Flood, Hilly and Backward Areas (IDDP) of Andhra Pradesh State during the year 1995-96 with a total outlay of Rs. 447.32 lakh. The Government of India has released the entire amount. Another Project, IDDP-II, was approved by the Government of India with a total outlay of Rs. 934. 28 lakhs in December, 2000, to be implemented over a period of three years. An amount of Rs. 191.49 lakh was released during the year 2000-01 as first installment. The State Government of Andhra Pradesh has informed that the funds have been transferred to Andhra Pradesh Dairy Development Cooperative Federation Ltd. for the implementation of the project and the implementation of the project is in progress.

ICAR Centres in NER

1784. SHRI RISHANG KEISHING: Will the Minister of AGRICULTURE be pleased to state:

(a) the number of ICAR Centres/branches opened in the North Eastern States;

(b) their activities and achievements; and

(c) the benefits being made available to the local population by them?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI HUKUMDEO NARAYAN YADAV): (a) to (c) The detials are given in Statement-I, II and III, respectively.

Statement-I

The number of ICAR Centres/Branches opened in the North Eastern States

Crop Science:

- CRRI Regional Station, Gerua, Assam
- CRIJAF Regional Station, Sorbhog, Assam
- NBPGR Regional Station, Shillong, Meghalaya

Horticulture:

- CPCRI Regional Station, Kahi Kuchi (Assam)
- Central Potato Research Station, Shillong

- AICRP Centres:

  Palms— Kahi Kuchi
  Betelvine— Jorhat
  Spices—Gangtok
  Vegetable Crops —Jorhat
  Potato—Jorhat
  Tuber Crops—Jorhat
  Floriculture—Kahi Kuchi

Nature Resource Management:

- ICAR Research Complex for the North East Hill Region, Umaiam (Meghalaya) was established in 1975. It has six centers *i.e.* Sikkim, Arunachal Pradesh, Nagaland, Mizoram, Manipur and Tripura

Animal Science:

- National Research Centre on Yak, West Kameng District, Dirang—790101, Arunachal Pradesh (Established in 1989)
- National Research Centre on Mithun, Jharnapani, Medziphema—797106 Nagaland (Established in 1988)
- National Research Centre on Pig. Ranee, Guwahati, Assam, (Established in 2001)

Engineering:

- AICRP (FIM) ICAR, Research Centre for NEH Region, Barapani Meghalaya
- AICRP (FIM) AAU, Jorhat Assam
- AICRP (PHT) AAU, Jorhat, Assam
- AICRP (APA) ICAR Research Centre for NEH Region, Barapani, Meghalaya
- AICRP (J&K) AAU, Jorhat, Assam
- AICRP (UAE) AAU, Jorhat, Assam

Fisheries

- The Fisheries Division has one Division Flood Plan Wetland Division, Guwahati, Assam (under Central Inland Capture Fisheries Research Institute, Barrackpore)

- The CIFA, Bhubaneswar; NRCCWF, Bhimtal, NBFGR, Lucknow and CIFE, Mumbai are also providing research, extension and educational support to North-East States.

Education:

- Central Agricultural University, Imphal, Manipur
- Assam Agricultural University, Jorhat
- AICRP on Home Science AAU, Jorhat

Extension:

List of Krishi Vigyan Kendras in North East States

Sl. No.	Name and Address	Year of Establish-ment	Implementing Agency
1.	Krishi Vigyan Kendra, Sonitpur, Tezpur, C/o P.B. No. 51, Main Post Office Tezpur (Assam)	1979	Assam Agricultural University, Jorhat (Assam)
2.	Krishi vigyan Kendra, Arunachal, Silchar-788025, Cachar (Assam)	1994	-do-
3.	Krishi Vigyan Kendra, Khuontail, Golaghat-785601	1993	-do-
4.	Krishi Vigyan Kendra, Gossaigaon—783360, Distt. Kokarajhar (Assam)	1985	-do-
5.	Krishi Vigyan Kendra Divyodaya, Kibanandapali, Cenbr, Khowali Sub Division, West Tripura-799207	1979	Sri Ramakrishna Seva Kendra, 23, R. N. Mukherjee Road, Calcutta (WB)
6.	Krishi vigyan Kendra ICAR Research Complex for NEH Region, Birchandramanu, Manpathar—797 144, South Tripura.	1984	ICAR Complex for NEH Region, Umroi road, Barapani-793 103 (Meghalaya)

Sl. No.	Name and Address	Year of Establish-ment	Implementing Agency
7.	Krishi Vigyan Kendra, Kolasib Deptt. of Agriculture Govt. of Mizoram, (Mizoram)	1976	Department of Agriculture Govt. of Mizoram, Aizawal (Mizoram)
8.	Krishi vigyan Kendra State Deptt. of Agriculture, Hnahthial, Lunglei, (Mizoram)	1995	-do-
9.	Krishi Vigyan Kendra, ICAR Research Complex for NEH Region, Sangsanggiri, Tura-794 005, P.O. Dobasipara West Garo Hills, (Meghalaya)	1979	ICAR Complex for NEH Region, Umroi Road, Barapani (Meghalaya)
10.	Krishi Vigyan Kendra, ICAR Research Complex for NEH Region, Basar-791 101, West Siang, (Arunachal Pradesh)	1979	-do-
11.	Krishi Vigyan Kendra, ICAR Research Complex for NEH Region Lamphelpat-795 004 Imphal, ((Manipur)	1979	-do-
12.	Krishi Vigyan Kendra, ICAR Research Complex for NEH Region, Ranipool-737 135, East Sikkim, Sikkim.	1982	-do-
13.	Krishi Vigyan Kendra, ICAR Research Complex for NEH Region, Jharanapani, Medziphema-797 106 (Nagaland)	1997	-do-

Statement-II

Activities and Achievements

Crop Science

Activities:

The Major research activities in the region are:

- Collection and conservation of indigenous germplasm.
- Development of improved varieties.
- Development of production and protection technologies.
- Transfer of technologies and training to development personnel and farmers.

Major research achievements:

Varieties Developed

Crop		Varieties
Rice	Rainfed upland Irrigated Mid duration	Bali, Joli, Kalinga-3 Aditya, Heera, Jawahar, Tulsi Remaniphou-1, Remaniphou-2, TRC Borodhan-1 Punshi, Samaphou, Pheu-oibi, RCM-8, RCM-9, RCM-10, KD 5-3-14
	Irrigated Hills Rainfed shallow Lowlands	Akutiphou, Lemaphou, NEH Megha Rice 1, NEH Megha Rice 2 Salivahana, WR-3-4-5, Khonorollu, Ngoba
	Deepwater	Eriemaphou, KD-7-2-17
	Boro rice	Vikas, Prasad, IR 64, Gautam, TRC Borodhan-1
Wheat	HD 2402, HD 2643,	NW 1012, NW 1014, K 9107 HUW 499, K 8179,
Maize		NLD, Megha, Gujarat Makki 2, Vivek-4, Vivek-9, Ganga-11
Soyabean	Ahilya-1, PK 327, PK 472	
Rapeseed & Mustard	TS-29, TM-2, M 27	

crop		Varieties
Forages	Lucerne	- Anand-3
	Cowpea	- UPC-5286, UPC 4200
	Berseem	- Bundel Berseem-3
	Napier Bajra	- NB-21, HGA/BN-5, HGA/BN-7
	Hybrid	
	Setaria	- PSS-1
Sugarcane	CoBLn 9101, CoBLn 9102, CoBLn 9103, CoBLn 9605, CoBLn 9104,	
	Color 1, Color 2, Co 8315, Co 997, Co 961, Co 7201	
Jute	JRC-321, JRC-212, JRC-7447, UPC-94, Padma, Bidhan Pat-3, JRO-7835, JRO-524, JRO-8432	
MESTA	HS-4288, HS-7910, AMV-4	
Ramie	R-1411, R-1412, R-1449, R-1452, R-67-34	

- Matching crop production and protection technologies have been developed to realize higher yield from improve varities. Breeder seed of crops like paddy, mungbean and rapeseed is being produced to the tune of about 80-90 q/year.
- NBPGR Regional Station, Shillong, has organized in collaboration with ICAR institutes and SAU's, more than 100 explorations resulting in the assemblage of about 15,000 accessions of various agri-horticultural crops.
- Bio-control based integrated pest management was evaluated in rice. Studies on pesticide residues in different crops, vegetables, fruits, fish, poultry products, and on various aspects of honey bees are being conducted. Use of commatetralyl (0.75% tracking powder) as bait (50 ppm) has been found to effectively control *Babdicota Bengalensis* in 7-13 days. This technology is widely accepted in the region.

Horticulture

- Coconut based inter/mixed multistoryed cropping system developed at Kahi Kuchi, Assam.

- In vegetable crops, 9 open pollinated varieties 2 FI hybrid and 2 bacterial wilt resistant varieties in tomato, brinjal, okra, cauliflower, and bitter gourd have been identified in the region besides improved agro-techniques and plant protection measures.
- In potato varieties, Kufri Jyoti, Kufri Megha and Kufri Giriraj were released for cultivation in the region. IPM for Potato Tuber Moth has been developed and recommended besides the Cultural practices for reducing incident of brown rot disease.
- In tuber crops, Kassava Sree Sahaya and Sree Visakham and Sweet Potato varieties, Sree Bhadra have been identified for cultivation in the region besides the development of agro techniques and plant protection measures.

Natural Resource Management

Major activities have been on improving the productivity of major crops and livestock through research and extension activities. The major achievement made are development of Farming system, Models, Development of crop varieties for rice, groundnut, pigeonpea, mungbean, urdbean, cowpea and ricebean, horticultural crops like guava, peach, orange, tomato, brinjal, sweet potato and colocacia; mushroom cultivation and increase in the productivity of pigs and rabbits.

Animal Science

NRC Mithun, Jharnapani, Medziphema, Nagaland

- Evaluation conservation and improvement of Mithun germplasm
- Taxonomic classification, population distribution and characterization of Mithun strains.
- Growth and biometrical measurements of Mithun.
- Studies on biochemical and endrocrinological parameters conducted.
- Survey and evaluation of feed stuffs eaten by Mithun in North Eastern Hill region was done.
- Evaluation of seminal parameteres of Mithun was undertaken.
- Survey of Mithun diseases.

NRC Yak, Dirang, Arunachal Pradesh

- Evaluation concervation and Improvement of Yak germplasm.
- The survey of population production and reproduction performances was conducted.
- Studies on the socio-cultural and economic lifestyle of local people who maintain yak for their livelihood have also been conducted in different pockets of Arunachal Pradesh.
- The level of reproductive hormones, enzyme status and other biochemical parameters are being compared during breeding and non-breeding seasons of yaks.
- Survey work in yak diseases is continuing in selected yak pockets of Arunachal Pradesh.
- Immunoglobin pattern in yak has been assessed.

NRC Pig, Ranee, Guwahati

- This is new centre started in 2001 only. However AICRP on Pig was already having one centre at Veterinary College, AAU, Khannapara, Guwahati.
- Local germplasm of pigs were evaluated for their performacne.
- Study on two genetic groups of crossbreeds having 50 to 75% Hampshire inheritance was conducted.
- Studies to avoid in breeding in indigenous females using pure Hampshire boars in continued.

Engineering

1. AICRP on FIM

NEH Complex Barapani

Activities

The main activities of the centre of AICRP of FIM located at NEH Complex, Barapani include research and development, prototype manufacturing, feasibility testing for multi location trials and their adoption under different local agro-climatic conditions and front line demonstration

(FLD) of improved farm implements and machinery.

Achievements:

The centre during the Ninth Five-Year Plan fabricated 3, 479 manually operated 128 animal drawn from tools and equipment. Under PFT manual orange harvester, animal drawn wet land puddler motorized wire loop paddy thresher and horticultural tools were tested on farmer fields.

AAU, Jorhat

Activities:

The activities with the centre are pototype feasibility testing and frontline demonstration of improved farm implements and machinery.

Achievements:

The saliet achievements of the centre include PFT of manual rice transplanter, cono weeder, wet land puddler, self-propelled rice transplanter and self-propelled verticle conveyor reaper on farmers fields.

2. AICRP on PHT

AAU, Jorhat

Activities:

The centre is involved in research and development of post harvest equipment. The centre is involved in the following research activities: Development of agro-processing model with technoeconomic feasibility; post harvest management of ginger; survey of post harvest insect-pests of major pulses of Assam and development of safe management practice; effect of crop management practices of post harvest grains quality of boro rice; preservation of some local perishable agricultural produce by drying in solar cabinet drier.

Achievement:

The post harvest equipment for setting up on agro-processing centre have been identified but the site is yet to be decided; studies on ginger drying showed that it can be dried in 4-6 days to a safe moisture level and before drying peeling and longitudinally splitting is recommended and it can be stored in polythene bags; the major insects/pests of pulses have been identified and safe management practics recommended for storage

of these pulses; the post harvest grain quality of boro rice determined and studies on preservation of some local perishable agricultural products using solar dyer are being conducted.

3. AICRP on UAE

AAU, Jorhat

Activities:

To study the draught capacity of local breed of bullocks, to work out the work rest-schedule for local breed of bullocks, to collect data on cost of feeding and management of bullocks and to compare the performance of local and Improved yokes/harnesses for recommending an improved yoke/harness to enhance efficiency of drought animals in that regions.

Achievements:

Survey work on different aspects has been completed and the studies are in progress. Since this is a new centre and has just started, the exact data on different activities will be available in the next year for the benefit of the farmers of that region.

4. AICRP on APA

ICAR Research Complex for NEH Region, Barapani

Activities and Achievements:

This is a new centre started during the 9th Plan. The work on following research projects has been started namely, controlled climate agriculture in North Eastern India, evaluation of drip irrigation based management of water harvesting structures with LDP film lining, evaluation of mulching for natural resource conservation and economic benefit, use of plastics in manufacturing of farm implement, study and monitoring of present use of plastics in hill agriculture in the North Eastern Region.

5. AICRP ON RES

Assam Agricultural University, Jorhat

Activities:

Work on adaptive trial on field, worthy models of bio-gas plants, solid-state anaerobic digestion of vegetable market and fish wastes, operational research demonstration on use of bio-gas plant spent slurry for crop

production, field evaluation of mixed microbial consortia for boosting bio-gas yield during winter months and multi-location trial of modified Janta bio-gas plant of HAU design are being done by centres.

Achievements:

Studies on solid-state anaerobic digestion of vegetable market and fish market wastes, modified Janta bio-gas plant,ORP of horizonta bio-gas plant, enrichment, composting and management of bio-digested slurry; evaluation and development of mechanized system, evaluation and refinement and economic feasibility of bio-gas run refrigeration system and ORP of TNAU/MPPUAT durable cookstove are being conducted.The centre evaluated mixed microbial culture received from CIRCOT, Mumbai for effectiveness during winter season. The effect of culture diminshed during 2nd and 3rd year.

6. AICRP on J&K

Sugarcane Research Station, Assam Agricultural University, Buralikson

Activities:

The following activities are being undertaken by the centre namely survey of prevalent practices of jaggery manufacturing in the sugarcane growing areas of Assam, screening of sugarcane varieties for quality jaggery and improvements in furnace efficiency.

Achievements:

Survey of prevalent of jaggery manufacturing in sugarcane growing areas was conducted. Seventeen promising sugarcane varieties, (five released and four check varieties) are being screened for various aspects of quality jaggery manufacturing. The local manufacturers rarely use an clarificants for jaggery making due to which the quality of jaggery produced is very poor.

Fisheries

- Investigations on ecology of beel eco-system of North-East States has been taken for development of culture based fishery of beel eco-system.

- The Regional Research Centre of CIFA at Kalyani (West Bengal) is entrusted with the task of catering to the aquaculture needs of North East States through field demonstration and training.
- Preparation of fish germ plasm inventory, characterization and gene banking of fresh water fishes by NBFGR, Lucknow (NATP funded scheme).
- There is a linkage programme between NRCCWF, Bhimtal with Deptt. of Fisheries, Government of Arunachal Pradesh for setting of mahseer hatchery in the State.

Education:

- Nutritional Security for Human Health in Agrarian Eco-system;
- Comprehensive Child Care through Farm Creche for Rural Children;
- Ergonomic Management of Drudgery of Farm Women;
- Value Addition to Agro and Animal Based Fibres for Economic Enterprises;
- Documentation of indigenous knowledge used by rural women in farming and animal husbandry and their data bases.

Extension:

The Indian Council of Agricultural Research (ICAR) has established 13 Krishi Vigyan Kendras (KVKs) in North Eastern States including Sikkim.The activities of the KVKs consist of on farm testing; training of farmers and extension personnel, and conducting of front line demonstrations.

Statement III

The benefits being made available to the local population

Crop Science

Research efforts in the region have led to development of improved varieties and technologies for increasing production and productivity in the region and also benefit the farmers by increasing their income. Breeder seed is produced to make available quality seed to the farmers. Farmers also benefit from the training programmes on disease and pest control, been keeping and enhanced awareness on pesticide residues.

Natural Resource Management

The technologies have helped in popularizing cultivation of groundnut and pigeonpea. Agroforestry system developed have helped to increase productivity of sloppy lands by replacing shifting cultivation. Rejuvenated old orange orchards are becoming more profitable. Technology for piggery, rabbit and paddy-cum-fish culture technology have helped in employment generation and more income.

Animal Science

- The population of yak and mithun the two rare species of livestock are constantly declining. The study conducted on NRC (Yak), NRC (Mithun) and NRC (Pig) will help in checking this decline.
- NRC (Pig) in Guwahati is the headquarter of pig research in the country. NE Region will have the benefit of research data of the whole country for improving the present pig rearing practices of local farmers.
- The research conducted so far helped in improving technology of mithun and yak farming by improved feed, reproduction and health management practices.
- Besides direct benefit through improved production practices of yak, mithun and pig, farmers are also trained in other allied activities. These are by integrating piggery and poulty production with yak and mithun farming.
- These institutes by and large employ local staff for managing these institutes.
- Other development activities like infrastructure development also employ local contractors and labourers.

Engineering

- The benefits being made available to the local population through all the centres of AICRPs located in the NEH Region include development of appropriate designs of improved agricultural tools and implements, post harvest equipment, renewable energy gadgets,

which are efficient and economical and use of plastics in agriculture to mechanize various crops production activities in the region. Their large scale use will help the farmers to increase their production and reduce cost of production. Need based farm tools and implements, post harvest equipment, solar gadgets, bio-gas digesters, green houses etc. developed/identified by the centre were manufactured and supplied to the farmers to mechanise their farm operations. This has generated good awareness about improved implements amongst the farmers and demand of such machinery is increasing.

- Demonstration of use of clarificants in making jaggery has shown that the quality of jaggery was improved and the farmers are now adopting the use of clarificants in jaggery making.

Fisheries

- Due to technology demonstration, HRD programmes and monetary assistance, the aqua farmers in the region have been able to enhance fish production.
- With the establishment of the hatchery the seed of chocolate mahseer, can be made available to the local fish farmers and also used for ranching in the local water bodies for conservation.

Education

- AICRP has successfully developed a nutritional guide as a powerful tool for dietary counselling among rural families and also has provided interventions in the form of food products rich in Vitamin A and Iron.
- Child care and growth norms and rural children and development of cost effective farm creches for rural children.
- Drudgery reducing women friendly and cost-effective technologies of farm and home activities developed.
- Agro and animal based natural dyes and fibres identified for economic activities.

Extention

- During the year 2000-01, 375 training courses were organized benefiting 8869 farmes, 224 training courses were organized for 4981

rural youths, and 24 programmes were conducted to train 728 in service personnel. During the year 606 oilseed and 581 pulse crops frontline demonstrations were conducted covering 108 ha. and 104 ha. respectively.

- The ICAR have also established one Trainers Training Centre (TTC) and a total of 48 in service extension personnel were trained.

Wheat and paddy production

1785. SHRI RUMANDLA RAMACHANDRAIAH:
DR. ABRAR AHMED:

Will the Minister of AGRICULTURE be pleased to state:

(a) whether production of paddy and wheat in India recorded a decline in 2000-2001, compared to 1999-2000;

(b) if so, the reasons therefor;

(c) the remedial steps proposed to improve the yield; and

(d) the production of wheat and rice during 2001-2002?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI HUKUMDEO NARAYAN YADAV): (a) Yes, Sir.

(b) The overall rainfall during monsoon 2000 was deficient by 8% and this deficiency was accentuated during the subsequent seasons. In the western part of India, especially Rajasthan, Gujarat and Madhya Pradesh, large areas faced moisture stress. The States of Bihar and West Bengal also faced moisture stress at the time of sowing of paddy. The deficient rainfalls resulted in lower area coverage under paddy and wheat, leading to reduction in production.

(c) In order to improve the production and productivity of agricultural commodities including paddy and wheat, the Government have launched various initiatives such as promotion of watershed development programmes, emphasis on developing and promoting new technologies, measures for increasing availability of agricultural credit, price policy, Market Information Network and National Agriculture Insurance Scheme etc. which have enabled the country to achieve an upward trend in foodgrain production and productivity over a long period of time. However, year to