

AGRICULTURE-NUTRITION KNOWLEDGE SHARING – *United Andhrapradesh perspective*

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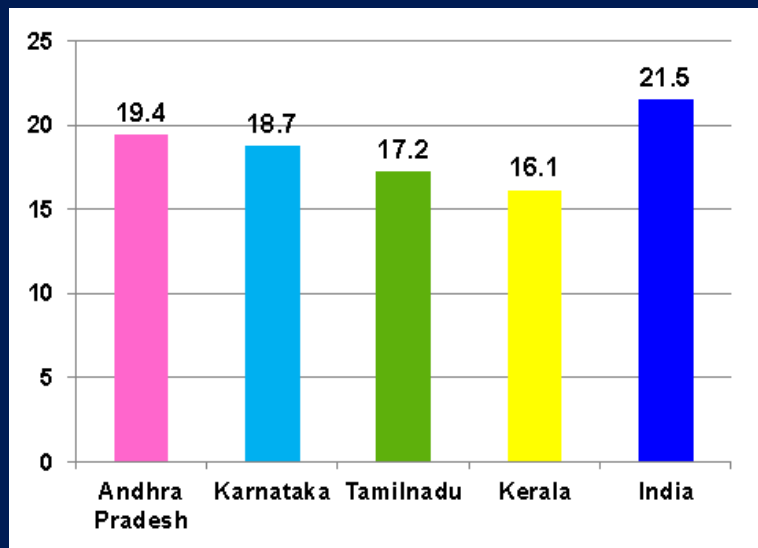
Andhrapradesh population at a glance

Description	2011	2001
Approximate Population(millions)	84.6	76.2
Male	42.4	38.5
Female	42.2	37.7
Population Growth(%)	10.9	13.8
Percentage of total Population of India	6.99	7.41
Percent age child population	10.8	13.3
Male Population (0-6 Age) %	51.5	49.0
Female Population (0-6 Age) %	48.5	51.0
Rural population %	66.6	72.7
Share in India Rural population %	6.8	7.5
Hunger Index	19.53	23.3

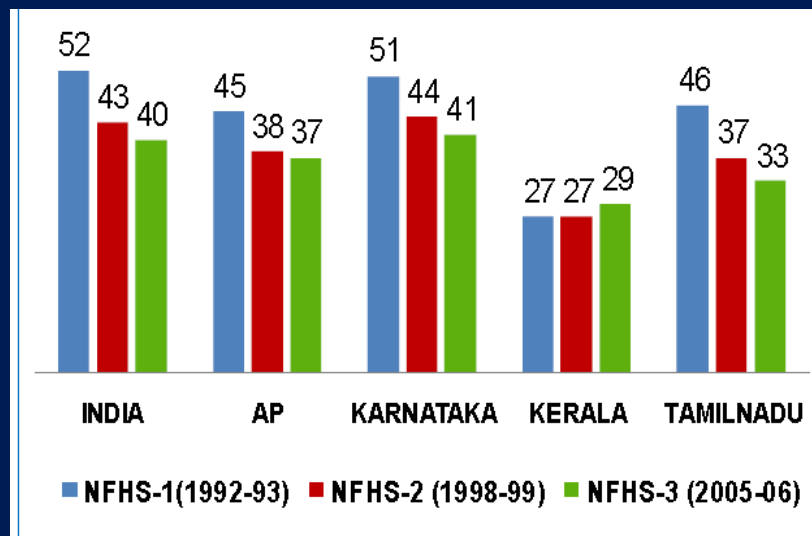
Children Nutritional Status

- Children's nutritional status in Andhra Pradesh has **improved** slightly since NFHS-2 by some measures but not by all measures.
- Children under age three years are less likely to be too short for their age -**chronic under nutrition** is less widespread.
- They are slightly more likely to be too thin for their height, -**acute under nutrition** is still a major problem in Andhra Pradesh.
- Children of uneducated mothers are almost **twice** as likely to die before 1 year as children of educated mothers(10th class)
- Children from scheduled castes and scheduled tribes are at **greater risk of dying** than other children

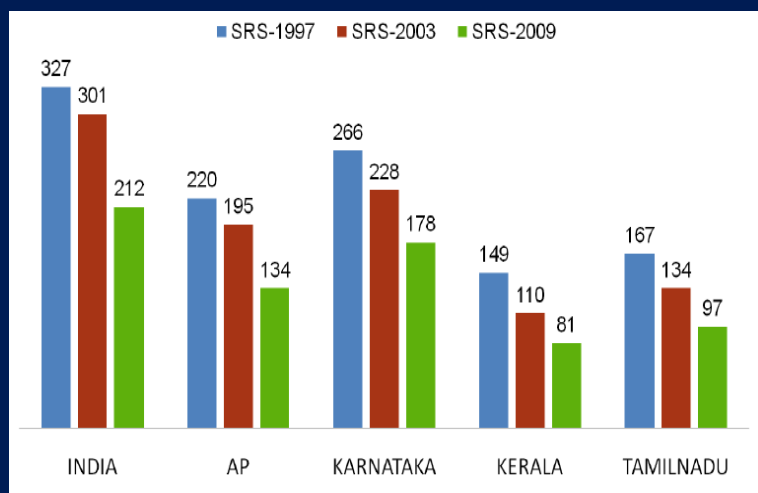
Malnutrition in the state



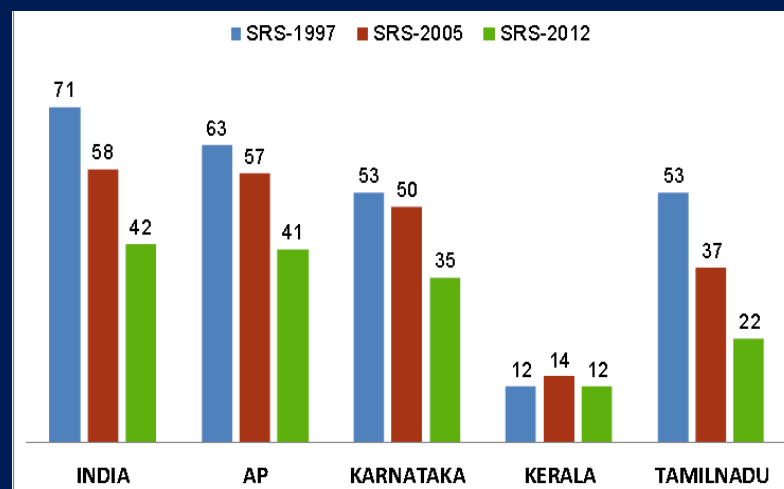
Low birth(NFHS-3)



Under weight .3 yrs (NFHS-3)

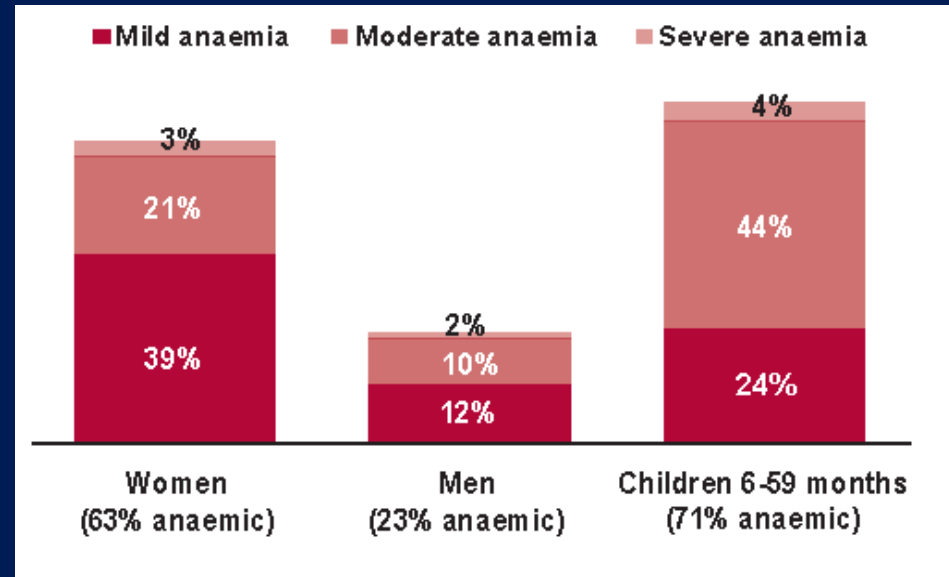
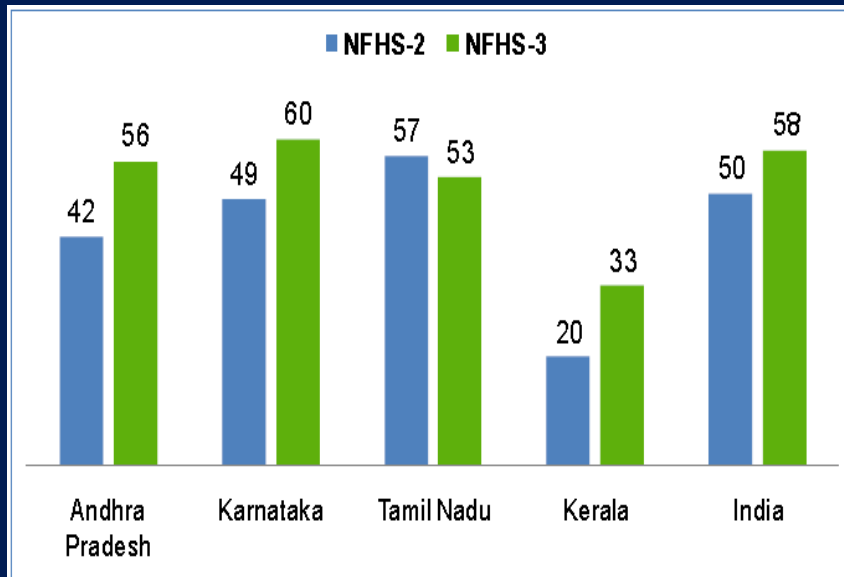


Maternal Mortality Ratio

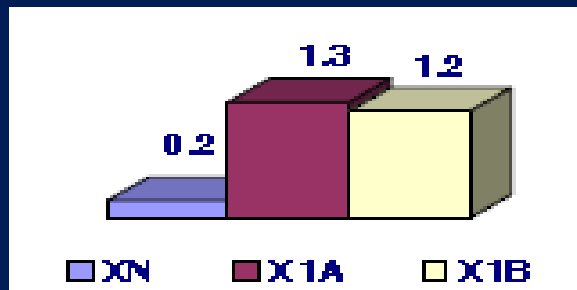


Infant I Mortality Rate

Micronutrient deficiency in the state

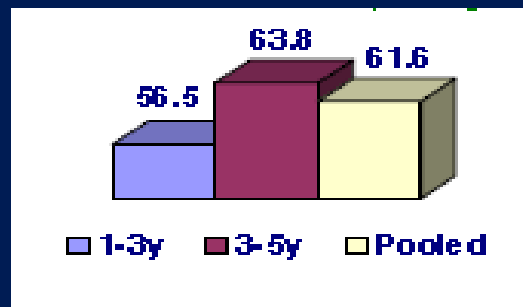


Anaemia in Pregnant women



VAD by type

Anaemia levels in the state



VAD by age

Malnourishment is estimated to result in productivity losses of around 3 percent of India's Gross Domestic Product (GDP)

Women's Nutritional status

Description	AP	India
#Anaemia	73.8	76.9
Calorie under nourishment	19.60	
*Maternal Mortality rate	134.0	
Protein and calorie inadequacy (Pregnant)	34.4% (4.6% Severe)	
Lactating	32.2% (3.4 Severe)	

**India Human Development Report,2011*

NNMB technical Report 26

Proposed goals of the state

Parameters	Present Status	MDG (2015)	12 th Plan (2016-17)
Low-Birth Weight (%)	19.4	--	10
Under Weight (%)	37	24	20
Anaemia (%)	57	--	30
IMR (per 1,000 live births)	41	24	25
MMR (per 1,00,000 live births)	134	75	70

Source: Women Welfare dept- AP

Indiramma Amrutha Hastham (IAH)

- Started in 2013- to fill the gap of ICDS programme
- It provides one full meal a day to the mothers, with Rs. 15 per day as cost of provision.
- It is expected to cover 40% of their daily nutritional requirements, around 1053 Kcal, Proteins of 33 g, Calcium 501 mg.
- However, it is operational in only 102 projects out of the 387 ICDS projects in the state where the Maternal and Child Health (MCH) outcomes are relatively worse and restricted to those habitations where NDCC is absent.
- Expanded from 200 centres in 2007 to 4264 centres in 2011

Nutrition cum Day Care Centres (NDCC)

- NDCC is an MCH programme, which has been implemented by Society for Elimination of Rural Poverty (SERP) since 2007.
- SERP is an autonomous body registered under the societies act established by the Government of Andhra Pradesh, with a mission of poverty alleviation through social mobilization.
- It is the nodal organization that runs Indira Kranti Patham (IKP), a programme that supports the institution building and various activities of rural women self help groups (SHGs) and their village, mandal (block) and district level federations.

Nutritional Services in AWC, IAH and NDCC

	Energy (KCal/day)	Protein (g/day)	Cost of provision (Rs./day)	% of Daily Requirement
Normal Woman#	2230	55		
Pregnancy#	(+350)	(+23)		
Pregnant Woman#	2580	78		
AWC	600	18-20	5	25%
IAH	1053	33	15	40%
NDCC	2600	NA	30	100%

Recommended daily nutritional requirements for Indians by National Institute of Nutrition. NIN. (2011). *Dietary Guidelines for Indians - A Manual*. Indian Council of Medical Research, Hyderabad.

Maarpu (to change)

Provision of various services related to Health & Nutrition to Mother & Child in the rural and urban areas with a special focus on poor by involving various departments like **Medical & Health, ICDS, IKP, etc.,**

Focused monitoring of 20 key interventions to reduce IMR, MMR & Malnutrition



Empowering lives through convergence

Rice –credit Line

- A joint venture of Andhra Pradesh District Poverty Initiatives (APDPIP) and Rural Poverty Reduction Project (APRPRP) is a community managed credit and food distribution mechanism
- The community managed RCL program addresses the imperfections of the government sponsored PDS system and the inefficiency of micro-markets.
- The community through its organization i.e., SHGs and village officers(VO)mediates between the market and the consumers and eliminates the inefficiencies.
- Quantitative analysis showed that consumption of quality food grains increased from 47 kgs of rice to 59 kgs per month, and 97 percent of the respondents reported that their household food security situation had improved.
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Nutritional Challenges of Agricultural Community

- ◎ Under 5 children malnutrition
- ◎ Low birth weight
- ◎ Infant mortality
- ◎ Maternal and child Anaemia
- ◎ Under weight
- ◎ Acute under nutrition
- ◎ Diabetes/Obesity
- ◎ Faulty dietary habits

Empowering rural community through Nutrition knowledge

- ◎ Promoting nutrition knowledge among rural community through extension activities is one of the sustainable approach for achieving the food security.
- ◎ The information on the nutritional requirements for healthy life, nutrient deficiency problems, crop diversification, cultivation and consumption of locally-available nutrient-dense food, storage practices etc., empowers them.

Knowledge requirement of extension workers

- Nutrition in health and disease
- Food sources of various nutrients
- Nutrition through life cycle emphasis on vulnerable groups
- Basic information on nutritional disorders – Vitamin A, Anaemia, IDD, Diabetes, Obesity, CVD etc.
- Value addition to locally available nutritious crops
- Safe food processing and food enterprises
- Good cooking and eating practices

Current Agriculture Extension Curriculum in the SAU

- Undoubtedly strong in terms of offering extension activities relating to all the agricultural aspects .

PG Level

- No significant nutrition related content, however in a 3-credit course on Entrepreneurship Development and management,

Micro enterprises- profitable Agri - enterprises in India – Agro processing etc,. are included.

possibility of opting for nutrition related thesis work.

UG level

Course	Topics /course
Extension Education	Women development programmes – Development of Women and Children in Rural Areas (DWCRA), IKP, Integrated Child development Scheme (ICDS), Mahila Samridhi Yojana (MSY) and Andhra Pradesh Training of Women in Agriculture (ANTWA).
Environmental science	Food resources – Food sources, world food problems and Woman and child welfare –HIV / AIDS – role of information technology on environment and human health.
Horticulture	Storage ,Principles and various methods of preservation of fruits and vegetables are included under Post Harvest Management and Value Addition of Fruits and Vegetables Course – Food technology
ELP	Occasionally Nutrition activities
RHWEP	Occasionally Nutrition activities

Earlier in the UG programme there was a course on Human Nutrition until 1992, but in a way to accommodate other new courses and due to lack of teaching faculty in the districts, this course was discontinued from the curriculum.

Diploma in Agriculture – (Non formal)

- ◎ The university offers 2 years diploma programme for the 10th passed out farmers in the local language.
- ◎ The farmers gain the basic knowledge on agronomical practices, plant pathology, breeding, entomology etc., a representative content of what is being offered at UG level. No Nutrition related aspects.

Recommendations for curriculum review in the context of rural community problems

Topics	Inclusion point
Human Nutrition course (2 Credit)	UG curriculum – Agriculture and horticulture
Per capita availability foods and food consumption trends Food safety , post harvest Losses , processing	Agricultural Economics(UG)
<ul style="list-style-type: none"> • Food Security –National and Global •The food system and household food security • Concepts in household food security • Health factors and their impact on nutrition • HIV/AIDS and its impact on household food security and nutrition • Women's work load and the consequences for nutrition 	Agricultural Economics /Environmental Science/ crop production(UG)

Recommendations... contd

Topics	Inclusion point
National and global nutritional problems	Environmental Science(UG)
Minimizing post harvest losses and maximizing value addition Improving mixed cropping technologies through farming systems studies/ on farm trials · Support services and advocacy for mixed cropping · Promotion of underexploited traditional food crops · Gardening for food /· Urban agriculture	Extension Education (PG)/ Diploma
Food enterprise establishment, supporting agencies	Entrepreneurship Development and Communication Skills
Nutrition oriented activities –Practical experience	Rural Work Experience programme

Non formal education

- ⦿ Pre-service education of agriculturists at diploma and bachelor's degree levels in fields such as general agriculture, agricultural extension and agricultural education
- ⦿ In-service training courses, workshops and seminars for agricultural extension agents, rural development workers, administrators of agriculture and rural development programmes and government policy-makers in food, nutrition and agriculture
- ⦿ In-service education of members of the faculty of agriculture in colleges and universities.

Proposed Content

- ⦿ National policies affecting food security and nutrition
- ⦿ Concepts of household food security
- ⦿ Agriculture in transition: factors affecting food security
- ⦿ Food industries and small-scale processing , crop value chain development
- ⦿ Urbanization and changing patterns of food demand
- ⦿ Food diversification for stable access and a sustainable food supply
- ⦿ Micronutrient malnutrition: mineral and vitamin deficiency disorders
- ⦿ Preventing and combating micronutrient malnutrition through a comprehensive approach
- ⦿ Malnutrition costs
- ⦿ Nutrition policy

Nutrition Message flow channels

- Nutrition focused activities
- Budget allocation
- Shifts in Decision making
- Capacity building
- Technology development
- Value addition
- Food based approaches
- Food based interventions
- Home preservation
- Food sovereignty



Nutrition informed rural communities/ farm communities

Nutrition inclusive Agriculture Curriculum

U 5 malnutrition

Growth standards
Growth monitoring methods,
Intergenerational nutrition cycle failure
Nutrient dense supplementary foods,
Protein & calorie rich foods formulation

Anaemia/ vitamin A

Causes , prevalence trends
Strategies for prevention and control
Food fortification
Horticultural gardens

Acute malnutrition

Maternal nutrition
Feeding practices
Strategies to improve birth weight

Regional Specific curriculum Design

Identification of the contributing factors.
House hold practices
Sanitary conditions
Food access

Ways to address the deficiency.
Governmental supported anemia
programmes, implementation and
performance

Vulnerable periods in the life cycle and
special energy and nutrient needs
Nutrient composition and value
addition to locally available foods
House hold preservation methods

Agriculture, Nutrition integrated Curriculum

Food imbalance
Intergenerational diabetes
Life style diseases

Regional Specific curriculum Design

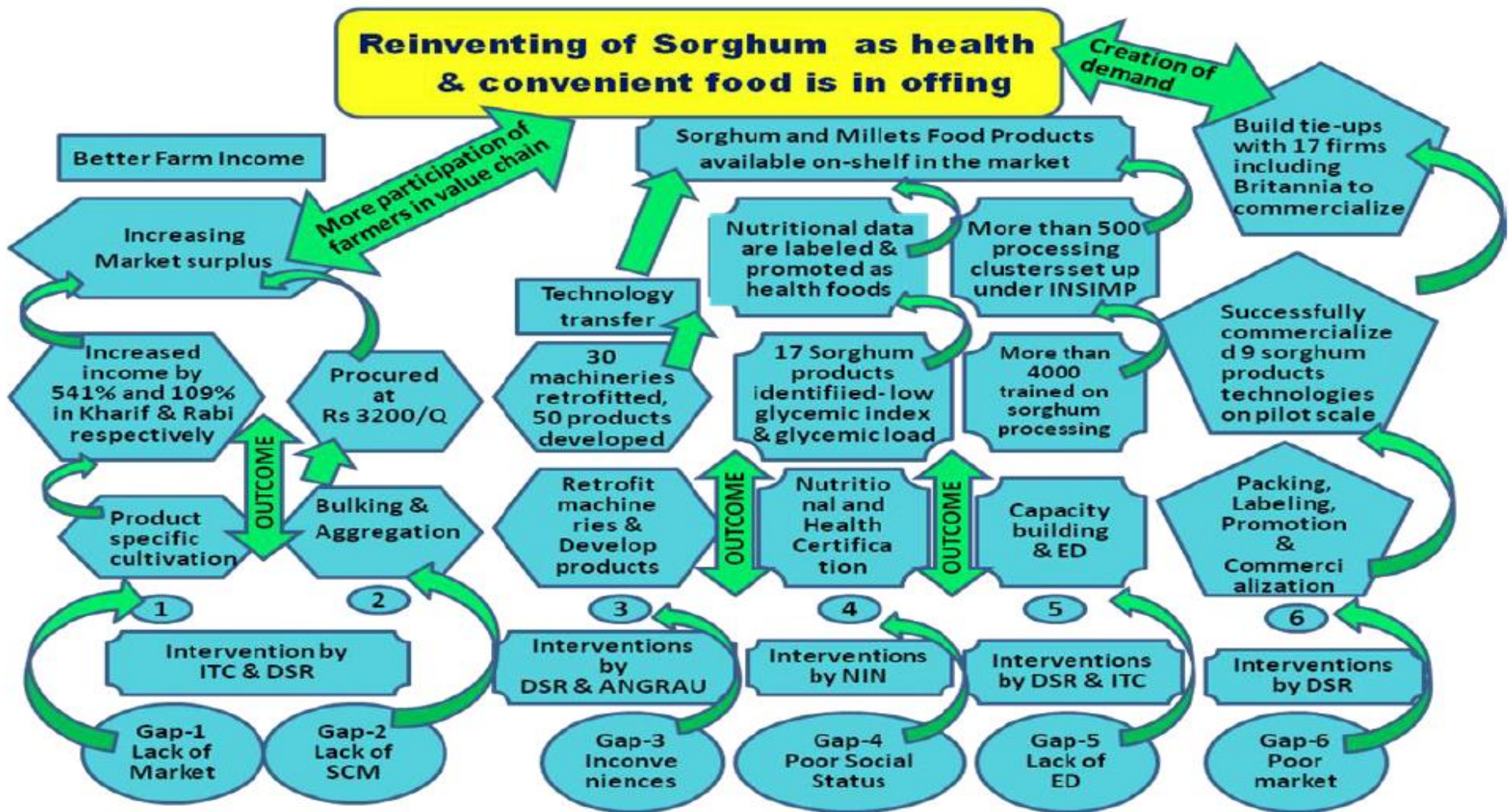
Prevalence causes, complications
prevention , control measurements
Dietary role
Food characteristics
Cost effective interventions

Food supply and demand
Per capita food availability
Recommended allowances
Food aggregation and marketing
Post harvest processing
Value addition

Local food consumption
Nutrient Sufficiency
House hold distribution
Production to consumption system
models

The possibilities for integrating nutritional considerations into the productive aspects of agriculture are extensive. Effectiveness depends on approach and attitude, cross learning from the interfaculty activities

Faculty experiences- NAIP project



ANGRAU efforts for re-introducing millets through National Agricultural Development scheme



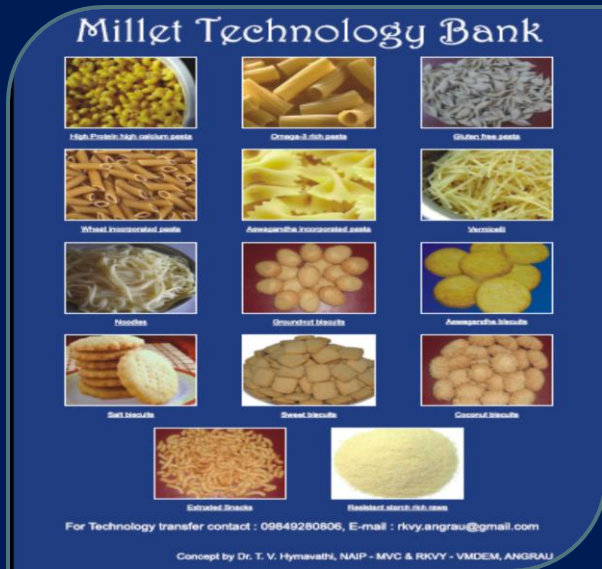
Millet processing



Millet processing & Incubation Centre



Capacity building for SHG/ technology seekers



Technology development



Promotional activities through food festivals



Commercialization

Conclusion

- ④ Empowering rural community with nutrition knowledge can be achieved by cascade of activities/ people not just by nutrition departments/ specialists.
- ④ Agricultural extension personnel has a established system of access to the farmers hence it is wise to use them.
- ④ For achieving this effective cascade of activities for intensification of nutrition knowledge is essential.
- ④ Judicious incorporation of nutrition content in extension education is a sustainable approach and to be implemented without effecting the main agenda of agricultural extension courses.

Thank you