

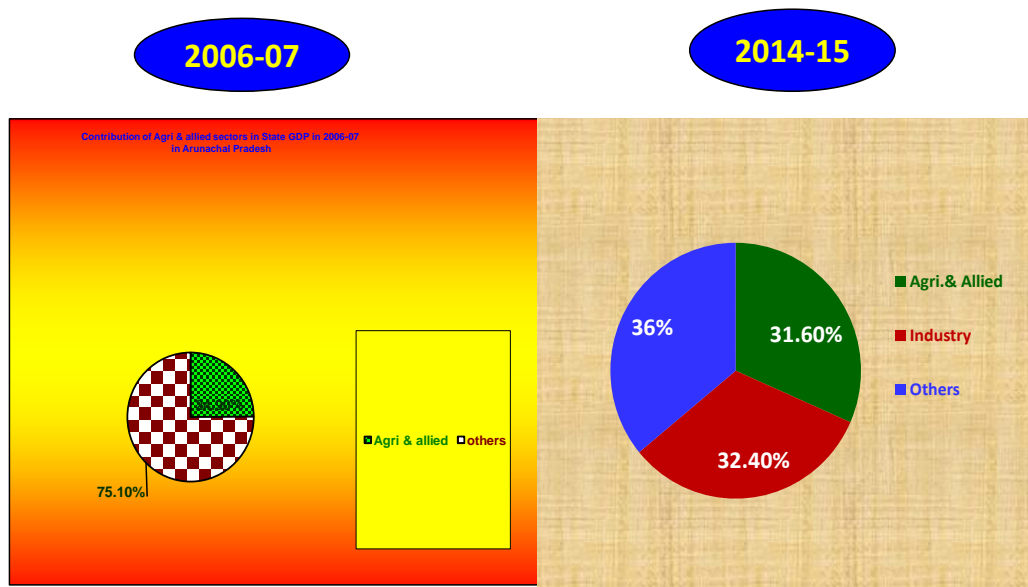
## Theme III: Expanding Agriculture and Allied Sectors

### Sub Theme : DOUBLING OF FARMERS' INCOME IN ARUNACHAL PRADESH BY 2022

#### I. Organizational mandate:

- Food & Nutritional security in Mission mode by 2022.
- Emerge as the Organic hub of the country and South East Asia
- Redeclaration of farm activities into commercial venture to enhance farmers' income.
- Traditional organic agriculture by default to be transformed into Organic by design with state organic policy support
- Promote Private investment in farm sector for value addition, Processing and post harvest management.
- Develop market linkage and facilitation through PPP mode.
- Transform Arunachal into a favored Agro-tourism destination.

#### Comparative diagram on contribution of Agri & allied sectors in State GDP of Arunachal Pradesh



#### II. Constraints:

Major constraints in the Agriculture sector of the state are:

- Harsh land physiography, low level of productivity owing to climatic adversities like cloud bursts, flash flood, Soil erosion, erratic distribution of rainfall, low water holding capacity of soil, high soil acidity,
- Capital inadequacy, lack of infrastructural support, high cost of production due to inadequate surface connectivity,
- Low farm power availability ( $0.46 \text{ kwha}^{-1}$ ), along with demand side constraints due to remoteness of primary & secondary markets.
- Unfavorable price realization of Agricultural commodities due to lack of market linkages
- Non availability of basic preservation, value addition, storage and processing facilities resulting post harvest losses of more than 40% of agri-produces.

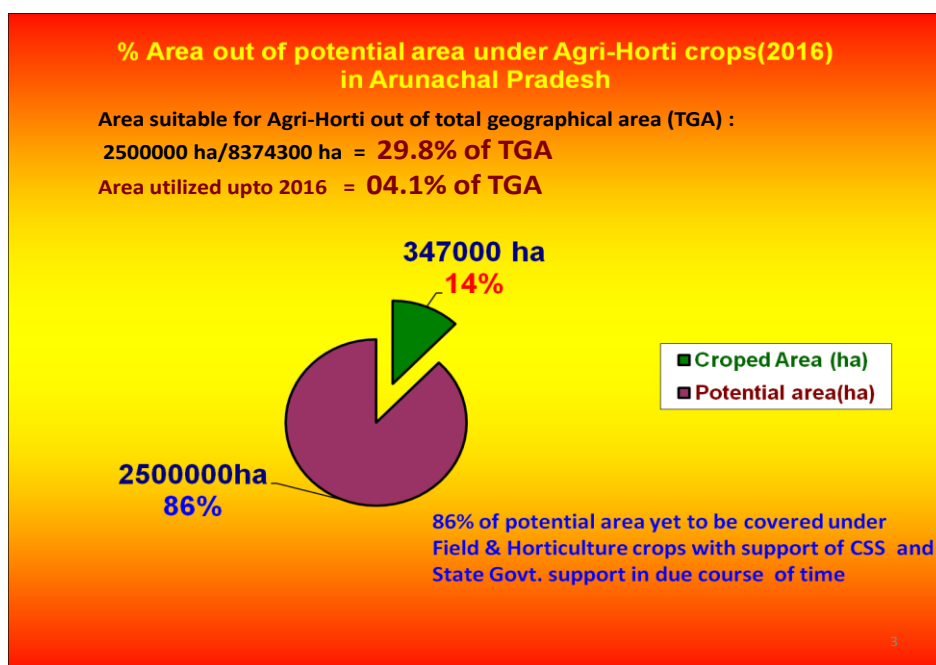
## **PM's Vision: Doubling Farmers' Income(DFI) by 2022/23**

### **Strategy**

- **Irrigation- "Per Drop, More Crop"**
- **Quality seeds-Improving seed replacement rate**
- **Soil test based nutrient management- Distribution of soil health cards**
- **Post-harvest crop losses- Large investments in warehousing and cold chains**
- **Value addition to farmers**
- **Creation of a national agricultural market, removing distortions and e- platform across 585 markets.**
- **New crop insurance scheme – Pradhan Mantri Fasal Bima Yojana, Minimum Premium and Maximum Security.**
- **Promotion of ancillary activities- poultry, sericulture, beekeeping and fisheries.**

**Source : National Council of Applied Economic Research (NCAER)-2017**

### **III. Vast potential area suitable for Agri-Horti crops..... Colossal advantage**



Out of 25 lakhs ha area suitable for agri-horti crops in Arunachal Pradesh, only 14% area has been covered till 2016 leaving 86% area(appx.23.5 lakh ha) to be brought under field, horticulture and plantation crops. So, significant enhancement of farmers' income by horizontal expansion in conjunction with higher cropping intensity in field crops is an achievable mission.

Besides area and production augmentation, there is vast scope to improve Jhum productivity through fruits, Medicinal & Aromatic Plants (MAP), Crop diversification with high value crops of emerging market demand.

Creation of farm road connectivity can ensure reduction of transportation cost of inputs and marketable surplus produce substantially by replacing manual head load carrying system resulting significant savings of Cost of production and marketing and thereby improve the competitiveness of growers in the market.

Lowering the post harvest losses in general and the perishable produces in particular requires creation of adequate storage, sorting, grading, value addition, packaging infrastructures along with Integrated Cold Chain Management system so as to ensure that the growers can have easy access to the primary and secondary markets.

## IV. Feasible Redress.....opportunity

### I. Crop production

- (i) Food & Nutritional security in Mission mode by 2022 & by Agro-ecological zone specific crop planning, creation of adequate irrigation potential, enhancement of Cropping Intensity(CI) to at least 180%.(2030)

#### Following steps to be taken on priority:

- a. Area expansion for crops cultivation by land terracing (upto 25% slopes) of areas under Jhum practice
  - b. Improvement of Jhum productivity through nutrient management and special emphasis on pulses in the cropping system.
  - c. Achieving Seed Replacement Rate (SRR) of Rice (30%),Other Self Pollinated Crops(20%), Cross pollinated crops((50%).
  - d. Replacement of low performance varieties of Rice, Coarse cereals & Pulses by HYV.
  - e. INM and IPM with special emphasis on use of organic nutrients & pesticides.
  - f. Promotion of Farm mechanization to bring down cost of cultivation and post harvest losses.
  - g. Double cropping area to be enhanced to 160000 ha by 2022(160% CI) and **215000 ha by 2030** (180% CI) with priority in foothills areas.
  - h. Creation of additional irrigation potential and renovation & maintenance of existing irrigation infrastructures
- (ii) Promote Crop diversification by introducing low volume high value crops.
- (iii) Promotion of plantation crops like Tea, Rubber in mission mode.
- (iv) Cultivation of Tree borne oilseeds viz. **Oil Palm** with processing and market linkage through PPP mode.
- (vi) Major emphasis on enhancement of **Off-season Vegetables** production to a level of 100000 MT marketable surplus by increasing area upto 25000 ha.
- (vii). Traditional **organic agriculture** by default to be transformed into Organic by design with state organic policy support . Conversion of 2.50 lakh ha area into certified organic to be marketed in domestic and global organic market
- (Vii) Redecoration of farm activities into commercial venture to enhance farm income by doubling area under **Ginger, Turmeric, Mustard, Large Cardamom, Potato, Chilly & King Chilli.**
- (viii) Promote Double cropping by providing fencing materials as Govt. assistance for Community fencing and Erection, Masonry & maintenance cost to be borne by beneficiaries in a **minimum of 10 ha command area** in each cluster.
- (ix) Maize-Rice, Rice-Mustard, Rice-Potato, Maize-Vegetables, Rice-Rabi Pulses cropping sequences to be followed to enhance Cropping Intensity vis-à-vis higher crop production.
- (x) Maize-Rice, Rice-Mustard, Rice-Potato, Maize-Vegetables, Rice-Rabi Pulses cropping sequences to be followed to enhance Cropping Intensity vis-à-vis higher crop production.

- (xi) **20000 ha under Rice fallow to be covered under Rabi pulses in Rice-Pulse Sequence**

**Area(lakh ha),Production(lakh MT) & Yield(Kg/ha) of Food Crops in Arunachal Pradesh during XII Plan vis-à-vis 2011-12**

Crops	XIth Plan Achievement			Achievement 2016-17			increased over XIPlan		
	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield
<b>FOOD CROPS</b>									
<b>Rice</b>	1.235	2.55	2060	1.32	3.30	2500	6%	29%	22%
<b>COARSE CEREALS</b>									
<b>Maize</b>	0.465	0.685	1470	0.50	0.82	1640	08%	20%	10.6%
<b>Millet</b>	0.22	0.22	1000	0.275	0.30	1090	25%	36%	9%
<b>Wheat</b>	0.037	0.065	1760	0.04	0.08	2000	8%	23%	13%
<b>Pulses</b>	0.09	0.105	1110	0.14	0.15	1090	55%	42%	-7%
<b>TOTAL FOOD GRAINS</b>	2.047	3.625		2.275	4.65		11%	28%	

Average Annual Growth of XII Plan(Food Crops) = 5.6% ( XI Plan=4.3%)

**Area, Production & Yield of major crops in Arunachal Pradesh in 2022 & 2030**  
Area(A) in ha: Production(P) in MT : Yield(Y) in qtls/ha

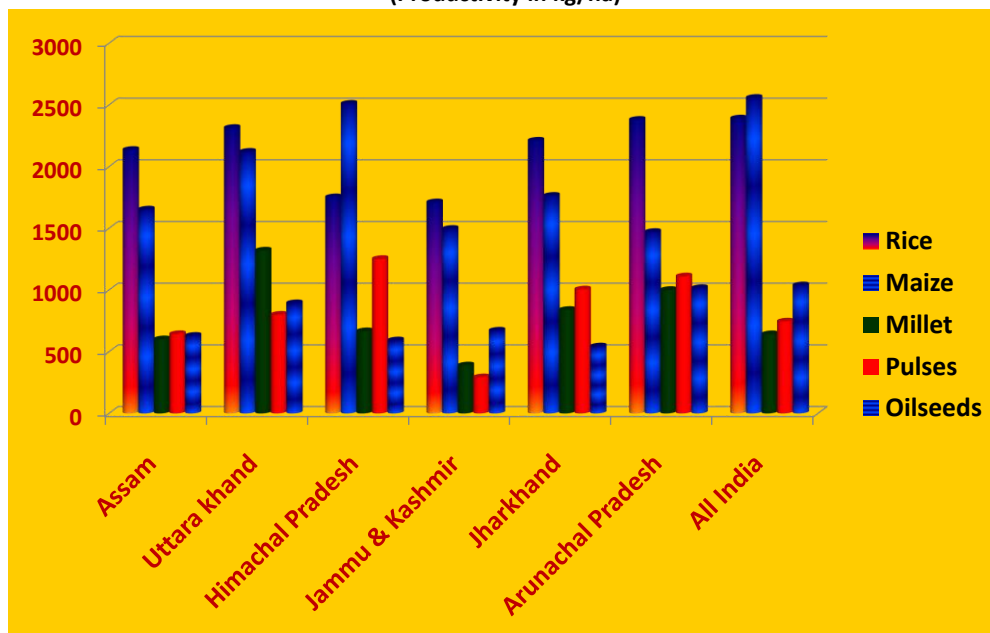
Sl.No	Crops	2022			2030		
		A	P	Y	A	P	Y
01	Rice	155000	465000	30.00	176000	617000	35.00
02	Wheat	4500	10000	22.22	6000	14000	23.3
03	Maize	55000	93500	17.00	70000	140000	20.00
04	Millet	30000	36000	12.00	40000	56000	14.00
05	Pulses	15000	22500	14.00	40000	60000	15.00
	<b>Total Food Grains</b>	<b>259500</b>	<b>626500</b>		<b>386000</b>	<b>867000</b>	
06	Potato	7200	75000	100.00	15000	165000	110.00
07	Oil Seeds	40000	50000	12.50	60000	80000	13.30
08	Ginger	10200	92000	90.20	20000	200000	100.00
09	Turmeric	1500	7500	50.00	5000	40000	80.00
10	Chilly	5500	11000	20.00	10000	25000	25.00
11	Sugarcane	2500	54000	216.00	5000	125000	250.00
12	Vegetables	30000	160000	53.30	60000	330000	55.00
13	Others	30000	50000	16.70	50000	100000	20.00
	<b>Grand Total</b>	<b>386400</b> AGR=4.3%	<b>1126000</b> AGR=8.3%		<b>503000</b> AGR=3.2%	<b>1880000</b> AGR=7.4%	

**Productivity of Major crops in 2015 in Hilly States vis-à-vis National Avg**  
(Productivity in kg/ha)

States	Rice	Maize	Millet	Pulses	Oilseeds
Assam	2135	1652	600	642	628
Uttara khand	2313	2120	1319	799	892
Himachal Pradesh	1751	2509	665	1251	591
Jammu & Kashmir	1710	1495	388	292	670
Jharkhand	2210	1763	838	1004	542
Arunachal Pradesh	2370	1470	1000	1110	1015
All India	2390	2557	641	744	1037

Source : Directorate of Economics & Statistics, Ministry of Agriculture & FW

**Productivity of Major crops in Hilly States vis-à-vis National Avg in 2015**  
(Productivity in kg/ha)



V. **Doubling of Farmers' Income in Arunachal Pradesh by 2022-23.....**  
**Strategies:::**

**Action Plan & Strategy to Achieve target**

**Production Centric :::**

**Target Annual Growth Rate 8.3% ( 2007-12 :: 4.3% :::::2012-17 :: 4.9 %)**

- Enhance irrigation area to at least 120000 ha by 2022 . Micro irrigation to be promoted and ensure Water Use Efficiency(WUE).
- Technology based improvement of agricultural productivity in rain fed areas .
- Crop Diversification with high value crops viz. Tea,Rubber, Oil Palm, Quinoa .
- Integrated Farming System Approach (IFSA). Horticulture,Livestock,Fishery based farming system.
- Promote organic farming and ensuring its proper marketing by Creation of FPC/FPO and tie up with specialized Service providers for better price realization.

**Major contribution from :-**

- Pradhan Mantri Krishi Sinchai Yojana (PMKSY) & RKVY
- Soil health card, National Mission on Sustainable Agriculture(NMSA)
- Prampragat Krishi Vikas Yojana.(PKVY)
- National Food Security Mission (NFSM)
- National Mission on Oilseeds & Oil Palm (NMOOP)
- Mission on Organic Value Chain Development (MOVCD)
- State Funded Schemes.

## Strategy contd..

### Post Harvest Management & Marketing related:::

- Mobile infrastructure for post harvest operations viz. grading, packaging, quality testing etc. in contract farming approach. And reduce post harvest losses.
- Infrastructure for E-trading, e-NAM. market extension and market oriented production planning .
- Implementation of Minimum support price (MSP) regime and new Crop insurance scheme as a part of flood & drought management.
- Creation of infrastructure for protected cultivation, smart farming & reduction of post harvest losses by promoting Cold chain, CA storage for effective marketing.

### Other measures :::

- Creation of infrastructures with complete package for Agro-tourism
- Need for attracting private investment
- Promotion of ancillary activities- poultry, sericulture, beekeeping and fisheries
- Simplification of process to access into Farm credit.
- Farm Mechanization to reduce labour cost vis-à-vis cost of production of crops.
- Incentives for Attracting & Retaining Rural Youths in Agriculture (ARYA)
- Govt. assistance to ease interest burden on Agriculture loan.
- Support for empowerment of women farmers SHG

### Initiatives of State Govt for raising Farmers' Income

- ❖ **State Apiculture Mission** : For raising farmers' income and enhancement of Oilseeds productivity.
- ❖ **Chief Minister's Agri-Mechanization Programme** : Reduce labour cost to lower cost of production and post harvest management.
- ❖ **Organic Mission**: State Organic Mission launched on 15 April'2017.  
Targeted certified organic area...2022 : 1 lakh ha      2030 : 3 lakh ha
- ❖ **Crop diversification** : By promotion of high value crops viz. Tea, Rubber & Oil Palm , Quinoa etc through private sector participation and public funding
- ❖ **Paddy cum Fish Culture** : This unique programme of Ziro valley is being replicated in non traditional areas for additional Income of Rs.30000 to 50000/ha.
- ❖ **Intensive off season vegetables cultivation** : In Tawang, West Kameng, Lower Subansiri , West Siang & Dibang valley districts.
- ❖ **Reforms of APMC Act as per model Act of GoI is processed for accessing e-NAM**
- ❖ **Chief Minister's Agri- Employment Generation Programme** : TPT & Aggregation /Marketing facility to rural youths, Fish based farming, Piggery , Poultry, Dairy based farming, Fruits & Medicinal plants based integrated farming.
- ❖ **Promotion of King Chilli under RKVY** : A venture of growing popularity because of available market



### DFI target 2022-23 ::: Arunachal Pradesh vis-à-vis National Level

Source	Per farmer annual income (2015-16)	Projected annual farmers' income (2022-23) @ 8.3% annual growth	% increase over 2015-16
Field Crops	44694 (Actual 60% of NA))	70661	
Horticulture, Livestock, Fishery, Sericulture, Apiculture etc	29982 (Notional)	47407	58.1%
Crop Diversification with Tea, Oil Palm, Rubber etc @ 20% of prod. Income of 2015-16	Records Not available	14935	20%
<b>Total of Prod. income</b>	<b>74676 (National Average)</b>	<b>133003</b>	<b>(+)78.1%</b>
Other on farm/ off farm activities (+) 10% of Production income 2015-16	Records Not available	7468	10%
Better price realization by Organic certification, value addition, processing, packaging & market linkage (+) 20% of Production income	Records Not available	14935	20%
<b>Total</b>	<b>74676</b>	<b>155406</b>	<b>(+)108.1%</b>

## VI. Agri-Marketing Infrastructure

1. Rural Farm Connectivity through Tractorable gravel roads for transportation of Surplus farm produce to highways for easier market accessibility
2. Creation of Cold storage capacity to 50000 MT by 2030.
3. Create adequate storage infrastructure to a level of at least 2.00 lakh MT.
4. Creation of 500 Rural huts, 50 urban huts in phased manner
5. Agri-Horti Shopping mall (**Green Hub**) in urban markets- Naharlagun, Itanagar, and all District Hq.
6. 50 collection centres with 100-200 MT Cold storage and facility for pre-cooling, sorting, grading, packaging facility.
7. Transit godowns at Bhalukpong, Karsingsa, Kimin, Likabal Ruksin, Mebo, Roing, Namsai, Mohadevpur, Jairampur, Miao, Deomali, Kanubari.
8. Processing & drying Infrastructures for Ginger, Turmeric, Large Cardamom in PPP/Contract farming mode
9. Processing Infrastructures of Oil Palm, Mustard, Sugarcane, Chilly in PPP/Contract farming mode.

10. Renaissance of marketing system by creation of Integrated Cold Chain & Common Infrastructures for perishable produce with financial support from Govt.of India. Operationalization to be preferred through outsourcing consultancy service.
11. Establishment of **Mandi** (wholesale markets) at Bhalukpong, Karsingsa, Kimin, Likabali, Ruksin, Roing, Namsai, Jairampur, Miao, Deomali, Kanubari

## **VII. Manpower Management &HRD**

1. Set up Agricultural University with new College Veterinary Science, Fishery, Home science
2. A department of Agricultural Marketing with supporting officers & field staffs in the districts and sub-division level shall be created to deal with marketing & processing of agriculture & allied sectors surplus produce.
3. Agricultural Engineering wing under Department of Agriculture to cater needs of maintenance of Farm machineries, minor irrigation, Land terracing, maintenance of departmental residential/non-residential buildings etc is a necessity for creation.
4. Every district to be headed by a Dy. Director (Agriculture) with 2-4 subdivisions under control of SDAO to be supported by a ADO at Administrative circle level.
5. GTC cum SAMETI to be upgraded to impart training on Agri Clinic & Agri Business Center (ACABC)
6. At grassroots level, one Agricultural Field Assistant (AFA) to cover 2-3 villages within 8 Km radius for extension services.

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