

NIRD; RKVY Monitoring Unit, Delhi

Analytical Report on Sikkim SAP

1. Name of the State

Sikkim

2. What target the State decided to achieve using RKVY assistance during 11th Five Year Plan (FYP) for the agriculture sector as a whole and for the sub sectors?

According to the SAP, the State keeps a vision of accelerating sustainable agricultural development by way of strengthening the organic production of crops and the enterprises using system approach with market potential and increased farm incomes. To that end, the SAP states the areas of emphasis such as *bridging the yield gaps by increasing efficiency of critical inputs; production of HYV seeds, enriched compost and biofertilizer; popularizing modern cultivation techniques for fruits, vegetables and flowers; promoting value addition and organized marketing; increasing farm income through animal component by stock improvement and management practices; and promoting brand value of organically produced local products.*

The SAP also mentions the priorities set for the State. They include, *integrating Farming System Approach; establishing, managing and using components of organic farming; soil health improvement; systematic shift from and /or integration of single crop enterprises to multiple cropping, intercropping and multi-enterprises; bridging yield gaps of crops, animals and other enterprises; and paradigm shift from production oriented subsistence farming to market oriented agriculture.*

The SAP gives year-wise projected area, production and yield of various food-grain and horticulture crops for all the four districts (namely, *West District, North District, South District, and East District*) for all the years under five-year plan i.e. 2007-08 to 2011-12, along with actual values for year 2006-07; however, it misses to give the same for the State as a whole.

For example, for the *West District*, the SAP targets to raise the yield of *Maize* crop (major crop) from 16.38 Q/Ha in 2006-07 to 19.92 Q/Ha in 2011-12. For the two major horticultural crops, *Orange* and *Cardamom*, the SAP targets to increase the yields from 14.06 Q/Ha and 2.14 Q/Ha in 2006-07 to 15.50 Q/Ha and 2.40 Q/Ha in 2011-12, respectively.

3. Which method (Method 1 or Method 2) is used for the preparation of SAP? How integration (methodology) of C-DAPs and prioritizing major interventions was done to prepare SAP?

It is not explicit from the SAP that which method is used for its preparation. Also, the SAP does not give methodology for integration of C-DAPs and prioritization of major interventions.

However, the C-DAPs are prepared using the methodology suggested by the Planning Commission. It appears that the projects of districts have been added at the State level.

4. Whether SAP has critically analyzed and clearly stated the agricultural situation of the state vis-à-vis its districts through a SWOT analysis covering agro-climatic conditions, natural resources, infrastructure, institutions, technologies, manpower etc

Yes, SAP has attempted to critically analyze and clearly state the agricultural situation of the State through a SWOT analysis covering agro-climatic conditions, natural resources, infrastructure, institutions, technologies, manpower etc. It separately gives SWOTs for the

agriculture, horticulture, animal husbandry and fisheries sub sectors besides the *natural resources*.

Major strengths include rich-biodiversity coupled with suitable and diverse climate for growing better quality of a variety of horticultural crops; organic production of all agricultural products; soils suitable for intensive cultivation; availability of markets for major organic products – surplus production of *Cardamom, Ginger and Sikkim mandarin*; receptivity of farmers to adoption of improved farm technologies; rich germplasm of local land races suitable for organic cultivation; presence of viable milk marketing network through co-operative societies, private agencies and individual milk traders; ample marketing avenues of animal based products/by products; livestock breed upgradation and veterinary health services backed by Government; traditional expertise in milk processing; well-established farmers-market linkages for animal products; existence of suitable conditions for trout farming in high altitude area, sufficient running water bodies and availability of ornamental species of fish.

Notable weaknesses include degradation of soil fertility; infestation of weeds, insect-pest and disease complex; lack of integrated approach on NRM, INM and IPM by the farmers; lack of proper soil and water testing (micro-nutrients and ground water quality) facilities; lack of assured irrigation; predominant acidic soils; lack of awareness on resource-conservation technologies; undulating topography unsuitable for high farm mechanization; predominant small and scattered holdings; critical technological gaps in specific areas of crop production; low availability of FYM and manures; inadequate availability of quality seeds for various crops; small market surplus for the horticulture crops; low productivity of horticulture crops; lack of proper knowledge in farmers on modern production, post harvest handling and marketing practices of horticultural crops; absence of cold chain, storage and processing facilities at farmer's level along with high transportation costs; low milk-yield of cows; weak infrastructure for fish seed production and genetic up gradation; and inadequate quality of seed availability of high yielding fresh water fish.

Important opportunities include yet to be explored bio-diversity with respect to wild edible fruits, vegetables, medicinal and aromatic crops; availability of bio-mass through crops, farm residue and manure from livestock, for maintaining proper soil health; integrated approaches for tackling soil degradation; immense scope for organic production of crops ; opportunities for profitable diversification of existing cropping pattern within agriculture & allied sectors; high demand for horticulture crop produce; trend of diversification of farming system towards horticulture; increasing urbanization and changing food habits with preference towards fruits and vegetables; increased institutional support towards horticulture development; growing demand for milk and other animal-based products and scope for integrated fish farming.

The threats include regular occurrence of natural calamities; high occurrence of pest and diseases; loss of soil fertility due to erosion and leaching of nutrients; declining factor productivity and rising cost of cultivation; inability of farmers to invest in agriculture production system; inaccessibility of remote areas to market centres for horticulture produce; inefficient and less transparent marketing for horticulture produce with monopoly of traders and multiple level of intermediaries; wide price fluctuation for horticulture crops; shrinking pasture lands; threat of extinction of local breeds of Yak, sheep and cattle, frequent occurrence of disease in animals; high mortality in juvenile and adult fish and absence of reputed centre/source of fish feed and fisheries management institute.

5. Whether Convergence- inter and intra department/programmes- been attempted and what is the extent of convergence? Have all potential options for convergence been identified and explored?

The SAP is not explicit about attempting Convergence- inter and intra department/programmes. There is no reference to the ongoing schemes/programmes (other than the RKVY projects) in the SAP. Therefore, we cannot infer about the extent of convergence in the SAP. The SAP does not give clue about identifying and exploring all potential options for convergence. This may be considered as a weak point of the SAP. However, the C-DAPs provide the names of ongoing schemes of the agriculture departments.

6. Has the experience of on-going CSS and state schemes been studied and lessons learnt have been incorporated in SAP/C-DAPs for replication/ expansion/ modification in uncovered areas?

It is not explicit in the SAP whether the experience of on-going CSS and State schemes has been studied and lessons learnt have been incorporated in SAP/C-DAPs for replication/expansion/modification in uncovered areas.

7. Whether the yield gaps and returns in different crops/livestock/fisheries have been estimated?

No, the yield gaps in different crops/livestock/fisheries have not been estimated in the SAP. However, the SAP provides, actual values for year 2006-07 and projected values for each year under the plan period from 2007-08 to 2011-12, of the area, production and yield of various food-grain and horticulture crops grown in each of the four districts of the State; but it misses to give the same information at the State level. The SAP does give specific reasons for gap in yields for various subsectors under agriculture & allied sectors. The SAP describes *bridging the yield gaps* as a major emphasis for realizing its stated *Vision* and considers it as a priority. However, yield gap and constraint analysis is made at the C-DAP level.

8. How the technological and agronomic gaps were identified to contribute to yield gaps?

The SAP does describe the technological and agronomic gaps for various sub sectors under agricultural & allied sectors contributing to yield gaps, but it is not explicit on the methodology for the identification of such gaps. Hence, we cannot make out how the technological and agronomic gaps are identified to contribute to the yield gaps.

9. How the identified constraints are adjudged responsible for low crop productivity in general and specific crops in particular? Is it an opinion or stated on the empirical basis?

Again, the SAP is not explicit on the methodology for adjudging the identified constraints responsible for low crop productivity in general and specific crops in particular (but it lists obstacles to productivity as identified by the *participatory approach*). Further, it is not clear from the SAP that whether adjudging the identified constraints, responsible for low crop productivity, is an opinion or stated on the empirical basis. However, an analysis is made at the district level.

10. How the interventions are identified to bridge the gaps in productivity levels?

The SAP attempts to identify interventions in terms of priorities/programmes/projects. However, the SAP does not seem to be very clear about the priorities/programmes/projects as they often overlap. The SAP is not explicit on the methodology for identifying interventions to

bridge the gaps in productivity levels. Hence, there is no clue on how the interventions are identified to bridge the gaps in productivity levels. But at C-DAP level, it is done by the KVK resource teams, though the basis of selection of parameters like sustainability output is not clear.

11. Whether the right strategies have been prioritized to bridge the yield gaps in crop/livestock/fisheries and maximize returns to farmers have been clearly spelt out? Whether the empirical basis for appropriate strategies provided? How far they have been obtained/decided through a consultative process with all the relevant stake holders?

The SAP attempts to give strategies through its priorities/programmes/projects to bridge the yield gaps in crop/livestock/fisheries and maximize returns to farmers. Though the given strategies seem to be the right strategies, yet no systematic basis is explicit in the SAP for their prioritization. The strategies like production of HYV seeds, enriched compost and bio-fertilizer, employing *Integrated Farming System Approach* and soil health improvement, seem to be in line with State's priority requirements as revealed in the SWOT analysis. However, the strategies are not very clearly spelt out. Further, the SAP is silent about obtaining/deciding these strategies through a consultative process with all the relevant stake holders.

12. Whether the prioritized strategies have been translated into programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources) for each project? Whether the viability of each project to achieve the expected output considered?

The strategies have not been translated into programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources) for each project. However, the SAP does give a list of projects under various sub sectors of agriculture & allied sectors –giving an impression of the strategies. It is not explicit whether the viability of each project to achieve the expected output is considered or not.

13. Have border areas/ insurgent areas/problem areas (mining, acidic soils etc) have been addressed by formulating any specific projects?

The State has serious acidic soils problem and projects have been proposed to cater to it. For example *project for amendment of acidic soil and to improve soil health through Green Manuring*.

14. What is the mismatch (difference between estimated budget in SAP/C-DAP and the approved and used budget) between the projections and funding in SAPs/C-DAPs and the projects(difference between planned projects in SAP/C-DAP and approved projects and funding being implemented? How this mismatch affects the targets, expected outputs/outcomes/growth impact?

The SAP gives proposed outlays (presumably under RKVY) for five years of the XIth plan. It proposes to allocate Rs 155.78 crores, Rs 163.63 crores, Rs 156.03 crores, Rs 154.53 crores and Rs 155.05 crores for years 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12, respectively (under both *Stream-I* and *Stream-II*). However, the approved budget information has been provided by the State government for year 2008-09 only through their *Physical & Financial Statement*. Rs 9.06 crores have been approved for the year 2008-09 under *Stream-I* projects. There is a huge mismatch between the proposed budget (Rs 146.90 crores for *Stream-I* projects) and the approved budget (Rs 9.06 crores) for year 2008-09; approved budget being 6.17 per cent of the

proposed budget. According to the *Statement* provided by the State government, the approved projects pertain to establishment of *Mother Dairy Farm*, irrigation, high-tech green house, integrated farming system, seed testing unit and ginger project, leaving a large number of other important project-categories uncovered, like *integrated development of major food crops; promotion of agriculture mechanization; enhancement of soil health; integrated development of wasteland, river valley etc.; support to State Seed Farms; integrated pest management; promotion of new Farm Activities; Strengthening of market infrastructure; Strengthening up Extension Infrastructure; Fisheries Activities*, etc. Hence, it is definitely going to adversely affect the projected growth rates mentioned in the SAP.

15. Are the projects/programmes large enough, instead of being small and prolific pilot type schemes, to make a visible (impact) in the sectors?

The SAP does not give project-wise proposed allocations and hence it is not possible to comment on project-size. However, as per the information received from *financial performance* report sent by the State, the project on *creation of irrigation facilities for efficient water management and roof water harvesting* has been sanctioned highest allocation of Rs 4.50 crores, out of total approved project amount of Rs 9.06 crores for year 2008-09.

16. Has the SAPs identified Flagship programmes (extensive to cover large part of the state and larger area)?

The State Plan does not explicitly mention Flagship programmes. But the SAP has clear thrust on integrated farming system and up-gradation of horticulture sub sector – programmes which may be assumed as the Flagship programmes.

17. Whether sectoral and spatial allocation of funds conforms to equitable and optimal distribution of resources?

The spatial allocation of funds across districts conforms to equitable and optimal distribution of resources as the coefficient of correlation between proposed allocations for respective districts and their populations is found to be significantly high at 0.87. For example, the *East District* with largest population share of 45 per cent has been given the highest 36 per cent share in total proposed allocations, during the five-year plan period. Similarly, the sparsely populated *North District* having smallest population share of 7.6 per cent has received lowest share of total proposed allocations, during the same period.

However, the SAP does not provide sectoral allocation of funds. Therefore, we cannot comment on whether sectoral allocation of funds conforms to equitable and optimal distribution of resources. But, the SAP classifies the proposed allocations into *Agriculture* sub sector and the *Allied* sub sector, under two broad categories, *Special projects* (Stream I) and *Extension Activities* (Stream II). The *Agriculture* and the *Allied* sub sectors have been allotted 56 per cent and 44 per cent, respectively. Though *Agriculture* being the major sub sector deserving the highest allocation, *Allied* sub sector too has been prioritized by giving a respectable share of 44 per cent in total allocations, emphasizing the State's vision of enhancing farmers earnings by augmenting their income and employment through incomes of allied sectors.

18. Are there any innovative projects? If so, how do they contribute to fulfill the special needs outside ongoing programs?

The SAP gives a list of proposed projects under *agriculture, animal husbandry* and *horticulture* sub sectors. It has not listed innovative projects. However, a number of which may be

considered as the innovative projects such as *amendment of acidic soil, promotion of organic farming through integrated farming system approach, improvement of soil health through green manuring, promotion of protected cultivation in Low Cost Green House* etc. The projects shall result in increasing the fertility of soils and augment the earnings of farmers and employment in the State.

19. What is the basis of planning certain projects for the State as a whole and how do they get monitored?

The SAP does not identify projects planned for the State as a whole, though it does give a list of projects under *Stream I* scheme.

20. What is the basis of sectoral fund allocation? Is it based on expected marginal contributions? Any viability analysis is made?

The SAP does not provide the sectoral fund allocation of funds. Hence, we cannot comment on the basis of sectoral fund allocation.

21. Whether the allocations across years were right? What was the basis for yearly allocations?

The SAP allocates 19.6 per cent, 20.7 per cent, 19.6 per cent, 19.4 per cent, and 19.5 per cent of the total proposed allocations during years 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12, respectively, under *Stream-I* scheme. The allocations across years are almost same. Normally, the project allocations should be lower in the first year, with an increase in the subsequent years and again a decline during the last year. This is because the first year involves planning stage for the project/s and there are comparatively less investment capacity in that year. But, the subsequent years demand higher investments for the execution of the planning. Having invested sufficiently in the in-between years, the fund requirements again become low in the last year of the plan-period. However, in case of the Sikkim State, the allocations proposed across years do not seem to follow the normal trend. The basis for yearly allocations is not clear in the SAP.

22. Is the SAP in line/ tune with overall agricultural strategy and goals of the country/ state?

Yes, the SAP seems to be in line/ tune with overall agricultural strategy and goals of the country/ state. The SAP prioritizes both, the traditional *agriculture* sector and the upcoming/ high growth potential oriented *allied* sector, by allocating 56 per cent and 44 per cent of the total proposed allocations. The SAP on one side aims at bridging the yield gaps through promotion/production of HYVs of crops and bio-fertilizers and improvement in soil health, and on the other side augment the income of farmers and employment by endorsing the *allied* sectors, such as animal husbandry and horticulture, and the marketing infrastructure. This is in line with the State's vision of accelerating the sustainable agriculture development and also to support country's target of achieving 4 per cent growth rate during 11th five-year plan.

23. Whether mechanisms for planning, baseline information collection, monitoring, documentation and regularly reporting progress are clearly spelt out?

Mechanisms for planning, baseline information collection, monitoring, documentation and regularly reporting progress are not spelt out in the SAP.

Directions for 12th FYP

- 1. Whether the planning, monitoring and evaluation mechanisms exist, functional and made use of to fulfill the expectation and bridge the gaps? If not, what is the plan for strengthening PME mechanisms and making them functional during the remaining years of 11th FYP and 12th FYP when it gets launched? Whether the baseline information is maintained for comparison of performance of the project later?**

It is not explicit from the SAP whether the planning, monitoring and evaluation mechanisms exist, functional and made use of to fulfill the expectation and bridge the gaps. Also, there is no mention of plan for strengthening PME mechanisms and making them functional during the remaining years of 11th FYP and 12th FYP when it gets launched. It is not mentioned whether the baseline information is maintained for comparison of performance of the project later.

- 2. Whether the mid-term evaluation by the external agency is done for change of the targets and inter-sectoral resource adjustments?**

It is not mentioned.

- 3. Is social audit done to facilitate publicity on status of the implementation and maintenance of transparency?**

It is not mentioned.

- 4. What are the major lessons from RKVY implementation in the State for the 12th FYP?**

(i) The SAP should provide funding details under various CSS and State-level schemes (including RKVY). If not given, analyzing the extent of convergence of existing schemes with the RKVY will be difficult. Convergent approach within the sector and outside the sector should be attempted, particularly with MGNREGS to avoid duplication in respect of soil and water harvesting and conservation. MGNREGS resources can be tapped for this. The SAP should come out with more interventions to concentrate on cropping and production systems including horticulture, livestock and fisheries in areas that have been developed under watershed and NRM.

(ii) The main experiences of implementing CSS/State schemes should be summarized and whether/how they are made use of to prepare SAP for replication, expansion etc should be stated.

(iii) Prioritization of interventions needs to be attempted using standard objective methods.

(iv) The project proposals should emanate from Districts preferably Zilla Parishads on the basis of C-DAPs.

(v) There should be rigorous filtering of project proposals by an expert Committee earlier and in SLSC meetings later.

(vi) There should be a dedicated PM&E mechanism at the State level for facilitating project screening, database management, monitoring, evaluation and reporting of RKVY projects. It should facilitate mid-term evaluation by external agency and also social audit to facilitate publicity and maintenance of transparency.

(vii) The SAP should give sectoral allocation of funds and expected outcomes of implementing proposed interventions (schemes) at the State level.

(viii) The SAP should explicitly mention target for agriculture & allied sectors / sub-sectors to be achieved using RKVY funding during 11th five-year plan.

(ix) The SAP should provide yield-gap estimates, both at State and district-level, for major crops and other enterprises.

(xi) The C-DAPs are well-prepared as per the Planning Commission guidelines and contain detailed information on the districts and specific projects.

Overall conclusion

The SAP requires to be analytically prepared with empirical basis for all the key statements. The details on sectoral allocation of funds, convergence of schemes, growth targets at the State level, prioritization of schemes, innovative projects, methodology followed to prepare SAP, and project details including targets, output and outcome of agriculture & allied sectors should be given. The information on yield gaps and their measurement, relative importance of factors responsible for yield gaps should also be given. Further, the PM&E mechanisms including baseline information collection, documentation and regularly reporting progress need to be planned. These may receive greater attention in the 12th FYP.