



## Agricultural extension services in Andhra Pradesh and Telangana: An critical review

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### Abstract

Andhra Pradesh and Telangana are among the largest states of India. Both states are predominantly agrarian in nature, roughly 66% of the workforce is directly dependent on agriculture and allied services. In this context, agricultural extension services become a vital force in skilling and knowledge transfers to farmers. Agricultural extension services in both states consist of various levels of functionaries. These functionaries are tasked with the transfer of knowledge from lab to field. But these extension workers are not able to effectively perform their role as knowledge providers due to the lack of sufficient workforce. To address this issue, governments brought schemes like Multi purpose extension officer scheme and the Adarsha Rythu scheme. These schemes are full of lacunas, such as low skill of grass root level functionaries, use of functionaries for political purposes etc.

**Keywords:** agriculture extension, multipurpose extension officers, Adarsha Rythu, ATMA

### Introduction

Andhra Pradesh and Telangana are the two Telugu speaking states in Southern India with the population of 49.67 million and 35.19 million respectively. The rural population of Andhra Pradesh is 70.4% and Telangana is 61.3% of their respective total populations. In both the states, rural population is predominantly agricultural with more than three fourths of its workforce being engaged directly in the agriculture sector (CESS, 2013). Agriculture and allied sectors are contributing 23.14% of total gross state domestic product in 2012-13 (AP state statistical abstract) [1].

In both the states socio- economic conditions of the farmers are similar. The Report of the Commission on Farmers' Welfare, Government of Andhra Pradesh, says that 90% of the farmers are having low educational qualifications (i.e. either illiterate or educated only up to primary level.), which is a big hindrance for passing technology and knowledge transfers.

According to union ministry of agriculture, majority of land holdings in both the states are marginal farms, small farms and semi medium farms with 63.94%, 22.15% and 10.62% respectively for whom using technology is a costly affair and they cannot afford paid extension services. The area under crops [2] grown in these states are Paddy (26.58%), Cotton (17.60%), Groundnut (9.85%), Maize (7.12%), Bengal gram (4.99), Red gram (3.52%), and Black gram (3.25%) Sugarcane (2.64%), Jower (2.10%), Green gram (2.04%), castor (1.53%), Chillies (1.49%), Soya bean (1.17%), and Sun flower (1.04%). In the both states, 85% of area under cultivation is of fourteen crops which included Paddy, Cotton, Groundnut, Maize, Bengal gram, Red gram, Black gram, Sugarcane, Jower, Green gram, castor, Chillies, Soya bean, and Sun flower. All these crops need more emphasis in extension system

Both these states implemented public sector extension service under the department of agriculture which was responsible for extension and input supplies. Department of agriculture adopted various models of grass root level extension system which include Agricultural Extension

officer model, Multi Purpose Extension officer model, Adarsha Rythu Model (Model Farmer) [3].

### Functions of the Agriculture Department

The department of Agriculture has been created mainly to provide *Agriculture Extension Services* to farmer and to transfer the latest technical knowledge, introduction of high yielding varieties by laying demonstrations, imparting training to farmers to improve skills and knowledge to boost up the Agriculture production and productivity.

The department is also performing the statutory functions under various acts and regulations to ensure supply of quality seeds fertilizers and pesticides to farmers. It is also carry out other facilitating functions such as:

1. Soil testing
2. Soil and Water Conservation
3. Credit arrangements,
4. Trainings to farmer,
5. Plant Protection Campaigns,
6. Monitoring and Evaluation,
7. Disaster management
8. Farm Mechanization,
9. Extending Technical Assistance to various agencies.

### Structure of the Agriculture Department at District Level

#### Joint Director Agriculture (J.D.A)

Joint Director of Agriculture is the district head of the department in respect of all the service and accounts matters. He/she should provide leadership as well as exercise administrative, financial control over district extension staff. He/she should attend all meetings at district level convenes review meetings of AOS/ADAS/DDAs conduct technical meeting with the support of Research Staff. His/her principle function is monitoring and distribution of quality inputs like Seeds, Fertilizers, Pesticides and conducting Farm trials with new varieties and demonstrations. He/she is entailed to monitor soil conservation works, and supervision of grounding of all central/ State sponsored schemes regarding agriculture. JDA

shall maintain strict discipline in the department at all levels functionaries, Exercise statutory functions under seed Act, FCO insecticide and A.P. Dangerous machines (regulation) Act and other orders issued thereon. Organize Agriculture Exhibitions, Kisan melas, Charcha Gostts, interaction sessions to enrich and enhance technical knowhow of the farmers, arrange relief measures under Natural Calamities. JDA is responsible for increasing of Agriculture production and productivity and effective functioning of the Department.

**Deputy Director of Agriculture (Agronomy)**

Deputy Director of Agriculture (Agronomy) is the subject matter specialists and assists the district J.D.A in implementation of schemes on Farm trails and extends guidance to all extension staff in effective implementation of the schemes. DDA (Agro) is declared as fertilizers Inspector under FCO 85 and he shall exercise powers as fertilizers inspector in the area of operation assigned by the J.D.A conduct office inspection as entrusted by the J.D.A, of respective Districts.

**Deputy Director of Agriculture (Plant Protection)**

Deputy Director of Agriculture is the subject matter specialist and assists the Joint Director of Agriculture in implementation of schemes pertaining to his discipline. He/she should assist J.D.A in maintaining of all P.P Schemes including save grain. Ensure supply of quality pesticides. He/she shall extend guidance to extension staff. DDA(pp) is declared as Insecticides Inspector under I.A. 1968, Fertilizers Inspector under FCO 1985 and seed Inspector under seed Act 1960 and shall exercise powers as inspector under the above statutory Acts and rules in the area of operation assigned by the J.D.A of respective Districts.

**Assistant Director of Agriculture (Training)**

Assistant Director of agriculture (Training) is responsible for all training programmes in the district at various levels and other items of work entrusted by the J.D.A including office inspections of Subordinate Office and seed Farms. ADA(Trg) is declared as fertilizers Inspector under FCO 85 and shall exercise in the area of operation allotted by the

Joint Director of Agriculture. He shall assist the Joint Director of Agriculture in his respective disciplines.

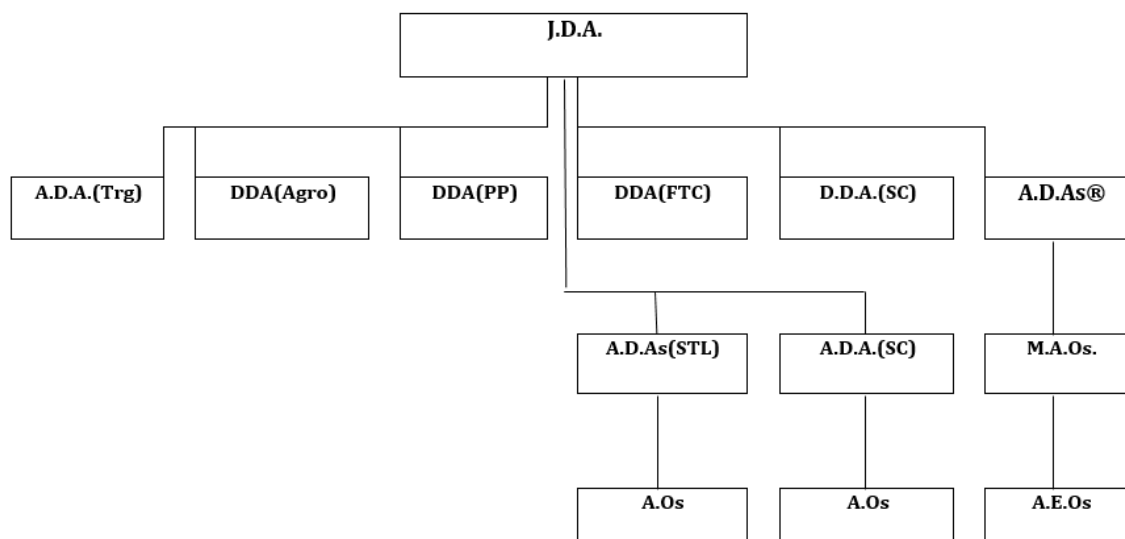
**Assistant Director of Agriculture (Regular)**

Assistant Director of Agriculture (Regular) is declared as Head of Office and responsible for all technical administrative and accounts matters in his jurisdiction. ADA (R) shall maintain all registers and records as laid down in rules and codes. ADA (R) is responsible for training, implementation of all schemes, departmental programmes, including seed farms, on farm organization of Mini kits, imparting training to all extension staff/interaction with farmers and dealer of Fertilizer, pests, seeds. He/she shall monitor the distribution of quality inputs. ADA(R) is the licensing authority under FCO 1985. ADA(R) is the Fertilizer Inspector, Insecticides Inspector and seed Inspector. He/she shall work under the guidance of District Joint Director of Agriculture and organize training programmes / Rythu Sadassu/ Kisan Melas/ trainings to farmers visit all villages in his jurisdiction according to visit schedules. He shall maintain strict, discipline among the staff of his jurisdiction for effective functioning of the Department.

**Mandal Agriculture Officers**

The MAO shall be responsible for the technical guidance to the Farmers with the support AEOs in his jurisdiction. He/she shall be responsible for grounding of the departmental programmes effectively in his jurisdiction. MAO shall visit fields and cover all the village tour diaries shall maintained inviolably. MAO shall be responsible for organization of on Farm / Mini kits / trainings/Polam Badi monitor and supply of quality inputs. MAO is entailed to attend general body meetings of the mandal and Grama Sabhas for appraisal of Department activities. Exercise effective supervision over AEOs. He/she is the Fertilizers / Seeds/ Insecticides Inspector in his jurisdiction. He shall work under the administrative and technical guidance of ADA (Regular) concerned.

All these are responsible for extension works in some or the other way at various levels from district to mandal. And the grass root level workers of the permanent extension department are Agricultural extension officers or AEOs.



**Fig 1:** Department of agriculture flow charts to show channels of supervision

**Agricultural Technology Management Agency (ATMA):**

Agricultural Technology Management Agency is a central government program established at the district level as an autonomous extension organization, ATMA has more flexibility than government line departments. They could receive funds from both government and non-government sources; entered into contracts; maintained revolving accounts; charged for services; and recovered costs from farmers or other service recipients. ATMA is governed by the representatives of technology generation/ refinement and dissemination systems, line departments, farming community and other stakeholders, represented on its Governing Board (GB). ATMA provides for adequate involvement of farmers in the decision making process and promoting farmer driven technology dissemination. It provides good platform for Public-Private Partnership (PPP). In ATMA, there are two sets of mechanisms that integrate extension activities at the district and block levels. The ATMA Management Committee (AMC) performs this function at the district level and Block Technology Team (BTT) organizes and integrates extension activities across each block.

**Permanent grass root level extension model*****Agricultural Extension officers:***

AEO is the basic extension functionary in the Department at field level. He is responsible for passing on technical messages and relevant recommended practices to farmers, teaching and demonstrating related skills to farmers, motivating farmers to adopt recommended practices and bringing farmer's production problems to the notice of Supervisory Officers. He is expected to visit farmer's field's regularly as per fixed visit schedule. His entire duty is at field level and responsible for grounding Department Programmes as per the instructions of his superiors. He shall work under direct supervision of MAO and maintain all registers and records. He shall attend crop cutting experiments entrusted to him and assist MAO in all aspects for effective implementation of the programmes in his jurisdiction.

In this model for every 4 to 6 villages, one Agricultural extension officer is responsible for extension work. AEO needs to have a bachelor degree in agriculture or dry land agriculture or diploma in agriculture. AEO are permanently employed by the department of agriculture. And 80% of these agricultural extension officers are from same districts. Pay scale of Agriculture Extension Officer is Rs.16150 – 42590

Scale is the one of the major problem in this model; they were given huge number of farmers to cover. Because of this, there is no strong relationship between farmer and extension officer. Efficiency became a lacuna in this model because of complexities in field. This model is still in existence in both the states.

**Contractual basis grass root level extension models****1. Multi Purpose Extension officer model:**

For every 1000 hectares there will be one multipurpose extension officer and asked to form a Rythu Mithra Group for 100 hectares. MPEOs are responsible for fulfilling of three objectives:

- To facilitate the effective extension reach to the farming community.

- To address the immediate needs of the farmers during the cropping season in case of unfavourable seasonal conditions.
- Sensitize the farmers on measures to be taken up to enhance the productivity Levels

MPEO are government employees on contract basis. They need to have a degree in Agriculture or Horticulture or Dry-Land Agriculture or science graduates with specialization in Botany. Agricultural Polytechnic Diploma Holders, Diploma in Seed Technology/Plant Protection/ Organic Farming are also employed. Like AEO, 80% of MPEO are also local candidates, who hail from same districts. Pay scale of multipurpose extension officer is Rs 8000.

***Functions and duties of MPEOs:***

- They should reside in the cluster head quarters as decided by the District Administration.
- Should sensitize the farmers on different issues related to crops
- MPEO should assist extension functionaries in communicating needy information to farming community with regard to different departmental schemes and latest/ improved technologies.
- Maintain the record of 1000 Ha in his area with regard to farmer information, cropping pattern, availability of resources etc.,
- Assisting the MAO and other supervisory Officers in field visits.
- MPEO should assist MAO in implementation of different departmental schemes like SVP, NFSM, Polambadi, NMOOP, ATMA etc.,
- Should assist MAO in identification of beneficiaries in implementation of different schemes.
- MPEO has to mobilize farmers for organizing training programmes being conducted by the FTC/KVK/MAO.
- Should mobilize the farmers during the conduct of Grama Sabhas /Rythu Sadassus /Kisan Melas.
- Should actively participate in conduct of surveys with regards to natural calamities, pest outbreaks etc.,
- MPEO has to maintain all the relevant literature as needed by the farming community from time to time and also update the information on village black boards.
- MPEOs have to actively involved in identification of non loanee / tenant farmers and educate them to avail crop insurance and crop loan facilities provided by the Govt.
- Should assist MAO in collection of soil samples and distribution of soil health cards.
- Maintain the information with regard to availability of different types of seeds, farm equipment and other inputs available within the jurisdiction to educate the farmers for use of available resources.
- MPEOs should also update their knowledge with regard to different schemes of the Line departments for providing necessary information to the farming community.
- Should also attend other duties as assigned by the Supervisory officers/govt. officials

These MPEO are not properly trained to impart knowledge in technology transfers and farming techniques. As they were contract employees, due to low salaries, operational

mobility became a problem for them. They were responsible for horticulture and sericulture also.

## 2. Adarsha Rythu Model:

Adarsha Rythu's are lead farmers. They were selected from various Panchayats throughout the state at the rate of one from every 200 to 250 farmers. The main objective behind the identification of Adarsha Rythus is to introduce a nodal functionary between the farmers and the Extension Staff of Agriculture and other Line Departments to help in bridging the gap between the Research and Extension. The success of the important intervention of the government lies upon the development of mindset of the Adarsha Rythus as well as the extension staff by recognizing each other as a part of the extension system through regular contracts in the process of sharing information and knowledge.

Adarsha Rythus assist extension staff in implementation of schemes like Polam Badi, Seed Village Programme, Organic farming, Rashtriya Krishi Vikasa Yojana, National Food Security Mission etc. Adarsha Rythus are involved in day to day actions with regard to schemes and technology subsidized input availability & procedures to avail the same, the broad regulatory mechanism for inputs and steps to be taken in case of failure of a particular input. Adarsha Rythus are actively involved in mobilizing farmers in special campaigns like Rythu Chaitanya Yatra, Rythu Sadassu Prajapatham and Saguku Samayattam. They are actively involved in identifying tenant farmers and in forming Joint Liability Groups to provide credit facilities. The Mandal Agricultural Officer organizes a meeting with Adarsha Rythus and other line departmental officers on 3rd Monday of every month in the Mandal head quarters to discuss various problems arising at field level. The Padipantalu magazine and honorarium are being disbursed to Adarsha Rythus on the same day.

The Agricultural Officer and Line Departmental Officers visit the fields, demonstration sites etc. along with Adarsha Rythus in at least 2-3 villages on the 1st Saturday of every month.

Adarsha Rythus maintain a list of 200-250 farmers' holdings allotted to him/her in the registers with information on the type of soils, extent of crops grown, number of Sheep, Cows, Fish ponds, particulars of the credit availability etc. on each farm holding. An honorarium of Rs.1000/- per month is provided to each Adarsha Rythu.

## Conclusion

The operational area or field area in public extension system is facing difficulties in both Andhra Pradesh and Telangana due to lack of widely distributed village level technically qualified extension workers. Rural population of these states accounts for 70.4% in Andhra Pradesh and 61.3% in Telangana out of which majority are dependent on Agricultural activities.

The department of Agriculture have a strong departmental capacity with technically qualified staff from District level to Mandal level. But at the grass root level, they only have AEOs, who are sparsely distributed. So, traditionally department hired contractual extension workers in grassroots like Multipurpose Extension officer and Adarsha Rythu. The major problems of these workers are lack of capabilities in disseminating technological and farming techniques and lack of accountability towards farmers.

Public extension system needs huge funding from exchequer for operational purposes. In this scenario, extension systems can't be sustainable in long run because of various ideologies of different political administrators. Therefore, there is a need for self sustainable model of extension with private partnership to save exchequer losses.

Majority of Farmers are marginal and small farmers who have low levels of educations. So, while disseminating information regarding technology and advanced farming capabilities, extension system should adopt adult friendly methods for the penetration of ideas into the farmers because adults are relevancy-oriented and they seek a reason to acquire learning (*Knowles, et al., 2005*). Financial conditions and market access of the farmers should also be given preference while designing extension model.

Performance of the extension workers should be directed with targets, timelines, and feedbacks. With these elements, effectiveness and efficiency of the extension work will improve. To carry forward the extension work, farmers should be encouraged in building capabilities and adopting innovations, and changing practices in production. Impact of this extension system can be measured by measuring the extent of spread of innovations, productivity, distributional effects, empowerment and gender- specific impact.

## References

1. Andhra Pradesh State Statistical Abstract 2014, on Economy, page no 6. [http://www.ap.gov.in/AP%20State%20Statistical%20Abstract%20May%202014/4\\_AP\\_Economy.pdf](http://www.ap.gov.in/AP%20State%20Statistical%20Abstract%20May%202014/4_AP_Economy.pdf)
2. Axinn, George. *Guide on Alternative Extension Approaches*. Rome: Food and Agriculture organization, United Nations, 1988.
3. Birner R, Davis K. *et al. From "best practice" to "best fit": A framework for analyzing pluralistic agricultural advisory services worldwide*. DSGD Discussion Paper 37. Washington D.C.: International Food Policy Research Institute, 2006.
4. Centre for Economic and social studies. Approach to the 12<sup>th</sup> Five Year Plan of Andhra Pradesh, 2013. [http://www.cess.ac.in/cesshome/pdf/Draft\\_Approach\\_to\\_12th\\_Plan\\_for\\_discussion.pdf](http://www.cess.ac.in/cesshome/pdf/Draft_Approach_to_12th_Plan_for_discussion.pdf)
5. Factsheet on Extension services, Position paper june 2012, Gopal forum on rural advisory services (GFRAS).
6. Feder, Willett, Zijp. "Agricultural Extension - Generic Challenges and Some Ingredients for Solutions", Policy research working papers: May 1999, The World Bank.
7. Franzel, S, Sinja J and Simpson B, 2014. "Farmer-to-farmer extension in Kenya: The perspectives of organizations using the approach" working paper, World Agroforestry Centre of United Nations.
8. Glendenning J. Claire, Babu C. Suresh, Asenso-Okyere Kwadwo. "Review of aricultural extension services in India, Are farmers information needs being met?". Discussion Paper series, International Food Policy Research Institute, 2010.
9. Glendenning J. Claire, Babu C Suresh. "Decentralization of public sector agricultural extension in India, The case of the District-level Agricultural Technology Management Agency (ATMA)", Discussion Paper series, International Food Policy Research Institute, 2011.

10. Hanson, J, Just R. "*The Potential for Transition to Paid Extension: Some Guiding Economic Principles*", American Journal of Agricultural Economics, 2001, 83(3):777-84.
11. Howell, John. Accountability in Extension Work. In *Investing in Rural Extension: Strategies and Goals* (Gwyn E. Jones, ed.). London and New York: Elsevier, 1986.
12. Knowles M S, Holton EF, Swanson RA. The adult learner. The definitive classic in adult education and human resource development. 6th ed. California, USA. 2005, 391.
13. Qamar M Kalim. "*Modernizing National agriculture extension systems: A Practical Guide to policy makers of extension system.*" Food and Agriculture organization of United Nations, 2005.
14. *Report of the Working Group on Agricultural Extension for agriculture and Allied Sectors*
15. *for the Twelfth Five Year Plan (2012-17)*, Planning commission, Government of India.
16. Rivera WM, Zijp W. *Contracting for agricultural extension: international case studies and emerging practices*. Wallingford: CAB International, 2002. [http://www.fao.org/nr/course1/file/mod4/mod4\\_10.html](http://www.fao.org/nr/course1/file/mod4/mod4_10.html)
17. Schwartz A Lisa, "*The role of the private sector in agricultural extension: economic analysis and case studies*", Network paper 48, Department of Agricultural Economics, Cornell University, 1994.
18. Sharma, Rita. "*Reforms in Agricultural Extension, New Policy Framework*", Economic and Political weekly, July 27, 2002.
19. Sulaiman V Rasheed. "*Agricultural extension: involvement of private sector*". *Occasional Paper-29, Department of Economic Analysis and Research, NABARD*, 2003.
20. Umali, L Dina, Schwartz Lisa. *Public and Private Agricultural Extension: Beyond Traditional Frontiers*, Work Bank Discussion Paper 236, The World Bank, 1994.
21. Umali-Deininger Dina. *New approaches to an Old Problem: The Public and private Sector in Extension*. Extension Workshop, Alternative Mechanisms for Funding and Delivering Extension. Washington, D.C. World Bank, 1996.
22. Van den Ban, Anne W, HS Hawkins. *Agricultural Extension*. Second edition. Oxford: Blackwell Science, 1996.
23. Here both Andhra Pradesh and Telangana are taken as Unified Andhra Pradesh.
24. Directorate of economics & statistics
25. Implemented in Unified Andhra Pradesh