

NIRD; RKVY Monitoring Unit Analytical Report on West Bengal SAP

1. Name of the State

West Bengal

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?

The State has decided to achieve a target of 4 per cent sustainable growth for the agriculture sector as a whole during 11th Five Year Plan (FYP), using RKVY assistance. The SAP targets to increase the production of *paddy* by 19.3 per cent (from 154.50 to 184.39 lakh Metric Tons (MT)), *wheat* by 19.4 per cent (from 8.97 to 10.70 lakh MT), *other cereals* by 19.4 per cent (from 2.58 to 3.08 lakh MT), *pulses* by 29.1 per cent (from 1.87 to 2.41 lakh MT), *rape seed and mustard* by 26.6 per cent (from 4.0 to 5.06 lakh MT), *til* by 26.6 per cent (from 1.55 to 1.96 lakh MT), *other oilseeds* by 27.4 per cent (from 110.0 to 140.1 lakh MT), *sugarcane* by 60.0 per cent (from 15.0 to 24.0 lakh MT), *potato* by 47.7 per cent (from 80.19 to 118.48 lakh MT), *jute* by 14.8 per cent (from 85.12 to 97.74 lakh bales) and *vegetables* (excluding potato) by 35.6 per cent (from 128.80 to 174.60 lakh MT), during the 11th FYP vis-à-vis production achievement level of base year 2007-08. The SAP targets to increase both *area under cultivation* and *yields* for achieving the desired levels of production for various crops. It targets to increase the yield of *paddy* by 17.0 per cent (from 2655 to 3106 Kg/hectare), *wheat* by 17.0 per cent (from 2289 to 2678 Kg/ha), *other cereals* by 17.0 per cent (from 2421 to 2833 Kg/ha), *pulses* by 21.5 per cent (from 791 to 961 lakh MT), *rape seed and mustard* by 16.9 per cent (from 899 to 1051 Kg/ha), *til* by 17.0 per cent (from 861 to 1007 Kg/ha), *other oilseeds* by 17.7 per cent (from 1467 to 1726 lakh MT), *sugarcane* by 6.7 per cent (from 75,000 to 80,000 Kg/ha), *potato* by 21.5 per cent (from 22,922 to 27,861 Kg/ha), *jute* by 12.6 per cent (from 14.21 to 16 bales/ha) and *vegetables* (excluding potato) by 27.6 per cent (from 14,107 to 18,000 Kg/ha), during the 11th FYP vis-à-vis yield achievement level of base year 2007-08. Further, the SAP targets to increase the production of *fruits* by 26.5 per cent (from 27.67 to 35.0 lakh MT) during the 11th FYP; actual production for 2007-08 is taken as the base-year production. The SAP also targets to increase the milk production by 19 per cent, poultry broiler meat production by 15 per cent and fish production by 15 per cent at the end of the 11th FYP. The SAP targets to increase the *seed replacement rates* (in **per cent**) of wheat (41), paddy (33), maize (30), gram (27), lentil (29), khesari (21), urd (35), moong (34), arhar (46), rape & mustard (40), sesame (35), groundnut (40), jute (80) and potato (27) during 11th FYP from the SRR-level of 38, 27, 23, 23, 25, 17, 29, 30, 41, 36, 31, 36, 72 and 23 per cent during 2007-08 for the respective crops. The SAP targets to strengthen the seed-testing infrastructure and increase the number of *seed samples analysed* annually from 14,203 in 2007-08 to 50,000 in 2011-12. Further, the SAP targets to increase the total income generated under various cropping sequences from a unit area of 2 acres or 0.66 ha, such as *Rice+Potato* (25 per cent increase from Rs 12,450 to Rs 15,576), *Rice+Potato+Sesamum* (50 per cent increase from Rs 13,972 to 21,021), *Rice+Potato+groundnut* (35 per cent increase from Rs 13,372 to Rs 18,092), *Rice+Potato+Jute* (41 per cent increase from Rs 14,898 to Rs 21,055), *Rice+vegetables* (20 per cent increase from 14,760 to 17,655), *Rice+Rice+vegetables* (46 per cent increase from Rs 20,418 to Rs 29,783, *Rice+Wheat+Jute* (47 per cent increase from Rs 11,659 to Rs 17,121) and *Rice+Potato+vegetables* (27 per cent increase from Rs 20,700 to Rs 26,301). The SAP targets to double the farm power (farm mechanization) to 2.5

kw/ha from 1.25 KW/ha by the end of 11th FYP in the State. The SAP targets to increase the use of small farm machinery (in number) in the State, such as *Manually Operated/Bullock Drawn* (from 14,941 in 2006-07 to 85,830 in 2011-12), *Power Drawn* (from 2,409 in 2006-07 to 73,075 in 2011-12) and *Tractor & Power Tiller* (from 3,540 in 2006-07 to 9,400 in 2011-12). The SAP targets to reduce to zero the deficit in production of milk (16.7 lakh MT in year 2007-08) between milk requirement (57.47 lakh MT) and actual production (40.77 lakh MT) in a period of five years. Further, the SAP estimates/targets infrastructure requirements up to the end of 11th FYP under fisheries sub-sector and classifies them as those to be supported by the government and those by the private initiative/bank credit. Targets to be supported by the government include, 5 units of *Modern Fresh water prawn hatchery* (Rs 67.50 lakh), 5 units of *Ornamental fish hatchery* (Rs 500.0 lakh), 1 unit of *Mud crab hatchery* (Rs 400.0 lakh), 2 units of *Modern Aqua feed plant* (Rs 420.0 lakh), 5 units of *Hi tech soil & water testing laboratory* (Rs 250.0 lakh), 50 units of *Modern Fish markets* (Rs 300.0 lakh), 5 units of *Ornamental fish market* (Rs 440.0 lakh), 5 units of *Training-cum-information centres* (Rs 2500.0 lakh) and *Development of Beels & Boars* in 500 Ha area (Rs 1250.0 lakh). Targets to be supported by the private initiative/bank credit include, 15 units of *Fish seed hatchery* (Rs 175.0 lakh), 160 units of *Fish Seed rearing Units* (Rs 240.0 lakh), 15 units of *Small scale Fresh water prawn Hatchery* (Rs 70.50 lakh), 5 units of *Small scale Ornamental fish hatchery* (Rs 500.0 lakh), 25 units of *Ice plants* (Rs 375.0 lakh), 25 units of *Cold storage* (Rs 150.0 lakh), 80 units of *Small scale Dry fish units* (Rs 100.80 lakh), 22 units of *Aqua feed plant* (Rs 220.0 lakh), 10 units of *Mobile laboratory* (Rs 70.50 lakh), 10 units of *Vans with insulated boxes* (Rs 150.0 lakhs), 100 *Mobile marketing vans* (Rs 100.00 lakh), 5 *Net Making plant* (Rs 50.0 lakh), 2 *EU standard processing plants* (Rs 7500.0 lakh) and 2 *Mahua oil extraction plant* (Rs 2.0 lakh).

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?

The SAP is not explicit on the method (Method 1 or Method 2) used for the preparation of the SAP. However, it seems that the SAP uses a combination of the two methods. The SAP categorically states that the planning process for the preparation of C-DAPs is initiated at the grass-root level i.e. village/Gram Panchayat (GP) level, confirming participation of people at the grassroots in the process. This fact supports the use of Method 1 (*the State Nodal Agency/Agriculture Department takes the draft DAPs from the districts at the first instance to ensure appropriate capture of the State's priorities w.r.t. agriculture and allied sectors in the C-DAPs so that their integration in to the SAP meet priorities, targets and resources of the State*). The SAP states that it has attempted to consolidate and integrate all the C-DAPs. The SAP further states that it has taken into consideration the recommendations of the State Agriculture Commission, besides consulting all line departments and *Agriculture Technology Management Agency* during the preparation of the Plan; this suggests use of Method 2 also for the preparation of the SAP (*State Nodal Agency/Agriculture Department conveys to the districts in the first instance, the State's priorities, targets and resources that are also ought to be reflected in the respective district plans*). The SAP is not explicit on how integration (methodology) of C-DAPs and prioritizing major interventions is done to prepare the SAP. However, the SAP mentions the consolidation and integration of all the C-DAPs as its major objective; the SAP is stated to have been prepared based-on the assessment and quantification of needs identified through the process of interactions at district/block/GP level, while preparing the C-DAPs.

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.

The SAP has attempted to analyze and state the agricultural situation of the state through a detailed SWOT analysis conducted separately for each of agriculture & allied sectors, covering agro-climatic conditions, natural resources, infrastructure, institutions, technologies, manpower etc. The major strengths include, favourable agro climate and abundance of natural resources for diversified agriculture production; highly productive soils with predominance of fertile alluviums which are responsive to different inputs and management practices; well developed irrigation infrastructure facilitating higher cropping intensity with potential for further development especially of ground water resources; strong production base for horticulture crops especially fruits and vegetables with scope for further development, processing and value addition; excellent potential for production of high value cut flowers like *dendrobium /cymbidium orchids, liliums, gladiolus, anthurium* in the Darjeeling hills, *gerbera rose* in the plains under green houses; strong consumption base with huge localized demand for dairy, poultry, meat and fish and proximity to major consuming centers widening market opportunities; excellent scope for commercial ventures under poultry and dairy sectors including processing and value addition; specialized line departments with good network of animal health care facilities addressing sub – specific extension needs including door-step delivery of AI services through “Pranibandhus”; highest per capita consumption of fish in the world and high demand for production of fish; contributions of *Functional Fisherman’s cooperative societies, Fish Production Groups* and a large number of *Self Help Groups* (SHG) towards growth of the fishery sector; major producer & supplier of fish seed in the country (65% of country’s seed is sourced from West Bengal) due to availability of good quality of spawn/seed from natural as well as commercial hatcheries; existence of several water bodies including riverine areas, beel, boar, canal and tanks with a total water spread area 2.76 lakh ha. The weaknesses include, predominance of marginal and small land holdings (88 percent of the total land holdings belong to farmers with marginal and small land holdings) – a low *average holding size of 0.82 ha* limits the scope for introduction of technology innovations and interventions; predominance of rice based mono-cropping and or with potato /jute in sequence and less preference for crop rotation and diversification; floods with persisting drainage problem in several parts; adverse impact on soil health and productivity due to imbalances in fertilizer application coupled with intensive agriculture; very low application of organic fertilizers with less than 10% area coverage; low awareness among farmers on the significance of soil testing; inadequacies in availability of quality seed/plant material for all the major crops grown in the State resulting in low levels of seed replacement; absence of exclusive cold storage facilities for seed potato affecting seed quality and viability; inadequate post harvest handling and cold storage facilities for perishable horticulture produce results in seasonal gluts and distress sales besides huge losses; large indigenous non-descriptive cattle population with low milk productivity (70% of the cattle population) due to non availability of Quality animals with better productivity; absence of well organized and functional milk cooperatives limiting the scope for promotion of small dairy units; large water bodies are under derelict and semi-derelict conditions; lack of organized fish culture at village level results in wide gap in potential and actual productivity; absence of adequate ice plant and cold storage facilities for fisheries at the production point; low productivity under beels (100 to 300 kg/ha) and ponds (3000 kg/ha) due to underutilization and poor management. The opportunities include, good scope for improving cropping intensity with better exploitation and management of surface and ground water resources; crop diversification with less water intensive and remunerative crops like pulses and oil seeds and vegetables; soil health

management through comprehensive survey and introduction of *Soil Health Cards*; better organic input supply through development of 'Organic Inputs Production Hubs' and promotion of FYM and vermicomposting at farmers' fields; rational utilization of ground water resources through adoption of micro irrigation system; promotion of rain water harvesting structures especially in red laterite zones for ground water recharging and supplemental irrigation; augmenting seed production through promotion of seed villages for production of certified seed with centralized processing/quality control facilities at block /district level; development of location specific technologies for potato seed multiplication and establishment of exclusive cold storage facilities for potato seed; policy interventions favouring contract farming to facilitate exclusive production of varieties suitable for processing with user industry tie-up for buyback; export of horticulture produce especially tropical and exotic vegetables, mango pineapple, litchi, potato in fresh and processed forms; use of the concept of "Farm Machinery Hub" with focus on small holdings where individual ownership of farm equipment is not a feasible and viable proposition; promotion of *Rain water harvesting* especially in high/intense rainfall regions and utilizing the same for supplemental/life saving irrigation; promoting commercial dairy ventures with institutional credit support; breed improvement through strong net work of *Prani Bandhus* and calf rearing scheme; introduction of low input technology poultry farming with piggery and goat farming as supplementary livelihood activity among marginal/landless rural poor/ tribal habitations; develop 2.10 lakh ha of impounded brackish water resources of which only 0.48 lakh ha have been developed; and improve yield potential to 1000kg/ha under beels and up to 7500 kg/ha under ponds for promoting fisheries. The threats include, occurrence of natural calamities like floods and consequent production, transport and storage losses; several blocks may fall under overexploited category limiting the scope for further development of irrigation facilities due to indiscriminate exploitation of ground water; use of poor quality seed instead of certified seed may affect crop productivity and overall production; increasing production costs especially labour due to proximity to metro city coupled with un-remunerative/ fluctuating prices for produce severely affect the profitability of agriculture; excessive use of chemical fertilisers & pesticides limits the scope for exports due to not adhering to required quality standards; recurrence of disease epidemics like bird flu adversely affecting investments in poultry sector; drying of natural water bodies due to extensive use of water for irrigation coupled with high siltation restricting fish production; over exploitation of fisheries resources in sea, especially through juvenile fishing; and disinclination of young farming community members towards agriculture and a preference for urban employment.

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 does not give concrete evidence in support of its attempts towards convergence of inter and intra department/programmes, despite expressing adequate thrust for it. While deliberating on *convergence of financial resources*, the SAP discusses the scope for bringing all schemes and ongoing development programmes under umbrella of flagship RKVY with convergence of financial resources enabling more integrated approach towards efficient use of both financial resources and man hours. The SAP mentions some indicative areas of possible convergence. For example, rural infrastructure development programs (*like making land shaping structures for rain water harvesting in Govt. and private lands, excavation of new ponds and water reservoirs, desilting of beels and rivers, derelict of ponds*) can be taken up under MGNREGA; extension services support programmes (*which included training, capacity building and awareness creation programmes and infrastructural development including research and development of agricultural universities and*

Govt. institutions) can be covered under RKVY/ATMA; specific components of irrigation development infrastructure can be posed under ADMI; *National Food Security Mission (NFSM)* can be converged with RKVY; and storage infrastructure specially cold storage units, storage facilities for grains which has commercial prospects can be developed through total private investments or Public-Private Partnership mode. Further, the SAP identifies *convergence & synergy between state and central initiatives, role and accountability in implementing the schemes* as a growth driver for the development of agricultural & allied sectors in the State.

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?

The SAP is not explicit on studying the experience of on-going CSS and state schemes and incorporating the lessons learnt in SAP/C-DAPs for replication/ expansion/ modification in uncovered areas. However, the SAP mentions its intention for replication/ expansion/ modification of some successful programmes/schemes, originating either in West Bengal or in any other State. For example, the SAP intends to replicate the innovations with proven success in the development of animal husbandry/dairy sector like *Prani Bandhu* scheme in other sectors as well – like *Krishi Bandhu* (horticulture/agriculture), *Matsya Bandhu* (fisheries). Further, the SAP intends to replicate the “Producer – Consumer Markets” like *Raithu Bazars* in Andhra Pradesh State which has been successful in serving the interests of farmers (producers) and consumers through minimizing the role of market intermediaries; *the State Government may consider introducing the concept in West Bengal especially in major vegetable producing and consuming centers*. Also, seeing the success of 49 agri-implements hubs in 2009-10 (one hub per sub-division has been established in 2008-09), the SAP proposes to make operational another 29 number of implement-hubs. Similarly, consequent upon success of WADI (meaning horticulture garden in Gujarati) approach in *Gujarat* State in providing horticulture based sustainable livelihood for the tribal families, NABARD has taken initiatives to replicate the model in the State of West Bengal and sanctioned two *Adivasi Development Projects* in *Ranibandh* and *Bundwan* blocks in *Bankura* and *Purulia* districts respectively covering 1000 families in each block, with financial outlays of Rs 392.24 lakh and Rs 386.68 lakh, respectively. The SAP also intends to study the performance of a few food-processing units across a wide spectrum, to know the problems being encountered.

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

The SAP has attempted to state the yield gaps (Y.G.) and returns for various crops in terms of *actual yields* and *target yields (T.Y.)*; it gives *actual yields* for 2007-08 and *target yields* for years 2007-08 and 2011-12 (in Kg/ha). However, the SAP is not explicit on the basis/rationale for deciding the given *target yields*. The yield gaps, which are mentioned both in ‘quantity’ and ‘percentage’ terms, represent difference between *actual yield* for year 2007-08 and the *target yields* for years 2007-08 and 2011-12, respectively, involving various crops. The crops for which yield gaps are given include *Aus Paddy (Y.G. -16.8 per cent for T.Y. 2007-08; Y.G. -36.6 per cent for T.Y. 2011-12)*, *Amman Paddy (Local) (Y.G. -7.4 per cent for T.Y. 2007-08; Y.G. -12.5 per cent for T.Y. 2011-12)*, *Amman Paddy (HYV) (Y.G. -5.4 per cent for T.Y. 2007-08; Y.G. -23.3 per cent for T.Y. 2011-12)*, *Boro paddy (Y.G. 0.3 per cent for T.Y. 2007-08; Y.G. -16.7 per cent for T.Y. 2011-12)*, *Total Rice (Y.G. -3.2 per cent for T.Y. 2007-08; Y.G. -20.7 per cent for T.Y. 2011-12)*, *Wheat (Y.G. 12.0 per cent for T.Y. 2007-08; Y.G. -2.9 per cent for T.Y. 2011-12)*, *Total Cereals (Y.G. -1.9 per cent for T.Y. 2007-08; Y.G. -19.3 per cent for T.Y. 2011-12)*, *Total Pulses (Y.G. -0.6 per cent for T.Y. 2007-08; Y.G. -22.3 per cent for T.Y. 2011-12)*, *Total Food grain (Y.G. -1.6 per cent for T.Y. 2007-08; Y.G. -18.8 per cent for T.Y. 2011-12)*, *Total oilseed (Y.G. 4.8 per cent for T.Y. 2007-08; Y.G. -*

11.4 per cent for T.Y. 2011-12), *Potato* (Y.G. 7.2 per cent for T.Y. 2007-08; Y.G. -12.8 per cent for T.Y. 2011-12), *Jute* (Y.G. -5.5 per cent for T.Y. 2007-08; Y.G. -18.8 per cent for T.Y. 2011-12) and *Total Vegetables* (Y.G. -12.4 per cent for T.Y. 2007-08; Y.G. -43.4 per cent for T.Y. 2011-12). It is ironical to note that the target yields for 2007-08 for *Boro paddy*, *Wheat*, *Total Oilseeds* and *Potato* are lower than the *actual yields* for these crops for the same year (2007-08), as reflected in their positive-value of the Y.G. for year 2007-08. Further, the SAP also gives yield-rates at State and All-India levels for crops such as *Rice*, *Wheat*, *Gram*, *Jute*, *Rapeseed and Mustard*, *Potato* and *Tea*, for years 1980-81, 1990-91, 2000-01, 2005-06, 2006-07 and 2007-08, presenting a comparative picture. It reveals that per ha yield in rice, gram and potato is higher in the State than at all India level while the yield rates in wheat and mustard are lower than the all India level. The SAP also gives yield-gap analysis of major horticultural crops that includes information such as (a) *average yields in 5 years*, (b) *highest yield in 5 years*, (c) *yield gap between average yield and the highest yield in 5 years*, and (d) the *potential yield (P.Y.) based on scientific production practices*, for the various crops. The *yield gap* (between *average yields in 5 years* and *highest yield in 5 years*) and *potential yield* based on scientific production practices is given (in MT/ha) for crops such as *Banana* (Y.G. 1.36; P.Y. 30), *Papaya* (Y.G. 5.76; P.Y. 45), *Tomato* (Y.G. 0.80; P.Y. 40), *Cabbage* (Y.G. 10.75; P.Y. 45), *Cauliflower* (Y.G. 6.19; P.Y. 45), *Peas* (Y.G. 4.29; P.Y. 25), *Brinjal* (Y.G. 0.93; P.Y. 30), *Onion* (Y.G. 3.95; P.Y. 35), *Cucurbits* (Y.G. 0.87; P.Y. 15), *Ladies Finger* (Y.G. 0.01; P.Y. 15). However, similar information is not evident in case of livestock and fisheries sectors.

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

Though the SAP is not categorically explicit on how the technological and agronomic gaps are identified to contribute to yield gaps, yet it is implicit that the process involved in the preparation of the SAP entails substantial basis for identifying the technological and agronomic gaps; the SAP states that the preparation of respective C-DAPs involves interactions at district /block/GP level while attempting to identify and quantify the farming-needs. Further, the SAP mentions that the preparation of a *statistical profile* of the state has been instrumental in understanding the development perspective of the State. The SAP, besides incorporating inputs from all C-DAPs, is stated to have included consultations with all line departments, State Agriculture Commission and ATMA, in its preparation. The SAP states that its preparation also involves analysis of the *gaps* in adoption of technology and interventions necessary to address the same.

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?

The SAP identifies constraints responsible for low crop productivity. It also gives a general reference of the constraints responsible for low crop productivity according to *regions* in the State. For example, for 22 lakh land under *Vindhya* and *Gangetic* alluvial regions that enjoy fertile soils and river valley irrigation, the constraints include low input and technology application influenced by poor economic status of the farmers and their limited access to institutional credit; the *western belt* of the State faces specific constraints in form of *arid* tract with lateritic and undulating lands; and the *southern* areas of the State are low lands inundated by floods and rain water with poor drainage, besides shallow depth of underground water with high salt content. Though the SAP is not categorically explicit on how the identified constraints are adjudged responsible for low crop productivity, yet it is implicit that the methodology involved in the preparation of the SAP entails substantial basis for identifying constraints for low crop productivity; the SAP states that the preparation of respective C-DAPs involves interactions at district /block/GP level while attempting to identify and quantify the farming-needs. Further, the

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

The SAP suggests interventions (by regions) to bridge the gaps in productivity levels, caused by the identified constraints. For example, the SAP recommends interventions involving common facilities like uninterrupted power supply, good quality water supply, cold-chain facilities, warehousing facilities, forward integration with processing industry for further development of the agriculture & horticulture sectors in the fertile and irrigated *Vindhya* and *Gangetic* alluvial region. For the *western* region of the State where nutritional status of soil is poor partly due to leaching losses on account of high soil porosity, the SAP recommends interventions for improving the productivity of the soils such as, selection of suitable crop varieties, management of soil, adoption of water harvesting and soil conservation techniques, manuring and adjustment of sowing time. Similarly, for the *southern* region that receives far more rains (1600 mm) during *Kharif* season resulting in excess-water than required for *Kharif* crops, the SAP recommends use of the proven technique of storing the excess rain water in 1/5th excavated land of the total cultivated land of a farmer and raising the adjacent embankment and crop field, for large scale adoption; the SAP expects the technique to be useful in the cultivation of fruits and vegetables on pond embankment and diverse field crops both in *Kharif* and *Rabi* seasons on the raised fields and pisci-culture amongst the small and marginal farming communities of the region. Though the SAP is not categorically explicit on how the interventions are identified to bridge the gaps in productivity levels, yet it is implicit that the methodology involved in the preparation of the SAP entails substantial basis for identifying the interventions to bridge the gaps in productivity levels; the SAP states that the preparation of respective C-DAPs involves interactions at district /block/GP level while attempting to identify and quantify the farming-needs. Further, the SAP mentions that the preparation of a *statistical profile* of the state has been instrumental in understanding the development perspective of the State. The SAP, besides incorporating inputs from all C-DAPs, is stated to have included consultations with all line departments, State Agriculture Commission and ATMA, in its preparation. The SAP states that its preparation also involves analysis of the *gaps* in adoption of technology and interventions necessary to address the same.

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 proposes strategies to bridge the yield gaps in crop/livestock/fisheries and maximize returns to farmers. However, it misses to give evidence in support of following a systematic prioritization of the right strategies. The SAP is also not explicit on providing empirical basis for appropriate strategies. It is not explicit that how far the strategies have been obtained/decided through a consultative process with all the relevant stake holders; but the SAP mentions about having interactions at district /block/GP level for identifying and quantifying the farming-needs while preparing the C-DAPs. Further, the SAP is also stated to have involved consultations with all

line departments, State Agriculture Commission and ATMA during its preparation, besides incorporating inputs from all the C-DAPs.

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 SAP misses to translate the proposed strategies into programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources). The SAP does not give a systematic account of the projects proposed for the 11th FYP; however it mentions a handful of projects/activities in terms of yearly targets for the 11th FYP, that include *Seed Production & Seed Replacement Rate, Seed Testing/Infrastructure in the State* and *Farm Mechanization*. This is despite the fact that the C-DAPs give a systematic account of the proposed projects in terms of targets and funding, as evident in the C-DAP of *Nadia* district. However, the SAP gives *funding* proposed under various agriculture & allied sectors, by district and years (2009-10, 2010- and 2011-12). It is not explicit whether the viability of projects to achieve the expected output is considered.

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

In general, the SAP is not explicit on projects proposed during the 11th FYP; formulation of specific projects that address border areas/ insurgent areas/problem areas (mining, acidic soils etc), is also not explicit in the SAP. However, the SAP touches upon some proposals/programmes aiming to benefit vulnerable communities like tribal-population. For example, the SAP states that *NABARD* (National Bank for Agriculture and Rural Development) has initiated *horticulture-gardens* for providing horticulture-based sustainable livelihood to tribal families in the State and sanctioned two *Adivasi Development Projects* in *Ranibandh* and *Bundwan* blocks in *Bankura* and *Purulia* districts (tribal-dominated and vulnerable to *naxalism*) respectively covering 1000 families in each block, with financial outlays of Rs 392.24 lakh and Rs 386.68 lakh, respectively. The livelihood component involves development of horticulture-garden with location specific perennial horticultural crops in the cultivable wastelands owned by the tribal families. As on 31 March 2010, NABARD sanctioned 14 tribal development projects in West Bengal covering 7 districts involving a total grant assistance of Rs. 33.73 crore. The Government of West Bengal (Backward Classes Welfare Department) is partnering with NABARD in six of the projects contributing a grant assistance of Rs. 8.87 crore.

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 proposes a budget of Rs 7464.59 crore for the 11th FYP; however the funding proposals pertain only to the last three years of the 11th FYP (2009-10, 2010-11 and 2011-12) and misses to involve the first two years of the FYP (i.e. 2007-08 and 2008-09). The SAP proposes Rs 2392.35 crore, Rs 2606.16 crore and Rs 2475.07 crore for years 2009-10, 2010-11 and 2011-12,

respectively. A gap of Rs 8.98 crore is evident between the given total budget involving three years and aggregate of budgets for the three individual years, as given total budget for Uttar Dinajpur and Nadia districts falls short of the aggregate of budget for three individual years by Rs 8.93 crore and 0.05 crore, respectively. The approved budget (as per the consolidated statement given in the RKVY website) for the State for years 2007-08, 2008-09, 2009-10 and 2010-11 are Rs 60.87 crore, Rs 147.38 crore, Rs 147.38 crore and Rs 476.15 crore, respectively, that cumulates to Rs. 831.78 crore for the first four years (2007-08 to 2010-11) of the 11th FYP for which approved amounts are given. Though the given *total proposed allocation* (2009-10 to 2011-12) and the *total approved amount* (2007-08 to 2010-11) are not strictly comparable as only two years match (2009-10 and 2010-11) between the amounts to be compared, yet a cursory look reveals a huge difference of Rs 6632.81 crore (a gap of 88.9 per cent) between the two i.e. total proposed amount (Rs 7464.59 crore) and total approved amount (Rs 831.78 crore). On yearly basis, there are differences of Rs 2244.97 crore (gap of 93.8 per cent) and Rs 2130.01 crore (gap of 81.7 per cent) between the *proposed* and the *approved* budgets for years 2009-10 and 2010-11, respectively, (*comparable figures for proposed and approved allocations are available for these two years only*).

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

In general, the SAP has missed to mention projects/programmes (and therefore funding) proposed under the 11th FYP. Hence, we are unable to comment on the size of the projects/programmes on the basis of the SAP. But, the SAP mentions about two **Adivasi Development Projects** initiated by NABARD for providing horticulture-based sustainable livelihood to tribal families in Bankura and Purulia districts with financial outlays of Rs 3.92 crore and Rs 3.87 crore, respectively. It states that NABARD has sanctioned 14 tribal development projects in West Bengal covering 7 districts involving a total grant assistance of Rs. 33.73 crore, as on 31 March 2010. Further, the Government of West Bengal (Backward Classes Welfare Department) is partnering with NABARD in six of the projects contributing a grant assistance of Rs. 8.87 crore. Contrarily, the C-DAPs seem to provide required information on the proposed programmes/projects (including targets and funding, as is evident from the C-DAP of the Nadia district. However, the projects proposed at the district-level (reference Nadia district) are in general small in size. For example, various components under *Scheme for enhancing production and productivity of Agricultural Crops through use of irrigation water from re-excavated Kalinga Beel and Gopia Beel* (Rs 2.85 lakh), *Soil Testing Programme* (Rs 3.20 lakhs), *Soil Testing Laboratory* (Rs 16.77 lakhs), *Soil Conservation Programme* (Rs 290.45 lakh); and various programmes /projects under RKVY Plan involving last three years under 11th FYP (2009-10 to 2011-12) such as *Construction of Pacca Boundary wall at Nakashipara, Krishnaganj, Tehatta, Karimpur and Kaliganj* (Rs 332.77 lakh), *Farm Mechanization with Govt. Agriculture farms* (Rs 25.2 lakh), *Establishment of Agriculture Implement Hub with Co-operative Societies / Self help groups* (Rs 270 lakh), projects under *Enhancement of Soil Fertility programme* (Rs 104.5 lakh), *Integrated Pest Management in the endemic areas programme* (Rs 43.2 lakh) and *Bio-Village programme* (Rs 9.0 lakh). The projects/programmes which are large enough to make visible impact include, *Minor irrigation programme* funded through various agencies/projectslike RIDF NABARD, OCTMP (WB) and BKVY/BRGF (Rs 130.10 crore).

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

The SAP does not make a mention of the *Flagship programmes* that cover large part of the State and larger area. In general, the SAP misses to state the projects/programmes proposed under the Plan; thereby it also misses to give their physical targets, funding costs and geographic extension across the State. However, it makes huge allocation towards *Panchayat* (Rs 2651.09 crore), *Agriculture & soil conservation* (Rs 1439.24 crore) and *Agricultural irrigation and water resources* (Rs 691.24 crore) together forming 35.5 per cent, 19.3 per cent and 9.2 per cent, respectively of the total proposed allocations.

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

The sectoral allocation of funds seems to conform to equitable and optimal distribution of resources. The SAP allocates highest share of 35.5 per cent (Rs 2651.09 crore) in the total proposed allocations to the *Panchayats*. This is understandable as 72 per cent of the total population in the State lives in rural-areas; 31.85 per cent of the population lives below poverty line in the State; and *agriculture* is the predominant occupation in the State. Further, *agriculture* in the State is small-farmer-centric with 90 per cent of cultivators being *small & marginal* farmers and hold 84 per cent of the agricultural lands in the State. Thus, *Panchayats* are at the helm of playing crucial role for the socio-economic development of the State and providing impetus to the agricultural growth. The SAP allocates the second highest share of 19.3 per cent (Rs 1439.24 crore) to the *agriculture* sector (including *soil conservation*). The allocation is quite appropriate as *agriculture* is the predominant occupation in the State, with 19.53 per cent and 19.30 per cent of the total rural workers being *cultivators* and *agricultural labourers*, respectively. Hence, focus on *agriculture* sector is of necessary importance for increasing the overall agricultural growth rate in the State. The imbalanced use of chemical fertilizers and inadequate use of organic fertilizers have been causing soil-degradation, necessitating soil-conservation efforts. The SAP proposes an allocation share of 13.1 per cent (Rs 982.55 crore) for the *fisheries* sector as the State provides tremendous scope for growth and consequent employment/income generation through this sector. The State has high demand for production of fish and is having highest per capita consumption of fish in the world. The State is a major producer & supplier of fish seed in the country (65 per cent share). The State has leveraged the presence of several water bodies (including riverine areas, beel, boar, canal and tanks) with a total water spread area 2.76 lakh ha existing in the State, by continuously increasing its fisheries exports over the years and boasts as the fourth largest fish-exporting State in the country. Further, *animal resource development* is necessary in the light of the fact that the milk production in the State (4.10 Million Metric Tonnes per annum) falls short of the actual requirement (5.5 Million Metric Tonnes per annum). The SAP proposes an allocation share of 9.2 per cent (Rs 691.24 crore) for the *agricultural irrigation & water resources* sector. The State has scope for increasing its gross cropped area through effective water management practices. It can advantage of the heavy rainfall for promoting use of surface water for irrigation through proper harvesting of the rain-water. The SAP proposes an allocation share of 8.5 per cent (Rs 636.61 crore) for the *horticulture* sector. The agro-climatic conditions of the State support cultivation of a variety of horticulture crops that has enabled the State emerge as a leading producer of horticulture including fruits and vegetables. The sector entails great opportunity for growth on the back of improvement in post-harvest infrastructure. The SAP proposes an allocation share of 5.3 per cent (Rs 395.78 crore) for the *cooperation and agriculture marketing* sector. The adequate flow of credit to small & marginal farmers needs strengthening of the cooperative system; development of *agriculture marketing* is necessary to derive benefit from the large scale agriculture and horticulture production in the State. The SAP also proposes small

allocations for sectors like *khadi/cottage industries/DIC, social forestry, sericulture, KVK, NFS & service sector and miscellaneous*, total aggregating to an allocation share of 9.1 per cent (Rs 677.05 crore). The SAP has attempted to recognize the importance through this small yet useful allocation. However, the spatial allocation of funds does not conform to equitable and optimal distribution of resources as is evident from negative value of the coefficient of correlation (-0.02) calculated between population at district-level and district-wise allocation of funds. Surprisingly, *Bankura* district with a population share of 4.2 per cent receives 42 per cent of the total proposed allocation amounting to Rs 3,146.86 crore.

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

In general, the SAP seems to have missed mentioning projects in the SAP. Since innovative projects are not explicit in the SAP, we cannot comment on them.

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

In general, the SAP seems to have missed mentioning projects in the SAP, including those under the *State Plan* (that is projects planned for the State as a whole). The SAP is not explicit on the basis of planning certain projects for the State as a whole. However, the SAP suggests to adopt an effective monitoring mechanism that includes, (a) *Internal monitoring of the progress by the district /block level in-charges of respective line departments;* (b) *An inter-departmental coordination mechanism for joint implementation and monitoring of plan components involving more than one department;* (c) *Constituting a State level Review & Monitoring Committee (RMC) to review the progress through structured meetings;* (d) *Introduction of plan specific MIS as an integral part of monitoring through Plan Plus software specifically developed for the RKVY programme;* (e) *Independent monitoring by an outside agency of repute and expertise and* (f) *Social audit of the physical and financial components of the programme and its achievements through prominent display at public places like block/Panchayat offices which are frequented by the benefitting community.*

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

The basis of sectoral fund allocation is not explicit in the SAP. It is not explicit that whether it is based on expected marginal contributions. Further, any viability analysis is not explicit in the SAP.

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

Since allocations across years miss years 2007-08 and 2008-09, we limit our analysis to the remaining three years of the 11th FYP i.e. 2009-10 to 2011-12. The SAP allocates Rs 2392.35 crore (32.0 per cent), Rs 2606.16 crore (34.9 per cent) and Rs 2475.06 crore (33.1 per cent) for years 2009-10, 2010-11 and 2011-12, respectively. The allocation share increases by 2.9 per cent between third year (2009-10) and the fourth year (2010-11) again decreases by 1.8 per cent between the fourth year (2010-11) and the last years (2011-12) of the 11th FYP. Seeing from the perspective of the timeframe of 11th FYP (2007-08 to 2011-12), the proposed allocations do not fit the criteria of prudential allocation across years. Hence, the allocation across years cannot be said as right. Ideally, the allocation share should be minimum in the first year, being the planning stage for the project/s involving comparatively less investment capacity; the allocation share should

increase in the intermediate years as subsequent years demand higher investments for the execution of the planning; and allocation share should decline in the last year because having invested sufficiently in the in-between years, the fund requirements again become low in the last year of the plan-period. Further, the basis for yearly allocation is not explicit in the SAP.

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

The SAP seems to be in line/ tune with the overall agricultural strategy and goals of the country/ state. The SAP gives thrust on *Panchayats* (with 35.5 per cent allocation share), *agriculture* (with 19.3 per cent allocation share), *fisheries* (with 13.1 per cent allocation share), *agricultural irrigation & water resources* (with 9.2 per cent allocation share), *horticulture* (with 8.5 per cent allocation share) and *cooperation and agriculture marketing* (with 5.3 per cent allocation share). The proposed allocations indicate that the SAP focuses on achieving a high but inclusive growth-rate for the whole agriculture & allied sector. These are expected to contribute towards country's aim of achieving 4 per cent growth rate during 11th FYP.

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

The SAP is not explicit on mechanism for planning, baseline information collection, monitoring, documentation and regular reporting progress. However, the SAP suggests to adopt an effective monitoring mechanism that includes, (a) *Internal monitoring of the progress by the district /block level in-charges of respective line departments;* (b) *An inter-departmental coordination mechanism for joint implementation and monitoring of plan components involving more than one department;* (c) *Constituting a State level Review & Monitoring Committee (RMC) to review the progress through structured meetings;* (d) *Introduction of plan specific MIS as an integral part of monitoring through Plan Plus software specifically developed for the RKVY programme;* (e) *Independent monitoring by an outside agency of repute and expertise and* (f) *Social audit of the physical and financial components of the programme and its achievements through prominent display at public places like block/Panchayat offices which are frequented by the benefitting community.*

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?

The SAP is not explicit on whether the planning, monitoring and evaluation mechanisms exist, functional and made use of to fulfill the expectation and bridge the gaps. Further, the SAP is not explicit on the plan for strengthening PME mechanisms and making them functional during the remaining years of 11th FYP and 12th FYP, when it gets launched. Also, it is not explicit on whether the baseline information is maintained for comparison of performance of the project later. However, the SAP suggests to adopt an effective monitoring mechanism that includes, (a) *Internal monitoring of the progress by the district /block level in-charges of respective line departments;* (b) *An inter-departmental coordination mechanism for joint implementation and monitoring of plan components involving more than one department;* (c) *Constituting a State level Review & Monitoring Committee (RMC) to review the progress through structured meetings;* (d) *Introduction of plan specific MIS as an integral part of monitoring through Plan Plus software specifically*

developed for the RKVY programme; (e) Independent monitoring by an outside agency of repute and expertise and (f) Social audit of the physical and financial components of the programme and its achievements through prominent display at public places like block/Panchayat offices which are frequented by the benefitting community.

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

The SAP is not explicit on the mid-term evaluation by an external agency.

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) along with their respective share of funding, for all the projects. 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. Instead 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) Further, the SAP should state programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources) for each project.

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

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

(v) The mismatch between budget proposal and allocation sanctioned should be minimum - it can be bridged quite a bit if convergence is attempted as indicated in 4.(i) above.

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

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

(viii) 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.

(ix) Allocation of funds across years should follow prudent allocation norm. Further, examining allocations across years requires allocation values for all years of the FYP; hence proposed allocations should be provided for all years under the FYP.

Overall conclusion

The SAP is well attempted though it can be improved. It states the physical targets planned to be achieved during 11th FYP under various agriculture & allied sectors, while also giving yearly targets in some cases. It gives a systematic account of the SWOTs, covering all agriculture & allied sectors. It attempts to give a yield-gap analysis by comparing the *actual* yields with the *target* yields for major agricultural and horticultural crops though how the targets are decided is not mentioned. It puts-forth strategies and interventions for development of agricultural & allied sectors; it highlights the *areas of*

concerns and the *researchable priorities* under various sectors. It also suggests an effective monitoring mechanism for adoption. However, the SAP needs improvement in many aspects. Firstly, it should state programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources) for each project. Secondly, it should elaborate on the *methodology* used for the preparation of the SAP, including integration of C-DAPs and prioritization of interventions. Thirdly, the SAP should give examples of attempting convergence along with sources of funding (RKVY and others) for each project to get a better picture of convergence. In other words, it should give funding details involving RKVY and other sources. Fourthly, the allocation of funds across years should follow prudential allocation norms; proposed allocations should be provided for all the years under the FYP. Fifthly, prioritization of strategies should be undertaken and they should be translated into programmes/projects/activities by sectors and years with clear cut objectives, targets, output, outcome, funding (RKVY, other sources) for each project. Sixthly, spatial-allocation of funds should conform to equitable and optimal distribution of resources. The SAP should also make provision for a dedicated PM&E mechanism at the State level for facilitating project screening, database management, monitoring, evaluation and reporting of RKVY projects. These points require priority attention during 12th FYP.