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Future Strategies for Sustainable Livelihood of small and marginal farmers in Rajouri district of Jammu and Kashmir

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Abstract

The aim of the contribution was to determine the Future strategies for sustainable livelihood of small and marginal farmers in Rajouri district of Jammu and Kashmir. There are 160 Gram panchayats, 385 villages and 4 towns viz. Rajouri, Thanamandi, Nowshera and Sunderbani. The district constitutes 8.81 percent of the geographical area of the state. There are 7 revenue tehsils viz; Rajouri, Thanamandi, Nowshera, Sunderbani, Budhal and Darhal with a total of 9 revenue blocks. The study based on the primary data in Rajouri district covering equal samples under major farming systems was elicited through survey method for the period 2014-15. It was observed that there is a need to focus on sustaining the productivity gains in the irrigated agriculture, the major emphasis should, however, be on the development of rainfed agriculture, promotion of integrated farming, high value agriculture, transfer of technology, secondary and specialty agriculture need to be accorded high priority. Since the Rajouri district has focused on the organic production in the proposed plan so the high priority is to be given for the action research and extension relating to the organic cultivation. Organic cost/produce certification and marketing of farmers produce at reasonable prices is another crucial issues affecting farm profitability which need immediate attention.

Highlights

- The small and marginal farmers in Rajouri district of Jammu and Kashmir are needed to be linked with agri-business system, agri-research institutions and global market.

Keywords: Future strategies, sustainable livelihood, small and marginal farmers

"A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." — (Chambers and Conway 1992)

In developing countries, where three out of four poor people live in rural areas (Sheingate 2008) and where more than 80% of rural people live in households that are involved in agriculture, improving poor farmers' livelihoods is central for addressing rural development many studies have suggested that organic, rainfed agriculture and livestock could contribute substantially to farmers' food security and improve farmers' livelihoods. Rural livelihoods are not limited just to income derived solely from farming but it is a holistic way of looking on their livelihood strategies (Singh 1996). As far as strategies are concerned, considered agricultural intensification livelihood diversification and migration as the three core livelihood strategies.

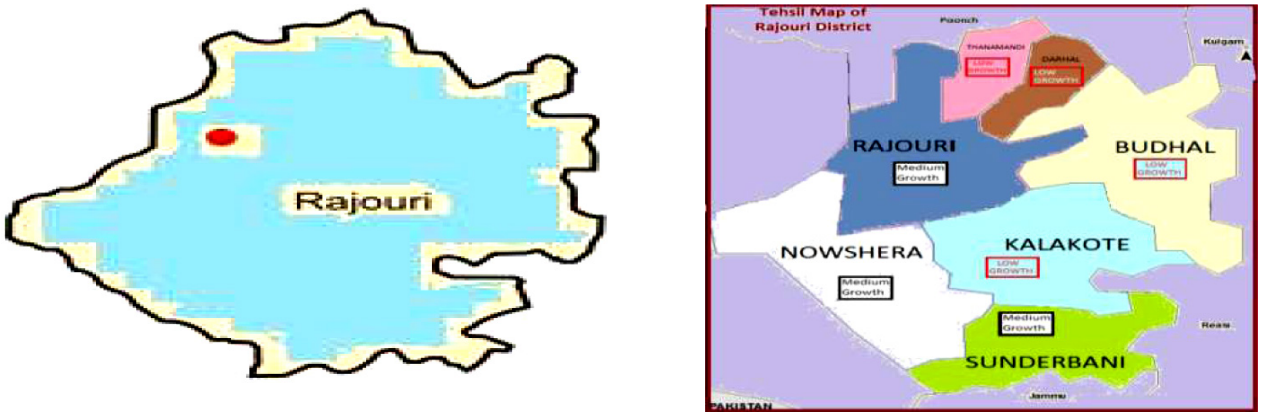

Fig. 1: Map classified in to three broad categories by development (growth) status

Indian economy is heavily dependent on agriculture even today because about 65% of the population is living in rural areas and over 80% of them are dependent on agriculture and allied activities for their livelihood. Out of the total 129.22 million land holders in the country, 64.8% are marginal holders who own less than 1 ha and 18.5% families are small farmers owning between 1 and 2 ha. More than 50% of these families are located in arid and semi-arid regions, where the rainfall is scanty and erratic (Planning commission of India 2012).

These farmers have been growing drought tolerant food crops, mostly millets and pulses with very low investment in improved seeds, fertilisers and plant protection measures, resulting in poor yields and low returns. Fragmented land holdings, heavy depletion of soil productivity, inefficient use of water resources, out-dated agricultural production technologies, unavailability of agricultural credit and lack of infrastructure for post harvest management and marketing of agricultural produce, are the other factors which further suppress their agricultural production (Lal 2009).

Unfortunately, these regions have also been neglected by the scientific and business communities in introducing new technologies, high yielding varieties which are resistant to drought and developing necessary infrastructure as well as support services to boost agricultural production and value addition. Due to low agricultural productivity, these small and marginal farmers as well as about 15 to 18% landless families living in rural areas are unable to generate remunerative employment and about 40% families are forced to live in poverty (Joshi *et al*. 2007).

Table 1: General information (Block Wise)

Block	General					Population (As per the 2011 Census)				
	Villages		No. of revenue villages	Area (sq. km.)	No. of Gram panchayats	Male	Female	Total	S.C.	S.T.
	Inhabited	Un-inhabited								
Rajouri	51	0	51	386	33	40386	36065	76451	48157	232815
Manjakote	30	1	31	482	36	25716	22968	48684		
Darhal	11	0	11	334	23	19121	17106	36227		
Budhal	57	0	57	412	58	68527	61375	129902		
Kalakote	68	0	68	477	32	37864	34803	72667		
Nowshera	46	3	49	92	36	36053	33581	69634		
Sunderbani	43	0	43	215	24	29853	27432	57285		
Thannamandi	32	0	32	137	35	32373	29910	62283		
Doongi	37	0	37	-	18	20855	16113	36968		
Total	375	4	379	2535	295	310748	279353	590101	48157	232815

Source: *District Statistical Hand Book, 15th Edition District Rajouri, District Statistical and Evaluation officer, Rajouri*

For these small holders and landless, livestock has been a source of supplementary income (Shilpi and Deininger 2007). However, over 75% of the animals are uneconomical due to severe genetic erosion, inadequate feeding and poor veterinary care (Hegde 2013). With lower crop and livestock productivity, the employment opportunities in the farming and other related sectors are reduced further, leading to reduction in farm wages, seasonal employment, malnutrition and migration Small and marginal farmers as well as the landless have been traditionally maintaining different species of livestock as a reliable source of income and cash reserve in times of emergency (Lazarus and Koehler, 2002). Therefore, the challenge is to address the problems of marginal farmers by improving the productivity of rain fed agriculture and livestock owned by them, to enable them to enhance their income, while conserving the denuding natural resources and the environment.

Table 2: Area under Various Crops (2011-12)

Item Description	Unit	Magnitude
Paddy	000′ hectares	8.00
Maize	000′ hectares	43.40
Wheat	000′ hectares	40.00
Pulses	000′ hectares	3.67
Vegetables	000′ hectares	2.80
Oilseeds	000′ hectares	5.07
Fodder	000′ hectares	2.00

The Rajouri district of Jammu and Kashmir is extended over an area of 2630 sq. km. and comprises of 379 villages and 4 towns as per census/revenue records. It had a total population of 6.42 lakhs as per census 2011. The district has recorded population growth rate of 39.92% during the decade 2001-2011. Population is mostly rural and only 8.14% of it resides in towns. The biggest ethnic group is muslims accounting for 55% of total population followed by Hindus 42% and Sikhs 2.40% as per census 2011 (Planning Commission of India 2012). The remaining 0.60% comprises of Christians, Jains and Budhists which is negligible on individual basis. In Rajouri District about 12% population is comprised of Bakerwals and mostly rear cattle and they are herdsmen of buffaloes and possess small pieces of lands, kacha houses on the slopes and foothills of mountains in Rajouri District. Number of them is having their Dhokes and dharas on the upper reaches of Rajouri district mostly in Darhal, Budhal, Kalakote and Manjakote area (Fig. 1). Under the working force, main workers account for 20.29% of total population. The main occupations engaging the working force are cultivators, farmers, agricultural labourers, livestock, hunting, forestry, trade and commerce accounting for about 80% of the working force (J&K State economic review, 2012).

The topography of the district is unique as it possesses three agro-climatic regions viz; sub-tropical, intermediate and temperate which favour the cultivation of different crops at different elevations. The climate of the district varies from sub-tropical to temperate depending upon the elevation of the place. The zones have different land use pattern, cropping pattern and inhabitation. The natural vegetation consists of trees, grasses and bushes. Double cropping is practiced in sub-tropical to intermediate area and even triple cropping is being followed in areas where vegetables, fodder, potato, summer pulses (Moong), toria and other short duration crops are grown. The main aim of this paper is to analyze the future strategies for sustainable livelihood of the households practicing various farming systems encompassing enterprises like Crops, Dairy, Sericulture and Sheep etc. in Rajouri district.

Materials and Methods

Study Site

The present study was conducted at Rajouri district of Jammu & Kashmir state. The Rajouri district is situated between 32^0 98′ and 35^0 52′ North latitude and 74^0 01′ to 74^0 23′ East longitude. The district touches Poonch, Pulwama, POK in the west and Jammu in the south (Table 1). The annual rainfall of the district is about 1200 mm (AMFU, RARS-Rajouri 2014).

Data collection and consultation

The data were collected by using a predesigned interview schedule with key informants developed for the purpose. Formal and informal meetings with Agriculture and line departmental staff, ex-Panchayati Raj Institution's members and farmers

were conducted at different levels and collected secondary data and related statistics needed for planning from different departments and other sources.

The farmers meetings were ensured to be informal. They were encouraged to participate, interact and make their own fair appraisals in meetings. Farmers were informed about the objective of the meeting. The dialogue was started; the gap analysis and current scenario regarding productivity, profitability and risk associated with different farming systems were discussed and required information were collected (Table 3, 4 & 5).

Results and Discussion

Agriculture sector is witnessing radical changes and challenges at national and global level. The demand for agricultural commodities is steeply rising; food preferences of the next-generation consumers are changing; and agriculture sector is struggling with decelerating profitability which is dragging its performance. The emerging challenges and opportunities call for a paradigm shift in the innovation driven agricultural research system to connect inventions with all the stakeholders in the entire food supply chain (Perrings 1994). Agriculture in India is the pivotal sector for ensuring food and nutritional security, sustainable development and for alleviation of poverty (Swaminathan 1993). It is the key sector for generating employment opportunities for the vast majority of the population.

The growth rate of agriculture is low in the country as compared to other sectors of economy (J&K State economic review 2012). The potential for growth of agriculture is quite high. The slow growth in agriculture and allied sectors can lead to acute stress on the economy because large population is dependent upon this sector. Major

Table 3: Area under Crops in Rajouri District (Hectares)

Item Description	2008-09	2009-10	2010-11	2011-12	2012-13
Paddy	5831	5313	8000	5291	4991
Maize	46759	47185	43400	46646	46814
Wheat	41805	45096	40000	45306	43943
Other Millets	281	65	0	602	567
Pulses	377	1232	3670	321	305
Total Food grains	95053	98891	95070	98166	96620
Fruits	0	0	0	0	3
Vegetables	234	248	280	198	121
Other food crops	494	0	0	0	0
Spices	0	0	0	435	560
Oilseeds	562	1015	5070	1226	1143
Fodder	870	584	2000	375	714
Other Non food crops	39	0	0	5	0
Total Area sown	97252	100738	104940	100405	99161

Table 4: Major Crop and Varieties Grown in District Rajouri

Sl. No	Season	Crop	Variety
A	Kharif	Paddy	Local, China, K-448, Ranjha
		Maize	Local, C-8, Kanchan-612, KH-517, Pro Agro 4794, PG Hybrid, Double Deklab
		Pulses	Mash : Uttara, Lentil: L-4076
		Oilseeds	Til PB-1
B	Rabi	Wheat	Local Desi, PBW-373, HS-490
		Pulses	Chickpea: BG-1103
		Oilseeds	Mustard: Pusa Bold & Local; Gobi Sarsoon: DGS-1 & Local mixed; Toria: Local & RSPT-1
		Fodder	Oats: Kent, Wheat: Local

Table 5: Production and Productivity of Fruits in Rajouri district

Sl. No.	Fruit	Area (ha)	Production (MT)	Productivity
	Fresh Fruits			
1	Apple	480	200	0.416
2	Pear	977	1544	0.632
3	Apricot	141	100	0.109
4	Peach	185	137	0.74
5	Plum	333	192	0.576
6	Mango	432	1121	2.59
7	Mango			
8	Ber (budded)	613	764	1.246
9	Grapes	2	2	1
10	Olive	22	0	0
11	Citrus	2520	1181	0.469
12	Other fresh	1414	1136	0.803
	Total	**7119**	**6377**	**0.895**
	Dry Fruits			
11	Walnut	3673	1384	0.376
12	Almond	17	00	00
13	Others	63	39	0.619
	Total	**3753**	**1423**	**0.379**
	Grand Total	10872	7800	0.717

cause behind slow growth in agriculture is the consistent decrease of investments in this sector. Public and Private investments are not increasing in agriculture and allied sectors, leading to distress in farming community especially that of small and marginal segment. The focus is on 4% growth rate in Agriculture as 50% of work force depends upon agriculture for its livelihood. It is envisioned to achieve holistic growth of agriculture and allied sectors, aiming at least a 4% growth in this primary sector so as to have desired visual impact with focused attention (J&K State economic review 2012). To put Rajouri district on an accelerated path of sustainable agricultural development by strengthening the production and productivity of cereals, vegetable, cash crops and enterprises in a system approach with market potential for increased farm incomes**.** At present the application of the livelihoods approach in the Agriculture sector has been very limited. In order to promote its application additional knowledge is required to help in understanding the impacts and interactions of agriculture technology and livelihoods with special emphasis on:

- Modern techniques in cultivation of fruits, vegetables and spices, their value addition and marketing so as to double the per capita income by next decade.
- Increasing farm income through animal component by emphasizing on stock improvement and management practices
- Developing farmer's preferred local landraces/ varieties of field crops most suited to the region.
- Promoting brand value of organically produced local products and Mainstreaming sustainable livelihoods approaches in the field
- Strong links between the sustainable livelihoods approach and participatory poverty assessments (PPAs).

Priority setting for the district

- Establishing, managing and usages of components of organic farming
- Soil health improvement
- Area expansion in fruits, vegetables, spices and flowers

- Main focus should largely shift from transfer of technology to more holistic approach.
- Popularizing resource conserving technologies
- Systematic shift from and/or integration of single crop enterprise to multiple cropping and intercropping
- Livelihoods diversification, enterprise development and Institutional learning
- Intensification of crop husbandry with vegetable and horticultural crops, animal husbandry, mushroom cultivation and other non-crop based farming
- Bridging yield gaps of crops, animals and other enterprises
- Human resource development of rural youths, farm women, other disadvantaged groups and field staff
- Promoting spirit of cooperation and self-help through group dynamics amongst farmers
- Strengthening the extension system and Focus on market oriented agriculture

The paradigm shift from traditional farming towards market oriented agriculture in the district is aimed at creating a diversifying farming system with the high value component like floriculture, off season vegetables, vermi compost, and apiculture with more market network. There are particularly strong links between the sustainable livelihoods approach and participatory poverty assessments (PPAs). PPAs have been developed as an instrument for including the perspectives of the poor in the analysis of poverty and the formulation of strategies.

The farmers of the district are now fairly established in producing all sorts of agricultural produce be it cereals, vegetables, milk, meat, mushroom, honey and fish. In spite of falling share of agriculture in gross domestic product, it is still a base of the district economy. However, the increasing urbanisation, changing diet patterns, modifying marketing and trade necessitates for transforming the farming too. It was found that lifestyle changes and tastes are backed by the urban culture and has strong impact on the kind of food demanded and the urilizations patterns by the peoples (Vasantha *et al*. 2015).

The pace of diversification in the farming system is rapidly changing and the share of horticulture is ever increasing (Jayane *et al*. 2014). This is high time for the calls for creating the culture that helps and motivate farmers to adopt and integrate the subsidiary occupations in their farming systems on comparatively larger scale. The cultivation of fallow land during the Rabi seasons with higher productivity is crucial for increasing the oilseed and food grain production in the district. Though the climate in some areas is not favourable for normal cereals, new crops like buck wheat and saffron can be introduced for higher profits and farmers can be encouraged to utilize every inch of the land with highest possible cropping intensity integrating the entire components for food security as well as income. Since the district is one of the remotest districts of the state, the government assistance in all round development can never be ignored. Similarly, depletion of natural resources, the problems of soil erosion and deteriorating soil health need to be tackled by government assistance. The lasting solutions to these problems i.e. the rain water harvesting in ponds/ water storage tanks, roof top rain water harvesting and other innovative schemes for immediate returns to the farmer but most crucial for long term sustainability. The recommended technologies for cost reduction and resource conservation include zero-tillage, the adoption of Integrated Nutrient Management, Integrated Weed Management and Integrated Pest Management and improved seeds (especially of suited varieties for organic cultivation) for fields, horticultural crops and agro forestry, bio-fuel and medicinal plantation. Advanced soil testing diagnostic kits, better and advance methods of breed/stock/strain improvement for improvement of animal husbandry and fish farming are very crucial in the context of globalization.

Conclusion

The small and marginal farmers of District Rajouri are producing different agricultural produces much more than their own requirements. The volume of marketable surplus of cereals and fruits being cultivated by farmers is on the rise. They have even ventured into the production of different commodities exclusively for the market. The farmers today are needed to be linked with agri-business system, agri-research institutions and global market. Proper education and awareness on post-harvest,

value addition and marketing practices (with greater emphasis of e-connectivity) for agriculture and allied produces will go a long way in realizing fair returns for the farmers. Upgrading of skills, capacity building and entrepreneurship development for knowledge update are must for informed choice making for improved productivity and profitability is another key aspects to be addressed.

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