Abstract of Studies Conducted by AERCs ince 2007

Study No.-155

 $\label{eq:non-operation} Name of the Study: Evaluation of Integrated Dairy Development Project (IDDP) in Non-operation Flood, Hilly and Backward areas: A Study in Sikkim$

J.K.Ghosh,V.Datta,A.Sinha

YearofPublication:2007

ABSTRACT

StatusofAnimalHusbandryandDairyinginSikkim

IntheStateofSikkim,thelivestockproductionistheendeavourofsmallandmarginalfarmers (17th IndianLivestock Census, Sikkim, 2003). The rearing of cattle is anage oldandintegralcomponentoftheagriculturalactivities inSikkim.

Allocation of StateBudgetaryResourcesin DairyDevelopment

The expenditure on dairy development however varied over the years. Data pertaining to the period 2000-2001 to 2006-

2007revealed
that
expenditure
ondairydevelopmentincreased consistently from Rs.34.44 lakhs
in2000-2001
to
Rs.65.00
lakhsRs.34.44 lakhs
2006-
2007accompanied
bybigjump(Rs.175lakhs)
during
theyear2002-2003.

Growth and CompositionofLivestock intheStateofSikkim

Livestock population the state of Sikkim increased from 5.13 lakhs in 1997 to about 6.87 lakhs in 2003 recording a compound growth rate of about 6 per cent per annum. Bovine (cattle and buffaloes) population constituted 23.47 per cent of the total livestock in 2003. The cattle population shared the major in bovine population which accounted for 98.69 per cent of total bovine population. The fact is that by and large, the number of crossbredcattle has tended to increase over the period.

The bovine constituted 23.47 per cent, while ovine population (Sheep and goats)accounted for 18.88 per cent of the total livestock population. Population of in-milk bovinewhich includes lactating buffaloes and cows shared 25.53 per cent in total bovine population.Cattle constitute the major (98.69 per cent) in total bovine. Cows are preferred more thanbuffaloesandarethe mainsourceofmilkproductioninthestateofSikkim.

Growth inMilk Production

It can be seen that during the Fifth Five Year Plan period average annual milk production was 10.95 thousand metric tonnes and it increased to 37 thousand metric tonnes annually during the 9th Five Year Plan period registering an increase of 8.81 per cent perannum. During the 8th Five Year Plan period (1992-97), annual milk production was of theorder of 34 thousand metric tonnes when the scheme of IDDP was launched. It increased to 48 thousand tonnes in the year 2005-2006 and thus increased at the rate of 3.17 per cent perannum since the launching of IDDP programme in the state.

Integrated Dairy Development Project in Sikkim

Intheyear 1993-94, theGovernment of Sikkimreceiveda grant of Rs. 217lakhsfrom the Government of India for undertaking Integrated Dairy Development Programme in he northdistrict.

The project is implemented in the state by the State Animal Husbandry, Livestock, Fisheries and Veterinary Services Department, Government of Sikkim. For implementation of IDDP in Sikkim, a Technical Management Committee (TMC) was constituted at the statelevel for monitoring the progress of the project. In addition to the state level TMC there is an implementing committee at district level to work out the modalities for implementation of the project inthe concerned district.

$\label{eq:physicalandFinancialPerformance} Physical and Financial Performance of the Project$

As of January 31, 2005(by the end of phase-II) 30 village-level dairy cooperativesocieties have been established with the total membership of 1000 village milk producers.Two milk chilling plants with the capacity of 500 LPD each and one milk processing plantwith the capacity of 2000 LPD were established. The average liquid milk procurement andmarketingwasoftheorderof1500LPDrespectively.

The total investment of the 2nd.phase of the project as of January,2005 was 266 lakhs.In the allocation of funds among various activities, 112.22 lakhs i.e. about 42.19 per cent wasgiven for building up milk processing and marketing capacity. Milk production enhancementprogrammegot96.74lakhsi.e.36.37percentoftheallocation.Asumof Rs.46.62lakhsi.e.

17.53 percentwasspentonmilk procurement. Manpowerdevelopment received 2.25 lakhs

i.e. 0.85 per cent of the allocation and the remaining was spent on working capital likepurchaseofcattlefeed,purchaseofheifersetc.

Performance of Dairy Co-operative Societies

In the present study, milk producers' co-operative societies receiving benefits onlyunderIDDPformthesampleframefor judgingtheperformanceof dairy Co-operativeSocieties. In all, three dairy co-operative societies are covered in the study namely NampatamMPCS, Ringhim DUSS and Chandey MCS hereafter referred to as Society No.1, 2 and 3respectivelyinnorthdistrictofSikkim.

At the time of survey, total members of the societies numbered 33, 50 and 49 insocieties 1, 2and 3respectively while the corresponding figures at the of inception of the societies were 19, 25 and 40 and thus recorded annual growth rate of 7.36, 10.00 and 2.25 percentrespectively.

ImplementationofIDDPSchemeattheFarmers'Level:ItsEconomyand Impact

A total of 19 milch animals (cows) were provided to 19 beneficiaries out of a total of 36 who accounted for 52.78 per cent of the total sample beneficiaries. Inducted cows were in1st lactation order. The lactation cycle of milch cattle provided under the scheme was reported to be duration of 415 days of which 230 days represented in-milk period and the dry periodwas durationof185 days.

Out of a total of 19 animals assisted under IDDP project, 15 (78.94 per cent) wereprovided to small and marginal farmers. Again, as noted above, among the sample beneficiary ho useholds small and marginal landholders constituted the major.

Unit cost of investment under the scheme of IDDP included (a) cost of one crossbredcow (b) cost of construction of shed and (c) cost of equipments. The survey data revealed that he average actual unit cost of investment was Rs.10,755 covering cost of one milch animal(Rs.7105),cowshed(Rs.3500)andcostofequipment(Rs.150).

Out of the total sample beneficiary farmers selected for the study, 86.11 per cent aresmall and marginal who owned 82.67 per cent of total milch cattle. According to breeds, majority of milch animals kept by the sample beneficiary farmers are indigenous type havinglowmilkyield potential.Outof75milchcattle possessedbythebeneficiaryhouseholds, only 32.00percentarecrossbreedcowsand68.00percentareindigenouscows.

Theoverallaverage investment perhousehold indairy enterprise worked out at Rs. 15100. Noticeably, investment per household increased with the increase in the size of milch animal from Rs. 14251 with less than 5 numbers of milch animals to Rs. 29525 when the size of milch animal herd increased up to 10 numbers. Average investment per unit of cattle population stood at Rs. 4150 being declined consistently with the increase in the size of milch animal.

IDDPprogrammehasprovidedadependablealternativechannelfordisposalofmarketable surplus of milk at prices, which are considered fair for the producers. The benefitscomprised of two components of income viz. annual milk production and the estimated valueof young stock. The overall BCR worked out at 1.14 with the estimated figure of 0.94 forlocal cows and 1.41 for crossbreed cows. Thus investment in dairy activity is found to beeconomicallyviableinthestudyarea.

The financial soundness of dairy units is examined by working out the Financial Rateof Return (FRR). The financial rate of return on investment in the acquisition of a crossbredcow works out to 19.62 per cent. The figure stood at 12.96 per cent while reckoned on totalinvestment. This substantiates the financial viability of investment indairy units.

Thedairysectorprovided employment opportunities to the beneficiary farmers ranging from 55.98 percent to 71.84 per cent of the total working man days depending on the size of milchanimals with an overall average of 58 percent for all the dairy farms together.

As a source of income, the dairy farming contributed the least for the nonbeneficiaryfarmers. As evidenced by the overallest imate of benefic to stratio, dairying did not turn out to be a sound economical ternative for non-beneficiary farmers.

Study No.-156

NameoftheStudy:EstimationofSeed,FeedandWastageRatiosforMajorFoodgrainsinWestBengal Kazi M.B. Rahim, J. K. Ghosh, D. Majumder, A.

SinhaYearofPublication:2008

ABSTRACT

- Seed,feedandwastageratiosincaseofcereals(rice)wereestimatedtobe13.07percentwherea s in termsofpulses (lentil)the ratiowas estimatedat11.84percent.
- Itisobservedthatthesignificantpercentageof produceislostduringdifferentoperationsatfarmers'levelstretchingfromharvestingtothem arketforsale.
- Itisclearlyrevealedthatthepostharvestlossesofcerealcrop(rice)increasedwiththe nonavailabilityofstoragefacility.
- Threshinglosseswerehigherwhentheproduceisthreshedbythreshingmachineascompared tomanualthreshing.

Study No.-157

Nameofthe Study:State BudgetaryResource and AgriculturalDevelopment(WestBengal) B.C.Roy,V.Datta,F.H.Khan

YearofPublication: 2009

ABSTRACT

- The real public expenditure on agricultural development in West Bengal indicated periodic ups and downs. In real terms, it had increased at higher rate in 1950's, 1960's and 1970's. After 1970's, particularly during 1980's and during mid 1990's and againduring2001-020nwards ittended to decline sharply.
- \triangleright Sector-wisecomposition of GSDP and work force points to a significant transformation in West Bengal economy. The share of primary sector in GSDP after1998-99 shows a steady decline. Accordingly, there was corresponding decline in thedependence on agriculture too. Though, the share of secondary sector in GSDP has reduced from 29 per cent to 19 per cent in 2005-06, the dependence of workforce onthis sector from 3.67% to 9.37% in 2005-06. increased The share of tertiary sectorbothinGSDPaswellasworkforce dependencehasincreasedthroughout.
- > Deceleration in the real government expenditure on agriculture is associated withdecline in the growth rate in the agricultural output particularly the foodgrainoutputandslowingdownthepovertyreduction.

Study No.-158

Name of the Study: Market Access and Constraints in Marketing of Goats and Their Products and The Study: Market Access and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Their Products and Constraints in Marketing of Goats and Co

inWestBengal

R.C. Mondal, A. Sinha, K. S.

ChattopadhyayYearofPublication:2009

ABSTRACT

- Goats are the main contributor of meat production of the state. The share of goat meatin total meat production of the state was highest (45.28 percent) in 2006. MaximumgoatpopulationisconcentratedinBurdwanandMurshidabadinthe state.
- Economic support can play an important role to intensify goat keeping. They cannotaffordtomaintainbiggerflock&bettermanagement.
- Atvillagelevel, there is acute crisisof pasture and grazing land.
- Marketinginfrastructure forgoat&skinandproductisquite essential.

Study No.–159

NameoftheStudy:UnderstandingtheGrowthandProspectsofAgro-

ProcessingIndustriesinWestBengal

J.K.Ghosh,F.H.Khan,V.Datta

YearofPublication: 2009

ABSTRACT

- Withinthegroupoffood-processingindustries, paddy-processing activity gave maximum return. Within the group of non-food processing industries, paperbased manufacturing unit gave high est net return.
- The state of West Bengal being blessed with largest production of paddy has thepotentialsforinvesting inpaddyprocessing industry. However, this would be possible

if the units have access to information network to keep track of raw materials prices and availability.

- Within the group of non-food industries, textile and leather units yielded lower netincome but have shown relatively better performance in terms of growth in number ofunits. They could enhance their earning capacity if they are provided with betterinfrastructure purveyingmarketinformationfortheirprocessedproducts.
- > The paper-based units yielding highest net return amongst the non-food processingunitsoffers scopeforinvestmentinsuchunits.

Study No.-160

Name of the Study: Study on Impact Evaluation of National Watershed Development forRainfed Areas Envisaged as WARASA JAN SAHBHAGITA duringTenthPlan(2002-07)inWestBengal

D. Sarkar, K. S. Chattopadhyay, D. Roy, R. K.

BiswasYearofPublication:2009

ABSTRACT

- Size ofholdingswas lowerinwatershedarea.
- Irrigatedareawas37.05percentand26.66percentinwatershedandnonwatershedarea,respectively.
- Nodifferencewasobserved in adoption of recommended technologies inboth areas.
- Most of the soil and water conservation measures serve the purpose of conserving rainorrunoffwater.
- Copping intensity decreases with the increase insize of holding due to less irrigated area for higher holdings.
- > Netincomeincreasedtotheextentofdecreasingcostofirrigation.
- Livestocknumberincreasedduetoavailabilityoffodderandcommonlands.
- Fairlyequitable distribution of income inwatershed area isobserved.
- WatershedDevelopmentProgramme(WDP)hasbeenabletoregeneratenaturalresources including land, forest and water to a large extent and it is playing a crucialrole in augmenting agricultural growth, productivity and cropping pattern in WestBengal.

Study No.-161

Nameofthe Study:ImpactofMacro ManagementofAgricultureScheme

Kazi M.B. Rahim, D. Roy, R. K.

BiswasYearofPublication:2009

ABSTRACT

Theimpactofinterventionsunderthesub-schemesSustainableDevelopmentofSugarcane Based Cropping System, Special Jute Development Programme, ICDP-Coarse Cereals havemanifested itself primarily through a marked increase in the areaunder sugarcane, jute and wheat cultivation respectively for the beneficiary farmers, especially through demonstration programmes.

- The sub-schemes ICDP- Wheat, though subsequently modified as Dissemination of New Technology through Diversification of SuitableCrops, has resulted into an increase in the production of wheat.
- Under the sub-scheme Balanced Integrated Use of Fertilizers, termed as Soil HealthManagement in West Bengal, has found to have played a significant role regardingpositive changes in attaining a balance in fertilizer application among the beneficiaryfarmersandrevivingsoilhealth.

Study No.–162

NameoftheStudy:DeterminantsofStagnationinProductivityofImportantCropsinWestBengal Kazi M.B. Rahim, D. Majumder, R. K.

BiswasYearofPublication:2010

ABSTRACT

Itwasfirstlyabivariateand thenamultivariate exercise.

Apart from total area under rice and annual rainfall, the other independent variableshave a significant impact on changes in productivity of rice though each of the variablesexplainingpartiallythevariabilityinproductivity.

We carried out multiple regression exercise to assess the impact of the independent variables on productivity of rice.

The results express that independently all the variables have significant impact onproductivity but taken together they show some differentiated impact. Nonetheless, theseindependent variables taken together explain 92.5 per cent of variability of the dependent variable.

There may be two reasons for such behaviour of the explanatory variables. Firstly, as the number of observation is rather small and the degrees of freedom goes down as we go onadding independent variables. Secondly, there exists some degree of multi co-linearity among the explanatory variables.

Study No.-163

Name of the Study: Study on Impact Evaluation of National Watershed Development forRainfedAreasEnvisagedasWARSAJANSAHBHAGITAduringTenth Plan(2002-2007)(ConsolidatedReport)

D.Sarkar, KaziM.B. Rahim

YearofPublication:

ABSTRACT

WestBengal:

It has been observed that there is no difference in adoption of other recommendedtechnologies in between WP and NWP farmers. It has been worked out that the overalladoption ratio of recommended watershed/agronomic technologies by WP and NWP farmersare32.95 per cent and 27.68, respectively. It is evident that the quality of landavailablein WP areaissuitable for agro-

forestryandperennialsandfarmersarerelativelymoreresponsive toadoptionagroforestryandperennials. The contribution of watershed as reflected in gross returns from rainfed crops wasconsidered as the dependent variables, since the watershed impact is direct and implicit. Accordingly, grossreturns from rainfed field crops in 2007 was regressed ondry landcropped area in hectares (X₁), human labour (X₂), bullock labour (X₃), seeds in Rs. (X₄) and fertiliser in Rs. (X₅). The adjusted R^2 for the watershed and non-watershed area was 87 percentand 94 percent which indicate a dequacy of fit of the model.

Theregressioncoefficientsaretheestimates of theelasticity of productionwithrespect to the independent variables. In WP, elasticity coefficient for human labour, bullocklabourandfertiliserare0.02,-0.01 and-0.03, respectively, and a restatistically significant at 5 per cent. For land, the elasticity coefficient is 1.01 and significant at 5 per cent. The coefficient for seed is -0.03 and is not significant.

In NWP, variables land and seed are significant and their elasticities are 0.93and 0.07.For human labour, bullock labour and fertiliser, the elasticity coefficients are 0.06, -0.03 and 0.01, respectively and significant at 5 per cent. The returns to scale are 1.01 and 1.04 in WPandNWPareas, implying constant returns to scale. This shows that the production technology use dinwaters hed and non-waters hed is scale neutral.

The geometric mean levels of gross returns for WP and NWP sample farms are Rs.11500.83/- andRs. 11764.65/-, respectively. Thegeometriclevel of inputsland, humanlabour and bullock, seed, fertilisers are computed both watershed and non-watershed samplefarmsas0.49,Rs.2300.87/-,Rs.413.75/-,Rs.172.43/-Rs.612.60and0.48,Rs.2302.69/-, Rs.418.49/-,Rs.163.07/-andRs.617.26/-,respectivelyinthatorder.

In watershed area, the major source of irrigation is groundwater from tank/ponds. Alltanks were excavated before watershed development programme. The impact of WDP isassessed based on number of irrigation ponds. Another measure of impact of WDP is theincreased water yield in the ponds. However, the average yield of ponds is not available. Outof the 65 total ponds in the selected watersheds, only 4 ponds are non-functional, whereas inNWP area 3 ponds are non-functional out of the 29 ponds. Average water area of the pond inWP area is 0.12 hectare, whereas it is 0.17 hectare in NWP area. The average command areaandaveragedepthofthetankinWPareais higherthanthatofNWParea.

Most of the soil and water conservation measures serve the purpose of conserving rainorrunoffwateranditisdifficulttoseparatethemandanalysetheircontributiontogroundwater recharge. However, we can broadly divided them into (1) measures that increasein-situ water availability and (2) measures that increase availability of applied water storedoff-farm or below the ground. The ubiquitous check dams and nala bunds, diversion channelsand all their variants store water on surface or enhance subsurface storage. However, the useof farm ponds protective irrigation. investment is for The total on soil and water conservationstructures in these lected watersheds is Rs. 35, 52, 403/-

.The increased availability of groundwater due to WDP manifests in decreased irrigation cost. The net returns per farm hasbeen observed to be Rs. 189.68/-, Rs. 518.48/- and Rs. 1057.91/- for marginal, small and medium farms, respectively. It has been observed that the cropping intensity decreases with the increase in size of holdings. This may be due to less irrigated area in higher holdings. It has been observed that the decrease in cost of irrigation and corresponding increase in netreturns in WPis due to impact of WDP.

A largenumber of farmers inWP arerearing livestock on small scaleafter theWDP. Farmers expressed during the discussion that due to availability of fodder on farm and common lands, the number of bullocks, cows, buffaloes, sheep, goat has increased. The netreturnfrom livestock per farm and per acreare Rs. 24.12/- and Rs. 38.22/-, respectively inWPareaandRs.21.42/-andRs.5.15/-inNWParea.

The equity in the distribution of income among different categories of farmers due toWDP has been analysed using Gini coefficients. Gini coefficients are computed for marginal,small and medium farms. Gini coefficients for WP and NWP areas are 0.44 and 0.41 for allfarms, respectively. This indicates a fairly equitable distribution of income in WP area thanthatofNWParea.

Rajasthan:

As compared to pre-project year, beneficiary households increased area under rabicrops by 5.26 ha. in 2006-07 as against 1.51 ha. by non-beneficiary households in Dharwatershed. A similar trend was witnessed in respect of GCA. In 2006-07, 20.13 percent of Kharif crop area was irrigated by beneficiary households as against only 3.03 percent by non-

beneficiary households. This indicates positive impact of NWDPRA intervention on irrigation and cropped area.

Inall 4watersheds, comparedto baseyear 2001-02, cropping intensity recordednotable increase in 2006-07 for beneficiary as well as non-beneficiary households. However, this increase in percentage and absolute term was much higher for beneficiary households. The NWDPRA intervention improved the ground water aquifers and soil-moisture whichsubsequentlyhelpedbeneficiaryhouseholdstoincreasedoublecroppedareasandsupplement alirrigation. Thishelpedbeneficiaryhouseholdsinenhancingcroppingintensity.

As compared to 2001-02, the overall average cost of cultivation per hectare in 2006-07forbeneficiaryshowsanincreaseof58.80percentinKirap,43.56percentinSakariya,

48.29 percent in Modak-VI and 81.97 percent in Dhar watershed. For non-beneficiary, itranged between 43.25 percent for Kirap and 86.10 percent for Dhar. The increase in cost ofcultivation was mainly due to higher use of costly inputs such as HYV seeds, fertilizers, higher rate of application of inputs and increase in input prices. Thus, watershed treatmentsbrought changes in use pattern of inputs and also enhanced cost of cultivation. In total cost ofcultivation, mostimportantitemswere humanlabour, bullocklabourandmachine labour.

Inallthe 4watersheds, comparedto baseyear, beneficiary and non-beneficiary farmers achieved higher yield for all crops (barring few cases) in 2006-07. In Sakariya, the incremental yields achieved by beneficiary farmers varied from 35.96 percent for gram to

188.46 percent for Isabgul. And for non-beneficiary, it varied from 3.98 percent for gram to100 percent for Isabgul. In Kirap, for beneficiary farmers, it varied from 23.07 percent forBajra to 58.18 percent for Udad. And for non-beneficiary, it varied from -22.50 percent forgram to 38.74 percent for Jowar. In Modak-VI, yield increment for beneficiary householdsvariedfrom 15.01 percent for Soyabeanto 90.02 percent for Jowar. InDhar also, incrementinyieldsof

differentcrops(exceptgram)obtainedbybeneficiaryhouseholdswerefarsuperior as compared to same for non-beneficiary. Thus, in all 4 watersheds, NWDPRA hadnoticeablepositiveimpactoncrop-yields.However,scaleofimpact variedacrosswatersheds due to variation in soil-climatic conditions, soil-moisture level, terrain, rainfall, inputs ofpatternetc.

In all 4 selected watersheds, as compared to base year, value of gross produce perhectareofcroppedareashootupsharplyforboth, beneficiary and non-beneficiary households.

Overall, for beneficiary farmers, it went up by 73.45 percent in Kirap, 111.21percent in Sakariya, 175.62 percent in Modak-VI and 63.92 percent in Dhar watershed. Fornonbeneficiary households, it rangedfrom 51.92 percent inKirapto 117.76 percent inModak-VI. The significant upsurge in the value of gross produce was mainly due to higherfarmharvestprices and higher yield achievement.

Inall 4samplewatersheds, net farm income per hectare of GCA and output-inputratio (except Dhar) for beneficiary and non-beneficiary households in 2006-07 were foundmuch higher than those in 2001-02. Further, net farm income and output input ratio forbeneficiaryhouseholdswasfoundsubstantiallyhigherthanthosefornon-

beneficiaryhouseholds. Thissuggestsquitepositiveimpactof NWDPRAonnetreturnfromfarmenterprise.

In selected watersheds, as compared to 2001-02, the average annual net income perhouseholdfromvarioussourcesrecordedimpressiveupsurgein2006-07,forboth,beneficiary and non-beneficiary households.For beneficiary, increase was Rs. 25427 inKirap,Rs.16068inSakariya,Rs.37270inModak-VIandRs.13819inDhar.Thecorresponding numbers for non-beneficiary were Rs. 14489, Rs. 11144, Rs. 25745 and Rs.10196 respectively. The sharp increase in the net annual income per beneficiary householdsshows positive impact of NWDPRA on livelihood security of different stakeholders of thewatersheds.

As compared to non-beneficiary, assets investment per beneficiary household during2001-02 to 2006-07 was found higher by Rs. 27260 in Kirap, Rs. 12638 in Sakariya, Rs.18281inModak-VIandRs.20035inDharwatershed.

As compared to base year 2001-02, the average rise in water level in wells duringKharif-2006-07 recorded by beneficiary households ranged from 7.03 feet in Dhar watershedto 8.55 feet in Kirap watershed. During summer, it ranged from 1.88 feet in Dhar to 2.66 feetinSakariya watershed. Ascompared non-beneficiary, netincreaseinwater tableforbeneficiary households was more than 4.43 feet in Kharif, 1.88 feet in rabi and 0.62 feet insummer season. This clearly indicates that water conservation technology adopted underNWDPRA is effective. This improvement in water table situation eased the drinking waterproblems of watershed community to some extent.

As expected, in all selected watersheds, number of milch animals and total number oflivestockincreasedmoderatelyin2006-07.

Inselectedwatersheds, requirement of human labour for farming sectors how snoticeable upsurge in 2006-07. Compared to 2001-02, beneficiary households in 2006-07 generated per ha./annum additional farm employment of 42 mandays in Kirap and Sakariya, 36 mandays in Modak-VI and 56 mandays in Dhar watershed. Additional farm employment generation was observed relatively very low for non-beneficiary households.

In majority cases, the out-migration was of short duration. In selected watersheds, average period of out-migration in 2006-07 was somewhat lower for beneficiary as compared to non-beneficiary households.

Using 10 percent discount rate, BCR, IRR and NPV have been worked out for 10 and20yearstimehorizon.For10yearshorizon,BenefitCostRatio(BCR)was3.50forKirap,

3.82 forSakariya, 9.02 for Modak-VI and 1.17 for Dhar watershed. And the Net PresentValue(NPV)wasRs. 51.78lakhsfor Kirap, 60.05lakhsfor Sakariya, 83.11lakhsforModak-VI and 16.17 lakhs for Dhar watershed. The Internal Rate of Return (IRR) was 9 % for Kirap, 62% for Sakariya, 144% for Modak-VI and 23 % for Dhar. BCR, IRR and NPVworked out for 20 years horizon are higher than 10 years time horizon. For each selectedwatershed, IRR are greater than opportunity cost of capital and BCR are greater than onewhich clearly indicates that investment on NWDPRA is economically very attractive andviable. A positive and high NPV for each sample watershed implies positive worth of projectingeneratingreturns inexcess ofallcosts.

Bihar:

The change in irrigational status of a gricultural landin 2006-07 over 2001-02 of the

watershed indicate marginal increase in irrigated area in all the selected watersheds andalmost in all the crop seasons, which may be due to increase in number of water harvestingstructures (tanks, check dams, ponds, etc.). The increase was mainly found to big farms, which showed that perceived benefits are concentrated on large farms.

The land development and creation of new water harvesting structures inall thewatershed areas have not much effectively brought some additional areas under the important paddycrops both in kharif and rabi. The data indicate that there is increase in the area under paddycrops from 0.64 per cent to 4.37 per cent, maize 0.65 per cent to 3.37 per cent, pulses 0.99 percent to 2.08 per cent and oilseeds up to 1.85 per cent. Of course, there is increase in area of important crops but it is not much appreciable. It is worth to mention here that almost similar increase has been indicated by the non-beneficiary respondents.

The findings indicate that the production increase is higher in rabi season for wheat, pulses and oilseeds across all the watersheds and this indicates the overall effectiveness of the watershed activities. Similarly change was also indicated incase of non-beneficiary respondents, which related that benefits were not centered on the beneficiaries rather shared with non-beneficiaries also.

It is generally presumed that if the facilities are extended to farmers, the cost of theproduction of the crops will come down provided the prices of the inputs are constant. Butthings are different. Neither the cost fallen nor is the prices of any inputs constant. Among thebeneficiary farmers, it rose at the overall level to 8.16 per cent in WS-I, 5.54 per cent in WS-II, 4.38 per cent in WS-III and 13.08 per cent in WS-IV. Among the non-beneficiary farmers, itincreasedto8.53percentinWS-I,12.36percentinWS-II,12.39percentinWS-III and 5.16 percentin WS-IV.

The disposal for all the crops levelin WS-I is lower among the beneficiary households. However it is a bit higher among the non-beneficiary households. The reason behind low disposal may be lower production. Among the beneficiary households, the percent age of disposal is comparatively higher across all the three watersheds viz., 34.47 percent in WS-II, 18.82 per cent in WS-III and 19.86 per cent in WS-IV. It is by 0.39 per cent in WS-I, 6.46 per cent in WS-II, 17.15 in WS-III and 21.93 per cent in WS-IV among the non-beneficiarie shouseholds. Thetotalaverageincomeofbeneficiarygrouphasincreasedinallthesamplewatersheds but it recorded higher in WS-III(25.24 per cent) followed by WS-II (19.22 percent), WS-IV (11.30 per cent) and WS-I (0.31 per cent). Almost similar is the case of non-beneficiary group. It increased by 23.18 per cent in WS-IV followed by 14.72 per cent inWS-I,5.13percentinWS-IIand2.56percentinWS-III.

In all the selected watersheds the total number of livestock increased. It increased asmuch as 73.00 per cent in WS-I, 30.74 per cent in WS-IV, 21.32 per cent in WS-III and 10.78per cent in WS-II. It reveals that the project has facilitated in keeping larger number oflivestock. But in absence of clear and agreed livestock holding and grazing practices therecannotbefavourable longtermimpactonconservationofcommonlandresources.

Irrigation, afforestation and availability of irrigation have changed positively to thetuneof17.50percent,absorptionofwomeninvariousactivities(7.50to15.00%),production (10.00 to 15.00%), cropping intensity (7.50 to 10.00%) etc. Non- beneficiaryfarmers also indicated positive change of the programme on improvement in groundwaterconditions(7.50to15.00%),qualitativeaspectoflivelihood(5.00to12.50%),producti on

(2.50to7.50), availability of irrigation (5.00to15.00%).

In the initial years of the programme no UGs/SHGs could be formed in any of thesample districts, which may be due to delay in launching of the programme. These could beformedafter2003-04.

Itisnoteworthythatthecostperhectareishelpfulinassessingtheircosteffectiveness. It is calculated at Rs. 8213/ha in WS-I, Rs. 8144/ha in WS-II, Rs. 7103/ha inWS-IVandRs. 6561/hainWS-

III. The program mehassignificant positive impact on creation of employment opportunities.

Maharashtra:

Withregardto percentage change in the annual income in the 'before' the operation of watershed and 'after' its operation, it is reveled that the highest percentage of (146.92%) increased in the annual income has occurred during the period 2001-02 to 2006-07 in thewatershed–IV (Nanded) followed by the watershed-II (Nagpur) with 139.48%. the watershed-III (Raigarh) demonstrates a record increase of 192.06% in the annual income during the period 2001-02 to 2006-07, followed by the watershed-II(Nagpur) with 67.24%.

As per the performance indicator of the selected watershed in Maharashtra, it revealsthat the highest area has been developed in the watershed-II (Nagpur) (91.01%), followed bythewatershed-IV(Nanded) (77.44%).Inallthewatershedstherehas beenencouragingnumberofmandaysemploymentgenerated,thehighestpositioninoccupiesbythe watershed-I (Kolhapur) with 46765 man days, followed by the watershed-IV (Nanded) with36907 man days. The additional area brought under cultivation also indicates a growing trendthe highest position occupied by the watershed-IV (Nanded) with 65 ha., followed by thewatershed-III(Raigarh)with49ha.

The analysis inassessing the impact of NWDPRA on the rural agricultural economy of Maharashtra has concluded that watershed developments have greater potential to generate employment opportunities to the rural people. This is due to the increased availability of waterresources, diversified cropping patternincluding cultivation of labor-

intensive vegetable crops and other horticultural crops. This additional employment generation from a

watershed program varies across regions depending on the cropping intensity, and the laborintensity crops grown inthat region. This additional employment generationinthevillagesledtominimizing migration of landless and other labour.

Study No.-164

Name of the Study: Understanding the Growth and Prospects of Agro-

 $\label{eq:processingIndustries} (Consolidated Report for West Bengal, Biharand Maharashtra)$

J.K.Ghosh,F.H.Khan,V.Datta

YearofPublication: 2010

ABSTRACT

StatusofAgro-

basedIndustryWestBengal:

As evidenced by Annual Survey of Industries data, the strength of agro-based industryiscomparatively lessthanthoseof non-agro-based industries in organised sector of manufacturing enterprises of the state. In the un-

organisedsegmentofmanufacturingenterprises, the dominance of a gro-

basedindustryisclearlynoticed. Theun-organised segment of agro-industrial sector had asmany as 86.30 per cent of total manufacturing enterprises, 81.54 per cent of employment of workers and 69.09 per cent of grossvalue added. During thereference period, agro-based enterprises (both food and non-

food) witnessed increase in the number of units leading to an increase in their share in units from 80.51 percentin 1994-95 to 86.30 percentin 2000-01.

Bihar:

InBihar, the unorganized manufacturing sector is characterized by the dominance of agro-based industries (including agro food and agro non-food) sharing 53.00 per cent in the number of total working units in 1994-95. Among the agro-based industries, the share of agrofood processing industries was estimated to be higher (28.45 percent) than agro non-food processing industries (24.55 percent).

Data for the year 2000-01 be taken significant decline in the number of working unitsunder the groups of 'agro food,' 'agro non-food' and 'non-agro based industries' as compared to that of 1994-95. Decline in the number of working units based on agro-food and agro non-food based processing activities, suggest a state of uncertainty in the field of unorganized manufacturing industries based on processing of agro food and agro non-food commodities (particularlyOAMEs) during the period 1994-95 to 2000-01.

Maharashtra:

InMaharashtra, the unorganised sector clearly dominates the organised sector as faras the number of the units is concerned in both the years viz. 1994-95 and 2000-01. In theorganized sector, non agro-based industries are dominating with their share being around 70percent.However,intheunorganisedsector,theagro-basedindustriesareseentobedominating the non agro-based industries and their number has greatly increased (92.87percent) over the concerned agro-based period whereas that of non industries has fallen (thepercentagechangebeing-19.980vertheperiod).Further, in the organised sector, the share

offoodprocessing industries into talagrobased enterprises has increased in the reference period while in the unorganised sector theirs hare has declined.

<u>Profile of Sample Entrepreneurs of Agro-Processing</u> <u>Activities</u>WestBengal:

Incase of fishprocessingunits, entrepreneurs are mostly from the SC and ST category. Educationally, majority of the entrepreneurs have their education attainment up $to10^{th}$ standard. However, entrepreneurs engaged in textile units which need technical know-how are better educated beyond the level of 10^{th} standard. Entrepreneurs of food processing units are found to have learnt and followed the activity traditionally while majority of the entrepreneurs of non-food processing units received institutional training and gained working experience in carrying out the activity. Previous experience in the business emerged as the important motivating factor behind choosing the activity in the case of food processing units. In contrast, the units engaged in non-food processing activities, reported higher profit marginasthe majorfactor that has induced the entrepreneurs to take up the business activity. **Bihar:**

As far as education is concerned, it is observed that majority of entrepreneurs areliterates. Many of them have taken education above 10th standard in case of food processingunits while majority of entrepreneurs have been educated upto the 10th standard in case ofnon-food processing units. As far as land holding is concerned, it can be observed thatentrepreneurs engaged in non-food processing agro-based activities possess relatively smalleramountoflandbetween1-2haascomparedtothoseofhouseholdsengagedinfoodprocessing activities.Non-foodprocessingunits are relatively new units although there are some instances of learning business activity traditionally.

Maharashtra:

As far as education is concerned, it can be observed that majority of the entrepreneursare educated. Majority of them have been educated upto the 10th standard. It can also beobserved that the entrepreneurs possessing cashew-processing units, rice mills and paper-based(binding) units have taken educationabove 10th standard. It is also observedthatmajority of the units are existing units and have experience of more than 5 to 10 years back. This is pecifically true incase of fish and leather units as the business traditionally. It can be noted that the cashew units are the newly established units and all the entrepreneurs have been trained as running the business medstechnical training and knowledge about the machinery

CostofInvestmentand ItsFinancing

Statusofthe SampleUnits

WestBengal:

Status of the units was ascertained in terms of year of existence, average age of theunits and registration status. In West Bengal, all the sample-processing units were existingones, the average age of the unit being varied from 10 to 20 years in case of food processingunits and from 3 to 22 years in case of food processing units.

Bihar:

InBihar, mostof the units are existing ones. Further, most of the surveyed processing units have been working in the unorganized sector tiny, small and artisan based enterprises and so they are mostly unregistered. Average age of the sample processing units ranged between 08 to 35 years.

Maharashtra:

In Maharashtra, majority of the units are the existing ones. It is the cashew processingunits and the rice mills which are seen to be the new units. In the state, most of the units are registered. Four fish processing units and one OAME each from leather, textile and woodcategoryaretheunregisteredunits.

Costof Investment

WestBengal:

Thesizeof investmentinunitsvariesacrossthefoodandnon-foodprocessingsegments of manufacturing enterprises. It is relatively higher in non-food processing segmentascomparedtoitscounterpart.

Bihar:

In Bihar, generally within a particular group of processing activity, investment increased with the size of the unit. OAMEs showed lower size of investments incomparison to those of NDMEs and DMEs.

Maharashtra:

In Maharashtra, within a category, investment is increasing with the size of the unit. The size of the working capital is seen to be lower for the OAME units as these units do nothave to incure penditure on wages/salaries.

Financingof theInvestment

WestBengal:

In West Bengal, food-processing industries with only exception of paddy processing enterprises met their investment requirement from own fund. For paddy processing unit, institutional loan contributed the major in financing their investment. For the units engaged innon-food processing activity, majority of the units are found to have financed the activity using their ownfunds. Only the paper-

based in dustrial units have resorted to outside borrowing both from institutional and non-institutional sources infinancing their investment.

Bihar:

In Bihar, the NDME and DME under cereal based processing activity and DMEs of horticultural crop based, wood based and leather based processing activities were found to have taken institutional loans invarying degrees.

Maharashtra:

In Maharashtra, all the units engaged in cashew processing, rice milling and one(DME)each inbookbinding and leather have taken loant of in an ether of the second s

Economics of Investment in Agro-Processing

<u>**Units**Production andOperationCycle</u>

oftheActivitiesWestBengal:

For all the activities, it is seen that monthly working days ranged between 26 to 30days. The difference is noted in the case of per year working days. The levels of workingdays per year for food processing units are observed to be relatively less than those of non-foodprocessingunits.

Bihar:

In Bihar, number of working days permonthas well as working hours perday were seen uniform in most of the cases, except in horticultural crop (litchi) based, dairy products' based and te xtile products' based processing activities.

Maharashtra:

In Maharashtra, the number of working days per month as well as working hours perday is seen to be uniform for all the units. The difference is noted as far as working days peryearareconcerned.

<u>SourcesofRawMaterialsandMarketing LinkagesoftheProcessed Product</u> WestBengal:

In West Bengal, sample food-processing units being relatively smaller units have the limited capacity to reach out to various markets. They do not have strong linkages with input-market, rather they have obtained raw materials from the producers directly (72.22 per cent).Non-food processing units however directly came in contact with the input-market throughestablishedtrade/marketchannelforprocuringrawmaterials.

Bihar:

InBihar, livestock based activity procured raw materials mainly from farmers directly (05). Other two types of agro-food based processing activities' used all the three channels for purchasing raw materials although in the major, the units are found to have purchased thesame from farmers directly. Among non-food agro processing activities, raw materials, we rewholly purchased through established trade channels and market channels.

Maharashtra:

Units like rice mills, leather units, textile mills and furniture units which process onlythe raw material provided to them by the customers at their doorstep do not have stronglinkages with either input or output markets. All the units except the cashew units havereported that they have only one source (market) for procuring raw material as well as sellingtheirproduct.

CostofProduction WestBengal: In general for all the processing units, proportion of cost on raw material is found to have declined with the increase in the size of the unit in the category.

Bihar:

InBihar, within each category, the quantum of fixed costs is seen to be increasing with the size of the unit. As far as recurring variable cost is concerned, it is seen that cost onraw materials is the major component of the variable cost for most of the activities, except DME of horticultural products (36.89 per cent) and NDME, (31.90 per cent), DMEs of textile (29.91 per cent) and NDMEs and DMEs of wood and leather based processing activities (18.61 per cent, 43.50 per cent, 21.52 per cent and 20.04 per cent) respectively. In all these cases, share of wages dominated the variable cost component.

Maharashtra:

In Maharashtra, within each category, the quantum of the fixed cost is seen to beincreasing with the size of the unit. On an average, only 13 to 14 percent of the total costshave beencontributed by ownfundincase of food as well as non-food processing units.

Net IncomefromInvestments

WestBengal:

In West Bengal, all the activities gave positive net income being varied among theactivities depending upon the size of the investment. This is uniformly observable in the caseoffoodprocessingunits.

Bihar:

In Bihar, all the activities and unit syielded positive net returns. Data reveal that except DME category of lives to ck based processing activity, in all other cases under a grofood processing activities net returns increased with the size of the unit.

Maharashtra:

In Maharashtra, all the activities and units show a positive net return. For the food processing activities, the net return increases with the size of the unit.

EmploymentGeneration

WestBengal:

Inthefood-processing category of enterprises, maximum employment generationfrom the investment was observed in the case of fish-processing unit. Among the nonfoodprocessing units, maximum employment generation by the activity was observed in the caseofwood-basedproductmanufacturingunit.

Bihar:

The highest number of total mandays employed was seen in case of DME of horticultural products based activity. It could also be observed that only OAMEs of cere albased, horticulture and textile based processing activities engaged female family labourers.

Maharashtra:

The highest number of workers (9) is found in cashew processing DME unit. It is alsoobservable that all the categories in the food-processing sector except one have engagedfemalefamilylabourers.

ProblemsFacedbyManufacturingEnterprises

WestBengal:

Reportedly the problem of non-availability of raw materialsthroughout theyear, variability of prices of raw materials and absence of information network to keep track of rawmaterials prices and availability came to be featured prominently in the array of problems faced by the entrepreneurs of sample processing units in West Bengal.

In the field of marketing of processed products, reportedly for food-processing units, the main problem was lack of proper domestic market of processed products (72.22 per cent)followed by absence of good network purveying market information (66.67 per cent) and dependence on middle manformarketing the processed products (66.67 percent).

Bihar:

InBihar, problems of non-availability of a dequater awmaterials due to lack of

capital, supporting machines/equipments, and absence of required infrastructural facilitieswerereportedbymajorityof thefoodprocessingunits.Fluctuationsinpricesof rawmaterials, absence of information network and circumstantial purchase of raw materials frommiddlemen at higher rates were also prominently reported by the sample food processingunits.Non-availability of skilled labourers, availability of raw materials (litchi) for a veryshort periodand difficulty in determining prices of value added productswere specificallyfeltbyDMEs ofagro-foodprocessingactivities.

Maharashtra:

In Maharashtra, within the food-processing segment, majority of the cashew and fishunits havereported non-availability of raw materials throughout theyear. Asfar as thecashewunitsareconcerned,non-availabilityofgoodqualitycashewsismainlyduetoinability of the small units to find agents or seller supplying good quality raw material. In theabsence of information/ resources to find the same, these units are often at a disadvantage ifthe cashews supplied are not of good quality. The units have also reported non-availability oflaborersduringthepeakseasonandvariability of prices. Thefishunitsalsofacethisproblem, as duringthemonthsofmonsoon, fishingdoes nottakeplace

<u>Prospects of the</u> <u>Units</u>WestBengal:

Units westBengal:

The state of West Bengal being blessed with largest production of paddy has thepotentialsforinvestinginpaddyprocessingindustry.

Within the group of non-food processing industries, textile and leather units yieldedlowernetincome, although, they haveshown relatively better performance interms of growthinnum berofunits.

Bihar:

InBihar, significantly large areas are under different top qualities of fruits viz.mango, banana, litchi, guava, lemon and pine apple. Quantum of production of these fruits is quite larger. Hence, there is great potential for installation of agro processing industries based on these fruits in areas/regions with their production in abundance. Among cere albased processing activities, apart from paddy and wheat, there is high prospect for agro-processing industries based on maize in Bihar. With regard to livestock based processing activity, dairy industry in the co-operative sector under the brand name Sudha has achieved marked successin Bihar. In unorganized sector, also there is great potential and bright prospect for processing of fmilk intok howa, ghee, butter, cream, paneer, lassi, etc.

Maharashtra:

The analysis of the data collected from the sample processing units in Maharashtrashows that cashew unit (DME) has earned highest net income followed by fish unit

(DME).ThecashewunitsarenewlyestablishedunitsunderDIC/KVICschemes.Duetotheincreasin g demand for the cashew nuts in the domestic as well as international markets and ue to the existence of huge untapped potential for processing of the fruit, the units can infuturealso,takeadvantageoftheexpandingmarkets.

Study No.-166

NameoftheStudy:ImpactStudyofthe NationalHorticulture Mission

K. S.Chattopadhyay, D.Roy

YearofPublication: 2011

ABSTRACT

- It has been observed that during the period 2004-05 to 2009-10, both area and yieldrateofmandarinorangeshaveincreasedsignificantly,thoughtherehasbeenamarginali ncreaseinareaandyieldrateofpineapple.
- There has been gradual increase in the coverage under certified inputs, which indicates a gradual shift of production technology with certified inputs in place of traditional inputs.
- The positive impact of the National Horticulture Mission can also be witnessed in case of a reaexpansion by rejuven at ion and protection.
- In case of sources of procurement of resources for pineapple and mandarin orangecultivation, informal sources like private nurseries and fellow farmers continue to playanimportantrole.
- The extension activities provided by the district horticulture and agriculture officialsunderNHMmakeonlyasorryfigure, as very little has been done in case of dissemination on oftechnologies through training and capacity building activities.
- Therehasbeenacompleteabsencepost-harvestmanagementfacilitieslikepackhouse, storage units, and mobile processing units formed under the NHM in thestudyregionsofbothofthedistricts.

• Nevertheless, it can be said that the NHM performed well by providing financialassistance to the farmers to boost up and motivate them towards diversification of cropping patterninf avour of horticultural crops.

Study No.–167 NameoftheStudy:Impactsand ConstraintsEvaluationofOrganicFarmingin WestBengal

R. K. Biswas, D. Majumder, A.

SinhaYearofPublication:2011

ABSTRACT

• Statusoforganicfarming inWestBengal

The overall increase in area under organic farming has been found to be 6.57 per centand 6.14 per cent in North 24 Parganas district and 2.12 per cent and 3.77 per cent inJalpaiguri district for NGO (in more than 10 years) and Government (in 5 years) activity arearespectively.

Comparativeeconomicsofcropproductionunderorganicandinorganicfarming

The cost of cultivation was higher and production was lower in organic than inorganicfarms for lady's finger, potato and chilli, but price of the organic product was higher thaninorganicinthestudy area. Thereturn/ cost ratioof organic cowpea was higher thaninorganic cowpea in NGO area. In case of brinjal, though production was lower and cost ofcultivation was higher in organic system, but as the price of organic product was higher thaninorganic product, return/cost ratio for both organic and inorganic farming system was moreor less same. The same fact was replicated for cauliflower in NGO area, but in Governmentarea organic cauliflower exhibited lower production and same price with inorganic productandlowerbutfavourable return/costratio.

• Impact of organic farming in relation to quality of produces and price premium

Inorganic farming system, market price for organic produce is one of themost effective tools for reducing the disparity of income between organic and inorganic farming. As compared to market area, the impact level of price has been found lower for Governmentactivity area than NGO activity area. Perhaps it was the result of more intensive campaigning regarding consumers' awareness and the quality of organic farm products by the NGOs.

• Farmers'awarenessregardingorganicfarmpractices

Organic farmers in both NGOs and Governmentarea were not motivated like a layman to adopt organic technology in their farm. But it was observed in the study that theorganic farmers were much aware regarding good quality of organic product, beneficial roleoforganic crops inhuman health, high profitability of organic farming than other system, etc.

Constraintsin adoptionoforganicfarming

The constraints like high cost of organic inputs, nomarket for organic product, unavailability of organic inputs, less yield and no price advantage for organic product arefound to be the major constraints according to their ranking as first, second, third, fourth and fifth. The next important constraints arefound to be no consumers demand for organic product. According to the ranking, these venthosition is obtained by less or equal profitabilit y. Small holding size, inconvenience of organic techniques, unavailability of these ope, higher production risk, nosuitable land for organic farming are then extimport ant

constraints by obtaining the rank eighth, ninth, tenth, eleventh and twelfth, respectively. Lackof training of organic practices, more curring cost for input arefound to be the next important constraints by obtaining the rank thirteenth and four teenth. The other constraints

inordertoimportancearelackofawareness,lowemploymentpotentialityandlackofexperience of organic farming as these constraints obtained the rank by fifteenth, sixteenthandseventeenth.

Study No.-168

Nameof theStudy:Impact of emerging marketing channelsinagriculturalmarketing:Benefit to producer-sellerandmarketing costs and margins of agricultural commodities–AstudyinWestBengal

D.Sarkar, R.C. Mondal

YearofPublication: 2011

ABSTRACT

Crops considered for EMC and TMC are Arum and Mustard respectively. Per hectarecost of cultivations of arum of the sample farmers as a whole is Rs. 60071.98 which variesmarginally acrossmarginal, small and medium farmers. On the other hand, per hectare costof cultivation, on and average, for mustard is Rs. 37913.80. Out of the total cost, the share of paidout costs are 74.09 percentine cost of arum and 60.03 percentine cost of mustard.

ProductionandproductivityofArumis4792.32(qt.)and242.04(qt./ha.)respectively, while production and productivity of Mustard is 227.10 (qt.) and 14.34 (qt./ha)respectively. Net returns with and without the cost of labour / ha are Rs. 72568.00 and Rs.88149.80 respectively for arum. Similarly, the net return with paid out cost and paid out pluslabourcostresults toRs.18613.27andRs.3459.51respectivelyformustard.

Pricespread andmarketefficiency of AruminEMC

It is observed that by selling Arum in EMC, the sample farmers received an averageprice of arum at Rs. 548 per quintal from the contract traders, who purchase entire amount of Arum at post matured stage at field. In this process of transaction, no cost involves to farmerfor harvesting andmarketing of their cultivated crop. Hence, net profit(Rs. /Qtl.) incurs to the cultivators after ducting paidout cost is Rs.364.20 per quintal.

The selling price per quintal of arum of the whole-seller is Rs. 973.35 in which theirsharesofmarketcostandmarketmarginareRs.21.89andRs.136.38respectively.

The retailer's selling price of Arum is Rs. 1079.90 per quintal. In which market cost is Rs. 16.88.Byselling Arumtothe consumers, there tailer is ablere tainmarket margin of Rs. 89.67 per quintal.

The farmers' shares, market cost and market margin of different trading agents to consumer price areas follows:

- Theshareoffarmertotheconsumerpriceis50.75percent.
- Marketcost turnsout to8.64percent
- Marketmarginsofdifferent tradingagentsasawholeare40.61percentand
- Ratioofmarketefficiencyis1.03

Pricespeedand MarketEfficiencyofMustard in TMC

The selling price (Rs. /Qtl.) of mustard of the sample farmers a whole is Rs. 2876.28and the marketing cost is Rs. 26.37 i.e. (20.53%) of total market costs. Hence, the net pricerealisedbythefarmerisRs. 2876.29andprofit(netpriceminuspaidupcost)isRs.1288.59.

The shares of farmers to processor's price, markets cost and market margin are asfollows:

- Thesharefarmerstotheprocessor'spriceare82.87percent.
- Marketcostis3.00percent
- Marketmarginoftraderandwhole-selleris14.13per centand
- Theratioofmarketefficiencyis4.88

Benefit costratioforArum&Mustard

The BCRis almostsameforboththe EMC and TMC crop.

- Costofproduction/ha ofArumforEMCwithpaidoutcost= 2.387
- Costofproduction/haofonionforTMConlywithpaidoutcost= 1.24
- Costofproduction/haofArumforEMCwithfamilylabour=2.21
- Costofproduction/ha ofmustardforTMCwithfamilylabour= 1.09

WastageofCrops

The extent of loss/wastage of Arum and Mustard during harvest threshing storage andtransport etc. is 2.86 per cent and 0.55 per cent respectively. Wastage occurs for Arum duringharvesting (2.61%), storage (0.20%) and retail marketing level (0.05%) while wastage occursforMustardduringthreshing(0.30%) and storage (0.25%).

ReasonsofPreferringExistingMarketingChannel

The sample farmers of both the EMC and TMC inform the following reasons to wordpreferring marketing channels, which are habit (18.89% for EMC and 17.69 % for TMC)followedbyhigher/fairprice(16.36% forEMCand15.44% forTMC),lowcostofmarketing (12.89% for EMC and 11.27% for TMC) and time taking in other channel (12.22% for EMC and 11.56% for TMC). Apart from these, other reasons for preferring this channelsare less physical hazards in marketing commodities, proximity, absence hidden cost etc.supervisingserviceandbetterinfrastructure.

Study No.–169

 $Name of the Study: {\transformation of the Study: Impact of NREGA on wage rates, food security and rural-security of the study of the$

urbanmigrationinWestBengal

J.K.Ghosh,F.H.Khan,V.Datta

YearofPublication: 2011

ABSTRACT

Primarily the implementation of NREGA can be evaluated in terms of jobs demanded and provided. The official data in this connection shows that during the financial year 2010-11 (till December 2010) a cumulative total of 44.21 lakh households demanded employmentand among them 43.80 lakh households (99.1 percent), were provided wage employmentunder the scheme in the state. In terms of person days of employment generated under thescheme, the state of WestBengalgenerated acumulative total of 910.65 lakhperson days

during the financial year 2010-11 (till Dec' 2010) under NREGA out of which 328.35 lakhperson days (36.1 percent) has been for scheduled caste, 98.85 lakh days (10.9 percent) forschedule tribe and the rest 910.65 lakh days (53.1 percent) for people belonging to othercastes.

 $\label{eq:accoss} A cross the districts, in terms of average person days generated perhousehold, Bankuras tood first (29 days) and Cooch behars tood last (11 days) among all the 18 districts in west Bengal during the year 2010-11.$

The act mandates that at least one-third of the workers should be women. Notably, in the state, 284.08 lakh days of employment were generated for women which imply that women obtained 31.2 percent of the wage opportunities with their male counterpart getting the remaining 68.8 percent.

The works undertaken and completed during the financial year 2010-11 indicated that agricultural development related activities accorded top priority which accounted for the maximum share into talnumber works completed during the year.

As far as quality of assets is concerned, the majority of households reported that thequalityassets created under NREGA is good.

In all the sample districts, wages received under NREGA were found to be less thanthestipulatedminimumwageofRs.96.00.

Manual works provided under NREGA are expected to bring down the level of outmigration. Evidently, however it is seen that among the five surveyed districts, outmigrationhas taken place mainly in three districts viz. Jalpaiguri, Malda and Nadia and marginally

inPuruliadistrict.Ofcoursesuchmigrationhasbeentheresultoflackofemploymentopportunitieswit hinthevillage.

NREGA through generating incremental income is expected to bring about changes in the food security situation. Evidently, 70.50 per cent of households reported that they got fulltwo meals throughout the year 2009 while the rest 29.50 per cent of households did not getfull two meals throughout the same year. Out of the households who are not having full twomeals, 11.86 per cent didnot get sufficient foodfor onemonth, 62.71 per cent for twomonths and the rest 25.43 percent for period of more than two months. However, althoughsomeofthehouseholdsreportedworseningsituationoffoodsecurity evenaftertheintroduct ion of NREGA, the overall impact NREGA on food security is positive as it hasimprovedthefoodsecurityformajorityofhouseholds.

Due to the implementation of NREGA there has been sharp increase in the wage ratesduring our reference periods pertaining to the years 2005 and 2009. The present study findsthatbothmale and female wages have gone up after the implementation of NREGA.

NREGA is expected to bring about changes in the standard of living of village people.Inthisregard,allrespondentsfeelthatlivingstandardingeneralimprovedaftertheintroductio n of NREGA. The responses show that due to incremental income obtained fromNREGAactivities,householdswereabletospendmoreonfood,clothing,housingand

education and thus improvement in the living standard since the introduction of NREGA isnoticed specifically in terms of these aspects. After introduction of NREGA, household dailyconsumption is increased as reported by 11.93 per cent of households. About 8.91 per cent ofhouseholds reported improvement in health treatment condition. Households able to spendmoreonconsumergoods and social ceremony are also noticed.

In the education front, all households reported that they are investing more money onchildren's education due to extra income earned from NREGA. Reportedly, awareness abouteducationis also improved after the introduction of NREGA(6.08 percent).

Overall, the scheme of NREGA has the great potential in enhancing income andlivelihood security of the rural poor. The present study, inanattempt to evaluate the impactof NREGA hasidentified thekey areas of progressas well as the shortcomings of theprogramme. Notably, NREGA has not been able to provide the employment that one wouldhave expected. Despitemaking provisionof 100daysof employmentinayear, actualemployment generation has been much below than 100 days in a year. In the matter of wagepayment, in many cases, delay in wage payment is noticed. Procedural irregularities are alsonoticed at the stage of implementation of the scheme such as irregularities in conductingsocial audits and gram sabhas. True that NREGA addressed many of the weaknesses of theearlier wage employment programmes through introducing several features in its design. However, as evidenced by the present study, NREGA is also not free from limitations despitehaving its positive impact on income generation, asset creation and above all

improvingstandardofliving.Obviously,iftheremedialmeasuresaretakentoaddressthelimitations,t he effectiveness of NREGA would increase with experience and would go a long way inensuring livelihood security to the rural poor in a sustainable manner and in altering thebalance of power in rural society. The key lies in proper implementation and planning of thescheme as perthe guidelines laiddownintheAct.

Study No.–170 NameoftheStudy:ImpactofNREGAonWageRates,FoodSecurityandRuralUrbanMigrationinSik

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J.K.Ghosh, S.Karmakar

YearofPublication: 2012

ABSTRACT

SinceIndependencethecountry'sstrengthisderivedfromtheachievementsofplanning. The policies and programmes have been designed with the aim of alleviation ofrural poverty which has been one of the primary objectives of planned development in India.But employment programmes were not perceived as major instrument of poverty alleviationuntil the beginning of the 1980s in most states of the country. For the first time, the NationalRuralEmploymentGuaranteeAct,2005providesemploymentopportunitiesofrurallabour ersasa matter of right. Theact was enactedtoenhancelivelihoodsecurity inruralareas by providing 100 days of guaranteed wage employment in a financial year to everyhouseholdwhoseadultmembersvolunteertodounskilledmanualwork.

In the state of Sikkim, NREGA became operational from February 2006. The schemehad been introduced in phases. Initially, in the first phase, the scheme was introduced in northSikkim. In the second phase, from 1st April 2007 two more districts namely, East and SouthSikkim districts were brought under its coverage. One more district viz. West Sikkim wasadded in the third phase from 1st April 2008. Thus the scheme is operational in all districts ofthe stateofSikkimw.e.f. 1stApril2008.

The present study, in an attempt to evaluate the impact of NREGA has identified thekey areas of progress as well as the shortcomings of the programme. NREGA had a positiveimpact onincomegeneration, asset creationandaboveall improving standard of livingHowever,NREGAisnotfreefromlimitationsandhasnotbeenabletoprovidetheemploymentt hatonewouldhaveexpected.Despitemakingprovisionof100daysofemployment in a year, actual employment generation has been below than 100 days in a year. In the matter of wage payment, in many cases, delay wage payment is noticed. in $\label{eq:proceduralized} Procedural irregularities are also noticed at the stage of implementation of the scheme such as irregularities are also noticed at the stage of the scheme such as irregularities are also noticed at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the stage of the scheme such as irregularities are also not iced at the scheme such as irreg$ itiesinconductingVillageMonitoringCommitteemeetingswhichneedstobeconducted for the participation of affected persons in the process of decision making andvalidation. It is true that NREGA addressed many of the weaknesses of the earlier wageemployment programmes through introducing several features in its design. However, if theremedial measures are taken to address its limitations, the effectiveness of NREGA would increase with experience and would go a long way in ensuring livelihood security to the ruralpoor ina sustainablemanner andinaltering the balance of power inrural society. Thekeylies in proper implementation ensuring participation of affected persons and planning of thescheme as perthe guidelines laiddownintheAct.

Study No.-171

NameoftheStudy:AssessmentofMarketableSurplus,MarketedSurplusandPost-Harvestlosses ofPaddyinWestBengal

D.Sarkar, D.Roy, A.Sinha

YearofPublication: 2013

ABSTRACT

After a detailed analysis of data by conducting primary survey of about 318 farmhouseholds in six eminent blocks from over three major paddy producing districts in WestBengal, the study makes a number of crucial observations. Based on those findings, thefollowingspecificobservationscanbemade:

- Average marketed surplus ratio, taking all farms together, stands at 55.30% of netavailabilityofpaddy(or61.19% of current production of paddy). Incontrast, average marketable surplus ratio stands at 43.49% of net availability of paddy (or36.43% of current production of paddy).
- Marketed surplus ratio for the marginal farms stands at 44.15% of net availability ofpaddy, whichfor thesmall, semi-mediumandmediumfarmsstandat 58.66%,64.77% and 69.12% respectively. As proportion to current production, the marketedsurplusratioforthemarginalfarmsturnouttobe46.59%, whichforthesmall,

semi-medium and medium farms arefound to be 65.18%, 74.55% and 78.56% respectively.

- Marketablesurplusratioforthemarginalfarmsisestimatedat23.91% of netavailability, • for the small. semi-medium and medium farms which turn out to be50.05%,59.96% and 66.04% respectively. As ratio to current production, the marketable surplusratioforthemarginalfarmsstandsat20.15% of current production, which for the small, semi-medium medium farms and turn out to be41.86%,48.19% and 59.17% respectively.
- The marketed surplus ratio is found to be influenced positively by farm-size, averagepricereceived, access to credit and possessing permanent storagefacilities, whileitisnegativelyrelatedtohouseholdsizeandindebtedness offarmerhouseholds.
- Estimated total post-harvest loss stands at 3.42% of current year production on anaverage;showingadecreasingtrendoverincreaseinfarm-size.

Study No.–172 NameoftheStudy: Assessmentofpreandpostharvestlossesinriceandwheatin

West

Bengal

D.Sarkar, V. Dutta, K. S. ChattopadhyayYearofPublication:2013

ABSTRACT

As perceived by the respondents, cent per cent of the farmers are facing constraints inriceandwheatcultivation. However, the degree of severity of these constraints varies. Among these constraints, high cost of inputs and low output price ranked first and pest and disease problems ranked second both in rice and wheat. Similarly, farmers perceived water deficiency as one of themost important constraints inrice cultivation and poor quality of seed inwheat cultivation.

The magnitude of crop loss due to pests, disease and weed infestation in paddy is veryhigh. The actual production with attack is varied from 19.36 quintal to 20.88 quintal per acre. The overallloss with attack has been found to be 3.54 quintal per acre. However, the percentage loss over normal production is less (15.05 per cent) than that of percentage loss over actual production.

Similarly the magnitude of crop loss due to pests, disease and weed infestation inwheat has also been found very high. The actual production with attack is varied from 3.90quintal to 5.96 quintal per acre. The overall loss with attack has been found to be 0.92 quintalper acre. However, the percentage loss over normal production is less (15.29 per cent) thanthatofpercentagelossoveractualproduction.

Ithasbeenobservedthatthequantitylostinharvestis0.78kginriceand1.26kgper quintal of harvest in wheat. Quantities losses during threshing in rice and wheat are 0.32kg and 0.26 kg, respectively. Similarly, 0.13 kg and 0.12 kg are lost during winnowing ofriceandwheat. Thuswinnowing is one of the post harvest operationsthat incur highamount of loss. These losses were attributed to improper handling and inefficient machine. Care should be taken to properly handle the machine during winnowing. The transport lostvariesfrom0.55kginriceto0.83kginwheat.Quantitylossesinhandlingare0.31kgin

rice and 0.63 kg in wheat and quantity lost during storage is 1.78 kg in case of rice and 3.93kg in case of wheat. The total post harvest loss in rice has been found to be 9.39 kg perquintal and 76.84 kg per acre, whereas it is 7.22 kg per quintal and 30.59 kg per acre in caseof wheat. It is worthwhile to note that the total post harvest loss increases with the increaseinfarmsize.Therefore,ithasbeenobservedthatpost-

harvesthandlinghasledtoconsiderablelossinriceandwheat. Theshareof storagelosshasbeenfoundtobemaximumthanthatofotherlosses.Theimprovementinstoragefacil itiesrequiredimmediate attention of the policy makers for reducing post-harvest loss in rice and wheat.There is a need to impart training to the farmers, traders and extension officials at the blocklevel on the practical aspects of storageand preservation of foodgrains. It is also essentialto popularise scientific techniques of storage amongst farmers, etc through demonstrationsand wide publicity and to develop selected villages to serve as model villages. There is alsoneed to arrange facilities for farmers for purchase of improved types of storage structuresand to maintain liaison with State Governments and to arrange steady supply of storagestructuresandpesticides totheusers.

In general and according to the suggestions of the respondents, provision of pest anddisease resistant quality seeds along with technical know-how, soil testing facility etc. are callfor the day tominimize thelosses at pre-harvesting stage of riceandwheat. Similarly,provisionof infrastructuralfacilities including warehouses, marketing infrastructure and good condition of road can restrict the losses at the post-harvest stage of riceandwheat.

In view of the above, it can be concluded that if pre and post harvest losses are reduced, the farm income can be increased substantially without cultivating additional acresof land or increasing any additional expenditure on seed, fertilizer, irrigation and plantprotectionmeasuretogrowthecrops.

Study No.-173

Nameofthe Study: Problems and prospects of oil seeds production in West Bengal

D.Sarkar, F.H.Khan, D.Roy

YearofPublication: 2013

ABSTRACT

Trendsand PatternofGrowth ofOilseeds

Over the decades, there has been a shift in the cropping pattern in West Bengalagriculture, wherein area under oilseeds increased considerably (about 4 times). The relativeshare of oilseeds (comprising mainly of rapeseeds and mustard) in total cropped area alsoincreased considerably from 2.8% to 9.8%. Net positive changes in relative terms for oilseedsduring TE 1993-94 and TE 2009-10 has been particularly prominent in districts South 24Parganas (163.53%), Midnapore (89.62%) and Murshidabad (61.80%). For the state total, netchangeduringtheperiodstatedforoilseedsstands at28.58%.

$Comparative Economics of Oil seeds vis-\`a-vis Competing Crops$

Cost of production per hectare of oilseeds (sesame) is much lower than that of its competing crop (summer paddy). In particular, while cost per hectare of sesame turns out tobe 23,364/- per hectare, that for summer paddy turns out to be 33,203/- per hectare. Net Profit per hectare for oilseeds (sesame) is much lower than that of fits competing crop (summer

paddy). In particular, while net profit for sesame stands at about 6,468/- per hectare that ofsummer paddy stands at 19,052/- per hectare. This phenomenon of lower cost per hectare asalso lower profit per hectare for oilseeds (as compared to those of competing crop of summerpaddy) arises particularly because of the fact that value of output per hectare (main product +by-product) is muchlessforoilseeds thanthatofsummerpaddy.

Constraints in the Production of Oil seeds

Technological Constraints- The major technological constraints comes out to be poorcrop germination (96.30%), followed by non-availability of suitable varieties (88.50%) and incidence of deceases (79.30%). Agro-climatic Constraints- Major agro-climatic constraints included rought accritical stages of

cropgrowth(91.20%),followedbyexcessiverain(91.00%) and extreme variation in temperature (75.20%). Economic Constraints- The majoreconomic constraints cultivation of oilseeds arelow andfluctuating prices(92.50%),followed by shortage of human labour (80.60%) and high input costs (80.10%). InstitutionalConstraints- In case of institutional constraints, it is observed that timely availability of seed(90.90%) comes out to be the most severe constraint, followed by inadequate knowledgeabout disease and pest management (73.80%) and Non-availability of institutional credit(67.30%). Constraints in post-harvest management, marketing and value addition- The majorpost-harvest problems include exploitation by market intermediaries (98.40%), followed bylackofprocessingfacilities inthe area(57.30%)andinadequate storagefacilities(55.80%).

Study No.-174

NameoftheStudy:BaselineDataonArea,ProductionandProductivityofHorticultureCrops inSikkim

D. Sarkar, D. Majumder, R. K.

BiswasYearofPublication:2013

ABSTRACT

It should be noticed that only 0.76%, 2.06%, 0.52% and 0.31% area in East, North,South andWest districts, respectively had been surveyed compared to the area estimated by the agency across the district. So, a variation in results of productivity between the surveyand estimate is quite natural, especially for the group of crops, like, kharif vegetables, rabivegetables, etc. Though, the productivity of rabi vegetables in North Sikkim was almostsame for these two estimates. On the other hand, individual croplike, mandarinorange, ginger and turmeric exhibited parity in result of productivity between survey and estimates. But there was a vast gap in productivity of cymbidium orchids and large cardamom

betweenvillageanddistrictlevelestimates.Fruitsotherthanorangeexhibitedalmostequalproductiv ity invillageand district level estimates in East Sikkim, but not evenalmost equalin West Sikkim. However, only 260.56 ha area in four districts of Sikkim was surveyed and itwas only 0.82% of the area that was estimated by the agency across the districts. This smallarea of courseshoweda compatibleresult of productivity ascomparedtodistrict levelestimates inanumberofhorticulturecrops inSikkimstate.

We came a cross a number of crops that could not register their share in the horticulture estimate . In East Sikkimwere crops like Leafy vegetables and Tomato, while in the horticulture of the state of the state

Northwere Leafy and Mixed vegetables, Brinjal, Tree Tomato, Chayote, Chilliandin Southwere Cabbage, Chilliand Tomato.

In the grass root, the Horticulture Inspectors did opined having no exact and updatedrecord about the area under various horticultural crops. Though the Village Level Officersunder the Department of Revenue have some records of area, but it seems deficient. Therecordthereiskept for majorfieldcrops. Secondly, there is no agency other thanthehorticulture department, except for RKVY and VIUC in South district, which is collectingthesedata.So,nocrossverificationoftheestimatescould be madetoascertain authenticity.

In the East district Cymbidium orchid present separate problems. Cymbidium orchidsare planted in pots – one pot for one plant. The plants starts flowering after 3-4 years ofplantation. From 5-6th year onwards production increases till about 10th year. After 10th yearproduction once again declines. Fully grown plant give 5-6 spikes per plant but for the olderand younger plant productivity is low. Moreover, the spikes vary in size across the plants. So,it becomes difficult to estimate the exact productivity. Hence, four spikes per plant on anaverage is assumedtoestimateproductivityofCymbidiumorchid.

LargeCardamom,cultivatedextensivelyintheNorthDistrict,hasdifferentspecificities and problem of its own in the process of estimation. Large Cardamom plantationis done in the undulated terrains of the hills. It is difficult in such a tract to estimate the areaunder cultivation. Hence, in crop cutting experiments an indirect method is applied. Takingthe standard spacing norm for Large Cardamom about 55-60 plants are selected that aresupposed to cover an area of 5 metre square. Productions from those plants are measured andproductivity thus estimated. But under such circumstances the level of exact productivitycannot beestimated. Thoughrecord of areaunderCardamom plantationiskept by therevenue officials,theinformationisnotupdatedatregularinterval.

In South and West Sikkim, however, the basic problem remains the same – dearth ofreliable area estimate. In Southern district there is abundance of different kinds of vegetablesboth under sole and mixed cropping practices. Under such circumstances, with no reliableestimate of area under crops, it becomes difficult for the horticulture department to estimatearea, production and productivity (Table 8.2c). The West district, however, presents shortageof trained personnel as one of themain problems (Table 8.2d). Another important problemfor Ginger lies in the fact that during crop cutting experiments the weight of Ginger that isrecorded gets reduced with passage of time as it becomes dry. This results in a difference inproductivityestimates whichdoesnotgetits reflection.

Study No.-175

NameoftheStudy:Effectoffarmmechanizationonagriculturalgrowthandcomparativeeconomicso flabourandmachinery

D. Sarkar, K. S. Chattopadhyay, D.

RoyYearofPublication:2013

ABSTRACT

• Incase of trends of growth in mechanization in West Bengal, it comes out that except for potato, costs of machinery has grown much faster than costs of bullock labour,

human labour as well as value of production over the period 1996-97 to 2009-10. Thisperceivably acts as a major constraint in the spread of mechanization of farming in thecultivationofcropslikepaddy,wheatandmustard.

- It comes out that ownership of expensive machines like shallow tube wells, tractors, etc. is fairly limited in numbers owing to involvement of higher capital cost, but theyare extensively used on hiringbasis toperform various farming operations in the study region. As such, ownership and use of machinery is two completely different aspects, especially incase of a highly marginalised economylike West Bengal.
- The study observes that 70 percent of the farmers held time-efficiency of mechanizedfarming as the prime reason (rank I) behind mechanization. This is why we find that with comparable costs, the tractor operated machines are gaining popularity in the study regiones pecially in operations like ploughing, marketing and transportation.
- However, among the major problems faced in mechanization, about 26 percent of thefarmers consider tractor operated plough as expensive to purchase, while another 14percent considered that it is expensive even to hire tractor operated plough. Further, about 26 percent of the farmers responded that tractor operated plough is not readilyavailable for hire atatime when it is actually needed the most.

Study No.–176 Name

oftheStudy:SpreadofNewVarietiesofHybridRiceandtheirImpactontheOv erallProductionandProductivityinWestBengal D. Sarkar,J.K.Ghosh

VearofPublication: 2013

ABSTRACT

• Extentofadoptionofhybridriceatthefarmlevel

It can be seen that during the year 2009-10 the proportion of rice area allocated tohybrid rice accounted for 18.03 per cent in marginal sized land holdings which declinesconsistently with the rise in the size of holding to 11.52 per cent. Similar relationship isalsoobservedduringtheyear2010-11.Consideringall thefarm sizestogether, thepercentageofriceareaallocatedtohybridriceis21.09percentin2010-11,whichwas

14.72 per cent in 2009-10. The small and marginal farmers who produce mainly forhouseholdconsumptionhaveshowninterestinhybridrice.Needlesstosay,hybridtechnology hasvastpotentialforimprovingthelevelofproductivityofrice.

• Yield performance of hybridand HYVs

Overall, rice hybrid performed better with an average yield of 6408.53kg per hathan average yield of 5377.60kg per ha for HYVs during the 2009-10. During 2010-11,too hybrid rice recorded higher yield at 6551.28kg per ha as against 5340.89kg per ha for HYVs. Among various farm size groups, smaller sized holdings obtained highest yield inboth the years. The mean yield of HYV rice however increased with the increase in thesize of farm over the years. In other words, mean yield levels of HYVs were higher onlargersizedholdingsascomparedtosmalleronesincase of HYVs.

• YieldGainfromHybridRiceovertheInbredRiceVarieties

OnanaveragetheyieldgainofhybridsoverHYVswas19.17percentin2009-

10. During 2010-11 it was about 22 per cent. Across farm sizes, smaller sized holdingsobtained higher yield gain as compared to larger sized holdings in both the years understudy. Thus based on farm level performance of hybrid rice over the period it is clearlyindicative of the fact that hybrid rice technology has its higher yield potential under theproductionenvironmentsprevailinginWestBengal.

• EconomicReturnstoHybridandInbredRiceCultivation

During the year 2010-11 the farmers growing hybrid rice realised a gross return of Rs.67,583.51 perhectare while the gross return realised in inbredvarieties was Rs.61,

327.32.Thusthegrossreturnwas10.20percenthigherinhybridricecultivation.However the profit (net return) realised in hybrid rice and inbred rice was of the order of Rs.38,696.10 and 37,776.32 per hectare respectively. Thus the profit gain realised inhybrid rice production was only Rs.919.78 per hectare or 2.43 per cent overinbredvarietiesofrice.Consequentlythebenefitcostratiowasalsolowerinhybrid

ricecultivation (2.34:1) in comparison with that for inbred rice (2.60: 1). Inter-temporarily netreturn from hybrids over the reference periods has increased from Rs.35, 549.76 perhectare in 2009-10 to Rs.38, 696.10 per hectare in 2010-11. Correspondingly for inbredrice, the net return decreased from Rs.38, 383.69 per hectare to Rs.37, 776.32 during

thesameperiod.Thenetresulthasbeenincreaseinbenefitcostratioforhybridricecultivation from 2.24: 1 in 2009-10 to 2.34: 1 in 2010-11. Correspondingly,there hasbeendeclinein benefitcost ratiofrom 2.63: 1to 2.60: 1 during the same period.

• Famers' overall perception of hybridric ecultivation

Analysis of farmers' overall perception about hybrid rice cultivation hinted thatfuture research on hybrid rice development should focus on improvement of grain qualitybesidesyieldinthenextgenerationhybrids.

• Reasonsfornon-adoption of hybridricecultivation(non-adopters'experience)

The main reasons for non-adoption of hybrids were lower price of hybrid rice ascompared to inbred, poor extension activities by the government for the popularization ofhybrids, un-availability of quality hybrid seed, higher seed cost, higher yield loss forhybrids due to pests and diseases and higher risks associated with hybrid rice cultivation. Though higher seed cost is considered a constraint, it was given the least importancecompared with other constraints. The foremost constraint confronting the diffusion of hybrid rice technology is poor grain quality and as a result lack of market acceptanceleading to lowerpricefetchedfor hybrid rice ascompared to inbred variety.

Study No.–177 Name

of the Study: Spread of New Varieties of Hybrid Rice and their Impact on the Overall Production and Productivity (Consolidated Report)

P. K. Basu, D. Roy

YearofPublication: 2013

ABSTRACT

• Yield and productivity underpaddy in all states together increased in all the periods. Area fluctuated and there was no upward trend. Infact the area underpaddy at the end of the

entire study period was lower than at the beginning. This indicates that the scope of of output through extension of area has been exhausted and it is imperative to concentrate on yield improvement, through Hybrid seeds, etc. It is also noticeable that yield and productivity performed substantially better during the pre-hybrid period (1984-85 to 1993-94). This probably indicates the fact that HYV performance tapered off sincethe90s. Hybrid cultivation didnots preads ufficiently so as to compensate.

- It can also be observed that the increase in production can be attributed more to gain inproductivity than toincrease in area under crop, which infactdeclined, as we havealreadyindicated.Bothyield andproductionshowed similarand substantialgains.
- Forbothyearssurveyedthereceptivitybysizeclasstohybridcultivationtakestheform of a U, with the size class 2 to 4 ha being the least receptive. *This suggests that there is aconflictbetweenequity and efficiency in the case of hybrid cultivation*.
- In striking contrast the receptivity to HYV takes the form of an inverted U, with the samesize classbeingmostreceptive.
- Further apart from the largest farms, area under hybrid cultivation has increased between2009-10 and 2010-2011. Correspondingly, there has been a decline in area under HYV.Thoughthetimespanistooshort,theresultisintuitivelyexpected.Withtimeinformationab outand confidenceinhybrid cultivationislikelytoincrease.
- A significantly higher proportion of head of households adopting hybridfarming belongtotheyounger generation.
- Theability toreadliteratureon hybridcultivationis*sufficient*foradoption of newtechnology and that higher formal education is unnecessary.
- A significantly larger proportion of SC, ST farmers compared to general caste cultivatorsgoinforhybridcultivation.
- The state plays predominant role in dissemination of information of new agriculturaltechnology mainly through extension workers and, next through training programmes. *Sothespreadofthistechnologycannotbe* entirelyentrustedto the privatesector.
- *Training programmes have to be toned up*, as the extension workers are more effective in persuading farmers to adopt appropriate input mix, while participation in training programmes yields much poorer results. Participation in demonstration programmes is even less effective for disseminating knowledge about proper input mix.
- There is also great regional variation in effectiveness of governments ervants and programmes in disseminating information. *This suggests that some monitoring devise has to be positioned.*
- Hybrid technology is substantially more productive compared to HYV across farm sizes. It is noticeably more productive in the largest farm size. *This suggests that the spread of the technologymayhaveregressive impacton distribution.*
- Hybrid cultivation is more labour intensive than HYV cultivation. Hybrid rice cultivationalso involves greater use of female labour.*Hybrid rice cultivation is thus likely togenerate additional employment opportunities for workers in general and specially forfemalelabour ruralareas.*

- Areawisethecostofhybridcultivationwassignificantlyhigher.Butthehigherproductivity compensated. Thus the cost per quintal was lower for hybrid. *This suggeststhattopopularisehybridcultivationcreditneedshave tobe addressed.*
- The average rate of return on working capital was higher for hybrid cultivation, though insome states the opposite obtained.
- Grainqualityofhybridrice, intermsofhulling and milling ratiosis inferior to HYV rice. *This suggests that research must concentrate on improving this aspect of hybrid rice.*
- A greater percentage of hybrid output is marketed compared to HYV.*This suggests thathybridcultivationissuitabletothe expansionofgrainmarkets.*
- Thepriceofhybridriceislowerthanthat of HYV rice, on an average.
- Though government is the main source of hybrid seeds, there is great regional variation in the proportion of seeds supplied by government sources. *There is, therefore, scope forimproving government intervention in this area.* Also seeds are not often supplied intime. *This needs tobelookedinto.*
- There is a perception of poor quality of seeds supplied. The reasons for this are not clear. This needs investigation.
- Hybrid cultivators are often using inputs in incorrect proportion. Though lack of financialability has been indicated as a reason, lack of knowledgehas also played a significantrole. *Thusthegovernmentneedstoimprovethequalityofknowledgedissemination andalsoprovidesufficientcredit. Theneedforpropercreditprovisionismorepronouncedbeca usehybridcultivationis costlier.*
- The quality of hybrid rice, in the perception of the consumer, is poorer than HYV rice. Thismakesmarketingdifficult. *Thissuggeststhatresearchshouldconcentrateonimprovi* ngqualitylikedecreasingstickinessofcookedhybridrice. *Therateofdegenerationor* 'keepingquality'alsoneeds tobeimproved.

Study No.–178			
NameoftheStudy:	EndTermEvaluationStudy	inRespect	of
	theImplementationofBringingGreer	nRevolutiontoEasternIndia(BGREI
)Program(ConsolidatedReport)		
	Edited: D. Majumder D. Ro	y, R. K.	
BiswasYearofPublic	ation:2013	• /	

ABSTRACT

BGREIprogramand changesinCroppingIntensity:

The results of CI across rice ecologies indicate differentiated pattern between BGREIbeneficiaries and non-beneficiaries. On the whole it can be said that there has been marginalchangesovertwoyears incropping intensity for both beneficiary and non-

beneficiaryfarmers with variations across states. The change in CI in the states (as derived from samplesurvey results) cannot be attributed to the program of BGREI. There may have been someother factors influencing the cropping intensity in the states in the years of reference. Overand above, the BGREI program as conceived had focused on increasing the yield of crops of which we shall be discussing presently.

BGREIprogramand risein grain yield:

It is revealed from the mean yield achieved by the beneficiaries and nonbeneficiaries that there exists a difference in grain yield between them. In most of the states the average yield of crops among beneficiaries was substantially higher than their counterparts (i.e. non-beneficiaries).

Yield Gap analysis among st BGREI beneficiaries and non-beneficiaries:

The ecology specific yield gap analysis in rice and wheat crops in BGREI Statesexcept eastern Uttar Pradesh reveals that wide gap exists across ecologies and districts withina state and between states too. This exercise, however, was not carried out by AER Centre,Allahabad.Normally yield gap is the difference between yield obtained at the farm level andthe potential yield of a particular variety on the experiment station. Differences in yield gap betweenbeneficiaryandnonbeneficiaryfarmerswouldsuggesttheimpactofchangesbrought about in terms of yield enhancement. However, the yield gap analysis has been madedifferently for different states with differential benchmark. On the whole substantial yield gapisobservedbetween beneficiariesandnon-beneficiaries,theformerregisteringhigheryield.

Hence, it can be said that the beneficiary farmers in general in all the BGREI Stateshadanedgeoverthenon-beneficiaries inenhancingthe yieldofcrop.

RecommendationsandPolicySuggestions

- Efforts should be made to reduce the gaps between recommended, promoted and implemented strategies.
- Incourse of dissemination of technology, provision of Progressive Farmers and regular monitoring from State agriculture departments can play vital role. As such, such links between the beneficiaries and Statemachineries should be encouraged.
- Interventionsthroughcropdemonstrationshashelpeddeclinethegapbetweenecology specific potential and actual yields across beneficiary farms. Hence, suchdemonstrationprograms shouldbe encouraged.
- Eastern India covered under the BGREI program has exhibited a glimpse of a highpotential for yield enhancement of rice, wheat and *Rabi* pulses through a favourablepositivecropresponse. There is a huge scope to exploit this potential through scient if ic and technological intervention like BGREI, and hence the program should continue with greater effort and coordination.
- An all round effort should be made to ensure the timeliness of input delivery systemprescribedunderthe recommendedtechnology.

Study No.-179

NameoftheStudy:Adoptionofrecommendeddosesoffertilizersonsoiltestbasisbyfarmers V. Dutta,D.K.Mondal,S.Ghosh,R.Mukherjee,K.S. Chattopadhyay,S.ChakrabartiYearofPublication:2015

ABSTRACT

- Soil testing and adoption of recommended doses of fertilizers among paddy and jutefarmers have significantly raised both the production and productivity but numbers of such farmers are found negligible.
- The study has identified factors like non-availability of report card after testing, poorextension facilities, distant location of soil testing laboratories etc for poor adoption of Soiltestprogramme.
- > The study has noted that the small number of soil test farmers who adopted therecommended doses of fertilizers could enhance their production and productivity andweresignificantlycapableofdiminishingthecostsofother factorsofproduction.
- It is found from Table- 1.6.5.2 that most important change observed by the paddyfarmers is 'increased in crop yield' (81.81%) and next important is 'decreased inapplicationofotherinputs likeseed,labour,pesticideetc'(27.27%).
- It implies that if the farmers are pursued with technical efficacy of soil testing withappropriateadministrativeandextensionservicestothemandtheapplication ofappropriatedosesoffertilizers;agriculturalsectorcouldgetridofinitialinertiaandbetransf ormedintoselfsufficientfoodeconomyneededforsustainabledevelopment.

Basedonthe findings of the study, the following policy prescriptions have been made tomake the programmemore asuccess.

- As the Soil testing Laboratories are situated in the long distances and as the Farmerscollect sample on their own, the Extension Personnel in the District AgriculturalOffices need to be more careful and attentive during implementation of this important programme.
- Sources and Availability of fertilizers in time is a great concern to the Farmers, Governmentsourcesneed to provide NPK in time with an adequate amount...
- Continuous mining of nutrients with inadequate doses of replenishment inputsmakesoil more and more susceptible to infertile,applicationofrecommended doses offertilizers with an admixtureof manure and Bio-nutrientis capable to maintainandregain the soilhealth.PropagationofOrganic Farmingamongthe farmersisessential.
- ➢ Kisan Call Centre should be set up in all Panchayatoffices to enable the farmersabouttherecentmoderntechniquesbeingprescribedbytheexperts.

Study No.-180

NameoftheStudy:ImpactonNationalFoodSecurityMissiononInputUse,Production,Productivity andIncomeinIndia

D. Majumder, R.K. Biswas, D. Roy, S.

GhoshYearofPublication:2015

ABSTRACT

The Green Revolution of Indian agriculture had certain deficits and did not succeed inachievingself-sufficiencyinfoodacrossallthestates.NationalFoodSecurity Mission(NFSM) was launched in 2007- 08 with a view of increasing the production and productivityofrice, wheat and pulses insome of the states.

Productivity of rice in particular has responded positively to NFSM programme inWest Bengal. The NFSM technology with its provision of subsidized improved seeds, INMand IPM measures has had its impact in increasing productivity and income of the beneficiaryfarmers. Out of 300 beneficiary farmers, 88.7 per cent had the opinion that the new andimprovedvarietyhas beeneffective inincreasingtheproductivityofrice.

It was revealed that the state department of agriculture has been instrumental inimparting awareness among the farmers regarding NFSM. Financial achievement was on the better side registering about two-third utilization. Component specific outlay centered mainly around crop demonstration, plant protection and nutrition.

Despiteitspositiveproductivityresponsetherehadbeensomeinformationgapregarding proper and comprehensive knowledge of NFSM among the farmers. Complainswere also received about untimely distribution of inputs and the same time they were foundunhappy as regards to the market prospects of hybrid seeds.

Study No.-181

NameoftheStudy:AStudyonProductivityandProfitabilityinAgricultureandHorticultureinEasternHimalayanRegion

SantadasGhosh,K.S.Chattopadhyay,D.Majumder,

F.H. Khan, V. Dutta, A.Sinha, D. K.Mondal, S. GhoshYearofPublication:2015

ABSTRACT

Agriculture in eastern Himalayan hill area in absence of major industrial activity inthat region is a very important source of livelihood. Available agricultural statistics lacksmicro level details of productivity and profitability of major crops inthearea. Aggregateddata at block level often miss out the factors that might affect household level decisionmaking on crop choices. Further, altitude and climate have major impacts on agriculturalproductivity and crop choice. Unlike in plains of India, such parameters vary widely within asmalladministrativeunitineasternHimalayanhills. This study provided new insight into genetic diversity of different crops and use ofchemical fertilizers inhills, which has implication for environmental sustainability. Productivity and profitability of some crops are found to be significantly variable acrossal titudes.

Crop cycles vary significantly with altitude in terms of its sowing and harvesting time. The hilly terrain doesn't allow large land parcels and hence farm mechanization is almostabsent in hills. There is no canal or groundwater irrigation facility. In absence of large fields and with little control on irrigation by individual farmers, application of chemical fertilisers isnaturally not viable. Modern HYV seeds for staple food crops like rice are also not suitable inhills.

Though there is a large variety of agricultural and horticultural crops produced by thefarming households, farmers are increasingly shifting to high value commercial crops such aslarge cardamom and ginger. Food crops like rice and maize require more labour and moreprone to wild animal raids. Therefore, farmers are moving away from these food crops, compromising with local food security. In this backdrop, this study was aimed at estimatingagro-

horticulturalproductivityanditsreturnsinthehillyregionsofNorthBengal(Darjeeling) and Sikkim through a carefully designed primary survey. It is found that despitebetter state support to Sikkim farmers, productivity and profitability of most of the crops isbetter in Darjeeling compared to Sikkim.Besides other factors, this might be the result ofbetter rainfall in Darjeeling and its proximity to the city of Siliguri, nearest trading point inplains. State support in Sikkim is being directed towards high value commercial crops likelargecardamom andginger, and hencethereisa declining interest in cultivation of staplefoodcrops likericeandmaize.

Study No.-182

NameoftheStudy:EvaluationandAssessmentofEconomicLossesonAccountofInadequate Post-Harvest Infrastructure Facilities for Fisheries SectorinWestBengal

K.S Chattopadhyay, Vivekananda Datta, Ashok SinhaYearofPublication:2016

ABSTRACT

Fisheries sector is being considered as one of the most important economic activities Indian economy. A little over 14.5 million people in India depend of Fisheries for theirlivelihood. According to the National Marine Fisheries Census 2010, the marine fishermenpopulation in India is estimated at 4.0 million, of which 0.99 million are active fishermen. Among theactive fishermen, 33% are employed in the marine fish production, 62% in the motorized sector and 5% in the artisanal sector. Of the total marine fish production, 75% comes from mechanized sector, 23% from motorized sector and 2% from artisanal sector. The pattern of marine fish landings in India during the past fifty years clearly reveals that the contribution by the artisanal sector to the total production was significant up to the sixties.

ThemechanizedtrawlfisheryisnowthemostimportantamongvariousfishingmethodsinIndiaand contributesabout55% to the totalmarinefishproduction inthecountry.(GOI)

The study was conducted in the eastern coasts of west Bengal to assess the extent of postharvest lossesof marinefisheries. Post harvest lossesarecausedgenerally duetopoorhandling, improper method of processing, inadequate packaging and lack of suitable storagefacilities and all the selead to early decomposition and rapidbio-chemical and microbiological spoilage. According to a sector-specific analysis by the Associated Chambersof Commerce and Industry 'post-harvest fish wastage leads to annual losses worth over Rs15,000 crore in India's marine and inland fisheries sector. The present study attempts to examine all the technical, institutional and economic factors responsible for huge losses inmarine fisheries sector.

Study No.–183 NameoftheStudy:FarmerSuicidesinWestBengal

A. E.R.Centre

YearofPublication: 2017

ABSTRACT

Farmers' suicide is a social menace and a very sensitive issue in India that requireimmediate attention and sympathy of the policymakers for coping over with the situation atthe earliest. The present study is an attempt to develop an in-depth understanding of agrariandistress and farmers' suicide in West Bengal and to make some policy suggestions to prevent such incidences infuture.

The National Crime Records Bureau (NCRB), the main official agency in the countryresponsible for collecting and analyzing suicide data changed the methodology as well asparameters for compiling farmers' suicide since 2014. This changein parameters led toreporting zero farmers' suicide by as many as 12 States and 6 Union Territories includingWest Bengal in-spite of several news and media reports claiming farmer's suicides in thesestates. The present study reveals that, the incidence of farmers' suicide in West Bengal islower than the national average and much lower as compared to several other states likeMaharashtra, Telengana, Madhya Pradesh, Chhattisgarh, Karnataka, Andhra Pradesh, etc. Butthe claim of 'zerofarm suicides' as reportedinthe official documents does not matchwiththe groundrealities.

The study revealed that farmers' suicide in West Bengal is not necessarily linked withbackward regions or crop failures due to flood or drought rather it is more common withmarket failure in cash crops that required substantial borrowing to purchase farm supplies.Low and insufficient income from the farming enterprises; increasing cost of living and lackofnon-

farmemploymentopportunitiesaretherootcauseoffarmers'suicidethoughmanifested by indebtedness and family related problems. Therefore, policies towards riskmanagement in agriculture should not only address the climatic and financial risks but alsorisks associated with distress sale, sudden decline in price due to glut in the market, andincome uncertainties.Developmentofruralinfrastructure,particularly,irrigation,storageand cold chain system will help to mitigate risk to a large extent but this should go hand in hand with creating non-farmemployment opportunities in the rural areas.

Study No.–184

NameoftheStudy:IndigenousRiceVarietiesinSundarbandeltaandtheirroleinensuringlocalsecurit vinthefaceofclimatethreats

Santadas Ghosh, K.S.

ChattopadhyayYearofPublication:2017

ABSTRACT

The low-lying Sundarban delta is one of the most vulnerable coastal regions inIndiain the face of Climate Change scenario, which predicts future Sea Level Rise and increasingcyclonic activities in the Bay of Bengal. Both of these predictions imply increasing salinityingress on agricultural lands for this densely populated area, which in turn is a grave threat tolocal food security. One viable adaptation strategy might be to promote the practice of salttolerant rice among farmers in the region. It also calls for active research on production andpromotion of such varieties. This in turn needs the creation of a knowledge bank on the existing such varieties.

With this database, agricultural and soil scientists could enhance their capacity of prescribing suggestions for better production of indigenous ricevarieties with modern techniques in coastal regions. It will cater to the State and National Bio-diversity Board and Agricultural Directorate for providing properguidance to the farmers in regular manner.

Therearealargenumberofsalttolerantvarietiesofricearebeingpreservedcultivated, and the cost of cultivation of these varieties is significantly less and farmers do notneed to depend on outside agencies or government departments for obtaining the seeds. Thecultivation practice for these varieties is mostly organic in nature and requires little or nochemical fertilizers or pesticides. These varieties are mostly of low productivity, but areimportant for the local food security and hence to be propagated among local farmers throughpolicymeasures.

Study No.–185

NameoftheStudy:EconomicAnalysisofCostandReturnofoff-

SeasonVegetableswithFocusonPolyHouses EffectinSikkim

K.S Chattopadhyay, Ranjan Kumar

Biswas, AshokSinha, Debajit Roy,

DebanshuMajumder

YearofPublication:2017

ABSTRACT

The off-season vegetables" farming refers to the production of vegetables by usingdifferent agro-climatic condition, adjusting the time of transplanting, selecting and improving the varieties and/or creating a controlled environment. In fact, the agro-climatic condition of the hills is conducive in the production of vegetables such as tomato, cauliflower, cabbage,vegetable pea, cucumber, French beans, capsicum etc. in different zones in the hills. Farmersalso have higher incentive to grow off-season vegetables since they get higher value fromproducing these vegetables during summer and rainy season. This is because the off-season vegetables that are raised in the hilly areas are made available to the consumers in the plains at the time when the secannot be grown the redue to hot climatic condition.

In spite of significant contribution of Horticulture Sector to Sikkim state's economyof North Eastern Region, there is dearth of authentic data related to cost and return in thissector.

Cultivation vegetables under polyhousecover inorganic cultivation technique comes out to be a remunerative proposition for the resource poor farmers also, generatinggreater employment opportunities for marginal farmers, especially for the female familymembers. Marketing of Vegetables and role of FPO (Farmer Producers' Organization) to ensure efficient marketing mechanism were also analyzed in this study.

Study No.-186

NameoftheStudy: An EconomicAnalysisofProtected CultivationunderMIDHinSikkim

Vivekananda Datta, K.S Chattopadhyay, Debajit Roy, DebanshuMajumderYearofPublication:2017

ABSTRACT

Incaseofpolyhouse development

under MIDH in Sikkim, we can see that the Centrally Sponsored Scheme of Horticulture Mission for North East and Himalayan States (HMNEH) is being implemented in all the districts of Sikkim.

- Anareaof 415.96hahasbeencoveredunder protected cultivation, while 48835 farmers have been trained undervarious horticulture activities.
- AnamountofRs.373.47crorewasreleasedtotheStatetill2014-15andthe

State

Governmenthas reported an expenditure of 328.97 crore.

- This study has come out with interesting findings that though cost of cultivation forjarbera under protected condition is significantly higher in comparison to carnation, percentage of net returns in jarbera over carnation is also higher and it is due to highervalueofoutput.
- In case ofvegetable crops under polyhouse cover, viz. capsicum and tomato, it hasbeen observed that net returns in case of tomato is marginally lower than in case ofcapsicum.
- As far as productivity of crops on unprotected condition of farming is concerned, it isobservedthatapartfrompaddy,productivityofallcropsinmarginalfarmsismarginallyhig herthansmallfarms.

Based on the findings of the study, the following policy prescriptions have been made tomake theprogrammemore asuccess.

AsSikkim hasthefavourable climatic conditionsfor growing vegetables, flowersand horticultural crops, Policy makers should consider allocating a higher budgetunder MIDH for this state so that the excess labour force can be optimally utilized inagriculture atlarge. Cultivationof vegetables under polyhousecover inorganiccultivationtechniquecomesouttobearemunerative propositionfortheresource poorfarmersalso.

As such, steps to promote off-season vegetable cultivation under poly housecovershould be taken up, so that the redundant labour force can be optimally utilized in agricultureatlarge.

Study No.-187

NameoftheStudy: AssessmentoftheStatusofDairyingandPotentialtoImproveSocio-Economic Status of the Milk Producers in West Bengal

DebanshuMajumder, Ranjan K. Biswas,BitanMondal,AshokSinha

YearofPublication: 2017

ABSTRACT

Dairying plays a vital role in rural economy by providing employment and incomegenerating opportunities particularly for small, marginal and women farmers and landlesslabourers. Over the periods since independence shift from cultivators to agriculture labourershas beensignificant inWest Bengal. Dairyfarming may becomeanalternativeway oflivelihood.

The State policy has been providing some support for dairy development inthestateof West Bengal through co-operative sector. However, the cooperative structure has been rather weak in these parts of the country in terms of coverage of dairy cooperatives invillages.

In West Bengal productivity levels of milch animals were quite low and that thegenetic pool of the milch animal population was of low quality, with high incidence of non-descript cows in comparison with the crossbred varieties.Rural households took up dairyenterprise as their subsidiary source of incomerun solely by family labour. Procurement priceof milk had been less-remunerative for the farmers whether purchased by cooperatives orprivate vendors.

Asofinfrastructure, the households suffered from lack of improved equipment, training facilities, irregularity of supply of cattle feed, vaccines, semen at AI centre and infrequent visit of veter in a rystaff.

Thescopeandcoverageof central andstatesector schemesfor dairy expansionseemed somewhat restrictive. Policy re-orientation might be sought for rejuvenating the dairysectorinthevillages of West Bengal.

Study No.–188 NameoftheStudy:PerformanceEvaluationofPradhanMantriFasalBimaYojana(PMFBY)inwest Bengal

Bidhan Chandra Roy, BitanMondal, SabyasachiOjha, Ranjan Kumar Biswas, Vivekana ndaDutta

YearofPublication: 2018

ABSTRACT

Agriculture being highly prone to various kinds of risks and uncertainties, there is anecessitytoprotectthefarmersfromnaturalcalamitiesandmarketfailures. Therisk confronted by the resource poor small and marginal farmers, who are the majority in WestBengal, is of particular importance as it not only affect the poor farmers but also the wholevalue chain and consumers. The Pradhan MantriFasalBimaYojana (PMFBY), rechristenedas Bangla FasalBimaYojana (BFBY) in West Bengal, is in operation since Kharif 2016 and is being provided entirely free of cost to the farmers, except in case of potato and sugarcane.

The present study is an attempt to evaluate the performance of the scheme in WestBengal in terms of issues related to governance, implementation and uptake behavior among the farmers and to make some policy suggestions for its better functioning.

Thestudyrevealedthat sofar as promoting cropinsuranceamong thefarmers inWest Bengal isconcerned, the scheme is a huge success as more than4.1millionfarmers were enrolledinthe very first year of its implementation. But in terms of governance and implementation, there are enough scope for further improvements in future particularly in increasing theawarenessamong thefarmers, and inthe use of smart technologies estimating croploss and in reporting claims. The key problems with poor governance and implementation of thescheme was related to delay in estimating yield data, poor land records or flawed land titles, and lack of awareness and ignorance among the farmers. Implementing IAs (barring AIC), have been found not to play an active role except for providing application forms and theirpresence at local level was very poor. The study calls for an integrated approach involving allthe stakeholders with multi-pronged emphasis on the larger issue of improving governance, implementations, and impactof PMFBY scheme inthestate.

The existing institutional arrangements are not sufficient to cater the growing requirement of the farming

community.Toensurethesame,transparencyandaccountabilityonthepartofgovernment,impleme nting agencies, and farmers are of paramount importance. Therefore, strategies foreffective awareness campaign and mechanism for a transparent and accountable system ofspeedy payment of compensation should be evolved that could make a difference in terms ofincreasingtheuptakeandenhancingefficiencyofthescheme.

Study No.–189

NameoftheStudy:RuralLivelihood Diversification in WestBengal Bidhan Chandra Roy, DilrubaKhatun, Arnab RoyYearofPublication:2018

ABSTRACT

Livelihoods of rural people do not depend on a single source of employment. Also itincludes various aspects of life apart from income or occupation. Livelihood strategies arecharacterizedbytheallocationofassets(natural,physical,financial,public,socialandhuman),inc ome-earningactivities(onfarm,offfarm),andoutcomes(food,income,employment, consumption, security). Together these determine the well-being attained by anindividualorhouseholds.

The present study is a longitudinal study and was conducted in the state of WestBengal during the period 2007-18. In order to examine the changing dimensions of rurallivelihood, are peated fields urvey was undertaken in an interval of 10 years. The first survey

was conducted for the agricultural year 2007-08, and the second survey was undertaken with the same households for the agricultural year 2017-18. It is an attempt to explore the changesin livelihood sources, its determinants and impact on sustainable rural livelihood in WestBengal.

The findings of the study shows that the rural livelihoodin West Bengal is fastdiversifying though job creation has mainly been shifted towards casual and marginal works.But the silver lining is that livelihood diversification represents a promising opportunity toenhance household income in rural areas. In general, the capacity of agriculture sector inproviding employment to the rural masses reached saturation, but there are still scope withinagriculture toincrease the farmincome through development of irrigationfacilities and promoting diversification towards high value crops and agri-business activities. So far, thegrowth in non-farm employment opportunities remained inadequate to absorb the surpluslabour left agriculture sector due to push factors. Therefore, creation of offfarm and nonfarm employment opportunities for rural household sholds the key for a sustainable livelihood. It is a characterised of the state ofallenging task but employment opport unities need to be created, otherwise

thegoalofdoublingfarmers' income will remain as a sloganonly.

Study No.-190

NameoftheStudy:Improving Water Use Efficiency in India's Agriculture: The Impact, Benefits and Challenges of Micro-Irrigation under the Pradhan MantriKrishiSichaiYojana:

Per Drop More Crop (PMKSY-PDMC) in Sikkim

Debajit Roy, DebanshuMajumder

YearofPublication:2020

ABSTRACT

With the irregularities of rainfall, irrigation is the most important factor in the farming sector. In India there are 16 agro-climatic zones present. Sikkim is situated in the eastern Himalayan region where agicultural activities have to depend majorly upon the existing irrigation system. Here, a dissimilar rainfall is observed due to the variation in altitude of this region. To achieve an ample amount of water to produce a crop, every farm has to acquire an irrigation system. For this purpose in 2015, Pradhan MantriKrishiSinchayeeYojana (PMKSY) is introduced by the Government of India, setting the motto of 'Per drop, more crop' in the behind.

This study was conducted based on both primary and secondary data. For primary data collection, we use a multi-stage stratified random sampling method. The study provided very crucial information about the PMKSY. The allocation for PMKSY is increased over time in Sikkim. The micro irrigation area has been increased in the East district of Sikkim since 2018-19. In favor of sprinkler irrigation, we observed a surge in the vegetable cultivation of Sikkim as well as a change in the cropping pattern of this particular cultivation due to micro irrigation facility. On the one side, cost of cultivation has increased, on the other side profits also increased due to increasing yield. Labour cost decreases by a significant amount with the use of different types of irrigation systems in Sikkim. A precious policy adopted by the Sikkim Govt. that 100% subsidy has been given to the micro irrigation adopted farmers.

Study No.–191 NameoftheStudy:Assessment of Livestock Feed and Fodder in the State of West Bengal Bidhan Chandra Roy, BitanMondal, DebanshuMajumder, Ranjan Kumar BiswasArnab Roy,Debajit Roy, DebanshuMajumder YearofPublication:2020

ABSTRACT

Animal husbandry and the dairy sector is being considered one of the most important backbonesof the Indian economy. According to Livestock Census in 2019, the livestock population is 535.78 million in the country showing an increase of 4.6% over the Livestock Census 2012. Census data supports that livestock farming may become a second possible choice for rural people due to an increase in livelihood income. On the other hand, due to ever-increasing population growth and changing food habits, demands for milk, meat, egg & other livestock-related products are growing fast. Livestock rearing is therefore can be considered as a major source of livelihood.

West Bengal is India's 4th highest livestock owning at about 37.48 million. Major constraints of the low productivity in West Bengal are lack of proper knowledge of rearing the animal and feeding materials of the animal. Food habits are different concerning climatic zone, breed types, etc. Proper food resources lead to a healthy life and the proper outcome in terms of milk production, meat production, wool production, etc.

The present study is important to exhibit the current scenario of area, production, and productivity of major green and dry fodder crops, and inquire into the growth pattern of major livestock production to assess feed and fodder availability, requirement, and deficit/surplus to improve productivity with these objectives we conduct a primary survey in West Bengal of three districts, namely, North 24-Parganas, Burdwan and Murshidabad, ensured they came from different agro-climatic zones, covering 120 farmers sample each for cattle, buffalo, and goat.

Major findings of the study are Indigenous cattle and goats contribute about 85% of the total livestock population in West Bengal apart from that egg production is growing at an annual rate of 13.54 percent per annum. Goat rearing is more profitable because of the minimum rearing cost and we get delicious meat and quality skin. There is a huge gap between the demand and supply of green fodder and dry matter. There is an acute scarcity of feed and fodder at the household level. Therefore we need to focus on the proper feeding system for the animal so that productivity will increase and the farmers tend to rear more livestock animals and contribute to India's GDP as well as the state.

Study No.–192 NameoftheStudy:Village Survey Study in West Bengal (Sahajapur Village in Birbhum District)Bidhan Chandra Roy, DebanshuMajumder YearofPublication:2021

ABSTRACT

India, still lives in villages as more than 80 per cent of the people belonging from in rural society. From pre-historic times Indian villages plays an important role in social infrastructure. Till now, villages are self-reliable units to satisfy all their essential needs. In West Bengal, two-third of the total population lives in villages. Hence, the headway of the state depends upon the well-being of individual villages of the state. Agriculture is the main occupation of most of the villagers, now they diversify their occupation to the non-agricultural sector as well. Sahajapur is one of the villages in Birbhum district of West Bengal. To determine the rural change, agricultural change, and the changing pattern of livelihood and its implication to future development, we resurveyed the village with an interval of five years.