region of Himachal Pradesh shows a relatively less diversified farming system practiced by the sample households.

Other composite index used for measuring livelihood security

Akter and Rahaman (2012) employed the inverse of Herfindahl-Hirschman Index for measuring the degree of livelihood diversity that accounts both the relative size and distribution of each source of livelihoods. The value of this index increases with the increase in the number of sources of livelihoods, and with the decrease of disparity in the share of those sources in the livelihood outcome or income. Acharya *et al.* (2011) analyzed the nature and extent of crop diversification in the Karnataka state by using Composite Entropy Index (CEI). The CEI for different crop groups has shown that almost all the crop groups have higher crop diversification index during post-WTO (1995-96 to 2007-08) than during pre-WTO (1982-83 to 1994-95) period, except for oilseeds and vegetable crops. There has been a vast increase in diversification of commercial crops after WTO. Crop diversification is influenced by a number of infrastructural and technological factors. Singh and Sidhu (2006) worked out Theil's Entropy Index for measuring varietal diversification in Punjab. The decline in fauna and flora was evident from the emerging monoculture of rice-wheat system. A number of crops like sun hemp, tobacco, cluster beans, sorghum, etc. had been replaced by the rice and wheat crops, which got further squeezed in terms of fall in varietal diversification.

Constraints faced by the households in maintaining livelihood security

The Indian agriculture is continually dominated by small landholders who are poor, usually undernourished and poverty-stricken; by and large practise subsistence agriculture with very limited marketable surplus. Their plight calls for urgent need to augment their income for ensuring food security and alleviating poverty. Production and livelihoods are linked with poverty alleviation. However, generation of employment and income and support of livelihoods is a high priority than production (Chambers, 1988). Despite the vast potentiality to diversify the livelihood towards farm and non- farm activities, there were problems such as negative perception of the community, outdated method of production, lack of improved technology and skills, lack of business start- up budget and absence of wide market for the non-farm output (Saha and Bahal, 2010). Khatun and Roy (2012) documented several constraints which act as obstacles to livelihood diversification but the nature of these constraints differs across regions and livelihood groups. The resource-poor are particularly vulnerable and unable to diversify because of the entry barriers imposed by their weak asset base. The other major constraints faced by the households in diversified area are lack of credit facilities, lack of awareness and training facilities, fear of taking risk, lack of rural infrastructure, and lack of opportunities in non-farm sector, while the main constraints in less diversified area are poor transport facilities, unfavourable agro-climate, lack of credit facilities, lack of awareness and training and lack of basic infrastructure. Joshi *et al.* (2006) observed the principal constraints faced by the smallholders in vegetable production are the non-availability of good quality seeds, absence of appropriate markets, high volatility in prices and lack of access to technical know-how. Gangwar *et al.* (2013) identified that high costs of feed and chicks are the major constraints of integrated poultry farming.

Requirement of policy measures for sustainable livelihood security

In developing countries, where a majority of families derive their livelihoods from agriculture, sustainable agriculture cannot be discussed in isolation of sustainable rural livelihoods. Sustainable rural livelihood is a multifaceted concept and refers to maintenance or enhancement of access of rural families to food and income-generating activities on a long-term basis. It encompasses secured ownership of, or access to, resources, assets and income-earning activities to offset risks, ease shocks and meet contingencies. In the Indian context, where average farm-size is very small, and poverty and food-security continue to be preponderant among small landholders, the notion of sustainable agriculture ought to be viewed in the context of need for enhancement of productivity, production and profitability of agriculture and above all, for improvement in the economic conditions of farmers. All these need a careful and in-depth analysis (Kumar *et al.,* 2006). Experiences gained in other developing countries suggest that diversification of agriculture towards high-value commodities and creation of non-farm employment opportunities has helped small landholders to augment their incomes and bail them out of the vicious circle of poverty (Ryan and Spencer, 2001).

Enhancing income and employment opportunities for farmers and agricultural labourers has always been a major objective of India's Five-Year Plans since the beginning. A number of strategies have been followed to achieve this objective (Papola, 2010). During the initial phases, the emphasis was on land reforms and agricultural growth. It was later realised that higher agricultural growth by itself would not be sufficient to ensure removal of rural poverty. Therefore, since 1970s, the emphasis shifted to promotion of supplementary economic activities and employment opportunities in the rural areas (Kumar *et al.,* 2006).

In this regard, the Situation Analysis Study of Indian farmers conducted by NSSO as a part of Millennium Study of Union Ministry of Agriculture, has brought out some highly relevant and interesting results, some of which are: (i) An estimated 27 per cent of the farmers do not like farming because it is not considered profitable, (ii) Nearly 40 per cent of the farmers, if given a choice, would prefer to take up some other career, (iii) There is very low level of awareness among farmers about the modern eco-friendly technologies like use of bio-fertilizers, IPM and IPNM as well as of government programmes like MSP, crop insurance and agri-export promotion, (iv) Many farmers have reported non-availability of modern inputs within the villages, (v) Smallholders' dependence for livelihoods on dairying and other animal husbandry activities is higher than that of not-so-small farmers, (vi) Nearly 50 per cent of farm households are indebted and the ratio as well as average of outstanding loan per farm household are higher in relatively more developed states like Punjab, Tamil Nadu and Andhra

Pradesh, (vii) There is a considerable variation in per capita expenditure of farm households across the states, (viii) The MPCE of farm households was high in Kerala (Rs 901), Nagaland (Rs 883) and Punjab (828); and low in Orissa (Rs 342), Jharkhand (Rs 353), Chhattisgarh (Rs 379) and Bihar (Rs 404). The situation is being ascribed to economic growth without appreciable distributional benefits. In this context, it is being argued by some that though India has eradicated famines and reduced starvation after Independence, it has not provided the minimum level of food security to the poorest of the population, which is quite large in terms of its size. The recent phenomenon of increasing suicides by farmers in some states of the country reflects institutional and policy failures. It appears that human and material resources and technology are not the main constraints in establishing agriculture on the path of sustainable development. However, these do become constraints when the policy regimes are inappropriate and ineffective. Perhaps, appropriate policy regime, farmer-friendly governance and institutional framework are equally, if not more, important.

Diversification is the single most important source of poverty reduction for small farmers in South and South East Asia (FAO and World Bank, 2001). Sustainable development has become an important policy goal for most nations because of the increasing evidence of failure on account of social and environmental development. Moreover, governments have accepted the responsibility for promoting the sustainability of development, in response to the Agenda 21 programme following the United Nations Conference on Environment and Development (UNCED, 1992). Sustainable livelihoods have been increasingly recognized as an important element of sustainable development during the past decade. Livelihood diversification has been embraced by a number of development agencies, with UNDP the first to do so fully and the Department for International Development (DFID) adopting it as a central strategy for meeting the goals set out in its 1997 White Paper 'Eliminating World Poverty'.

The contribution made by livelihood diversification to rural livelihood is a significant one which has often been ignored by policy makers who have chosen to focus their activities on agriculture (Ellis, 1998). The combination of farm as well as non-farm category of diversification is complementary in nature. Farmers used the surplus generated through non-farm activity in purchasing of input for cultivation. Crop yields are subject to the uncertainties of rainfall and input supply. Farm incomes were subject to the uncertainties of both yields and prices. Berstein *et al*. (1992) and Berry (1989) found the similar findings. In this context, Haggblade *et al.* (1989) have suggested that certain policy interventions are necessary to allow positive farm non-farm growth linkage. The livelihood promotion strategies have to be linked to the local resource base of the communities, which comprise land resources, water resources, forest resources, livestock resources and local human resources. Scientific management of natural resources and introduction of modern and sustainable technologies into agricultural practice is essential for ensuring sustainable development of farm and non-farm activities in the rural areas (Singh, 2010; Soumya, 2013). Development of livestock resources need to be promoted with proper arrangements for feed and fodder and delivery of good quality veterinary services. Farming systems approach provides a suitable way for promoting livestock development for sustainable livelihood in the rural areas (Hegde, 2013). Singh *et al.* (2013) suggested improvement of common property resources (pastures and water bodies), value-addition of feed and fodder, bridging knowledge gap and veterinary support are the key aspects for sustainable goat production in the Bundelkhand region.

Kumar and Upadhyay (2009) emphasized on using current fallow land as pasture with recommended legume and non-legume grasses for improvement of goat farming. Provision of market information, enhancing competition in milk and live animal market through organized efforts, access to improved technologies, critical inputs like vaccines, improved fodder seeds, and easy institutional finance have been identified as crucial for strengthening the goat-based farming systems in the area. Saha and Bahal (2010) suggested that state machinery should play a facilitator's role in terms of promoting investment in infrastructure development such as road, electricity, irrigation facility etc. More of decentralised operations for government programmes, especially using the local institution for greater efficiency and better outreach programmes are needed. Availability of support services such as credit to diversifiers through appropriate changes in policies and delivery mechanisms should be ensured for sustainable development of the farmers going for diversification. Salim *et al.* (2013) advocated the promotion of microfinance enterprises like self-help groups (SHGs) to help the fishers to address their problem of indebtedness. There exists huge potential of imparting training to fishers, particularly the young and womenfolk, on fisheries management and diversified enterprises including services delivery.

The promotion of the traditional handlooms and handicrafts through upgradation of technology, introduction of new designs and materials and linking them to markets can generate substantial income and employment in these regions (Singh, 2010). Public-private partnership models have to be evolved for the promotion of rural industries. Producers' organizations and NGOs need to be encouraged with greater participation in government programmes as they can play a powerful role in providing technical and marketing support and generate the benefits of economies of scale. The demand for services delivery is increasing in the rural areas. Encouragement must be provided for promotion of these services with training of rural youth to take up new and emerging services. Improvement in rural infrastructure in terms of roads, electricity, credit facilities, market, telecommunication, storage facilities, etc. and also institutional innovations to reduce entry costs and barriers to poor livelihood groups is necessary for the growth of both farm and non-farm sectors (Khatun and Roy, 2012; Gangwar *et al.*, 2013).

Conclusion

Sustaining rural livelihoods is critically linked to the enhancement of financial, physical, natural, social and human capital (Carney, 1998; Davies, 1996; Soussan *et al.,* 2000). Improvement in each of these capitals is in turn dependent on various indicators. *Financial* capital is dependent on income, employment and savings; *physical* capital is dependent on assets, watershed structures, infrastructures; *natural* capital is

dependent on water, land, common pool resources (CPRs); *social* capital is dependent on migration, collective action, institutional strength, equity, and gender; and *human* capital is dependent on health, education, skills. In the present context financial capital is measured in terms of income from various livelihood activities. Physical capital is measured in terms of household's possession of durable assets such as house, machinery, livestock, etc. Natural capital is measured in terms of improvements in land, water, and other common pool resources (CPRs). Human capital is measured through changes in expenditure on education and health. All the five capital are inter-linked, as the indicators closely interact. Reddy *et al.* (2008) emphasized on sustainable rural livelihoods (SRL) approach as a more comprehensive approach in the context of poverty alleviation. The SRL approach reflects the now accepted understanding that poverty itself is a complex, multi-dimensional experience that includes both material and non-material aspects of life (Soussan and Lincklaen, 2003; UNDP, 2003). It lays stress on livelihood assets, or capital, as the basis for the sustainable improvement of people's livelihoods.

The five capital framework of SRL is seen as a more effective reflection of development than income as it reflects both the ability to accumulate wealth and the capabilities (or assets) that households can deploy to secure a living. These assets are also under the control of the households and are the basis for giving people greater choice over the directions that their livelihoods take. The concept of sustainable livelihoods is increasingly being accepted as providing both a basis for understanding the nature of poverty and for identifying the types of strategies that can reduce poverty in an effective and sustainable manner using different types of assets/capital. Akter and Rahaman (2010) concluded that irrespective of regional differences in opportunities, people in urban squatters appear nearly equally insecure. This does not mean that the same intervention strategy is equally applicable everywhere. There are geographical differences in the component indicators. Access to assets/capital endowment should be taken into consideration to design programmes. Areas where land/housing/ponds more accessible, livestock/fisheries based livelihoods may be encouraged. Education enhancing policies are suitable for everywhere. To conclude, a multi-sectoral integrated strategy of promoting agricultural and non-agricultural activities in the rural areas embedded in the local conditions and institutions has to be adopted to meet the challenge of sustainable development in the rural areas.

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