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Investing in rural people

# President's report

# Proposed loan to the Republic of India for the Andhra Pradesh Drought Mitigation Project

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For: **Approval**

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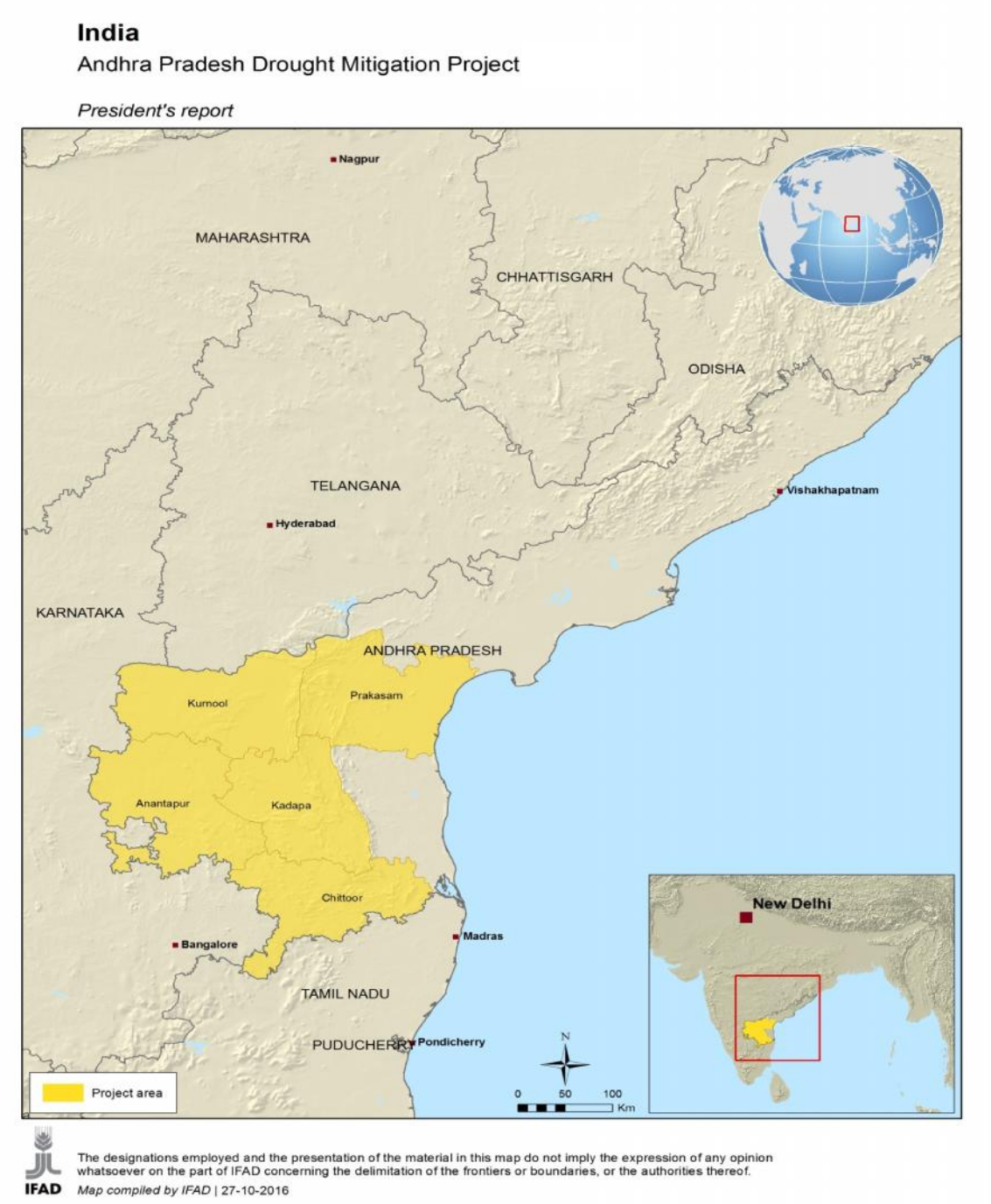
# Abbreviations and acronyms

| | |
|---|---|
| APFAMGS | Andhra Pradesh Farmer Managed Groundwater Systems |
| APDMP | Andhra Pradesh Drought Mitigation Project |
| ATMA | Agricultural Ttechnology and Management Agency |
| AWPB | annual workplan and budget |
| DAC | Department of Agriculture and Cooperation |
| DFA/LFA | district facilitating agency/lead facilitating agency |
| DPMU | district project management unit |
| FAO | Food and Agricultural Organization of the United Nations |
| FPO | farmer producer organization |
| GP | Gram Panchayat |
| HU | hydrological unit |
| HUN | hydrological unit network |
| IFR | interim financial report |
| LTA | lead technical agency |
| M&E | monitoring and evaluation |
| PIM | project implementation manual |
| PMU | project management unit |
| RIDF | Rural Infrastructure Development Fund |
| RIMS | Results and Impact Monitoring System |
| RKVY | Rashtriya Krishi Vikas Yojana |
| SPMU | state project management unit |
| W/M | women/men |
| WMC | water management committee |

# Map of the project area



# Republic of India

# Andhra Pradesh Drought Mitigation Project

# Financing summary

| | |
|---|---|
| **Initiating institution:** | IFAD |
| **Borrower:** | Republic of India |
| **Executing agency:** | Directorate of Agriculture |
| **Total project cost:** | US$151.9 million |
| **Amount of IFAD loan:** | US$75.5 million |
| **Terms of IFAD loan:** | Blend: Maturity period of 25 years, including a grace period of 5 years, with interest at a fixed rate of 1.25 per cent plus a service charge of 0.75 per cent per annum. |
| **Cofinancier(s):** | Rural Infrastructure Development Fund (RIDF)<br>Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)<br>Rashtriya Krishi Vikas Yojana (RKVY) |
| **Amount of cofinancing:** | RIDF: US$6.2 million<br>MGNREGS: US$42.3 million<br>RKVY: US$2.8 million |
| **Contribution of borrower:** | US$15.0 million |
| **Contribution of beneficiaries:** | US$10.1 million |
| **Appraising institution:** | IFAD |
| **Cooperating institution:** | Directly supervised by IFAD |

## Recommendation for approval

The Executive Board is invited to approve the recommendation for the proposed loan to the Republic of India for the Andhra Pradesh Drought Mitigation Project, as contained in paragraph 48.

# Proposed loan to the Republic of India for the Andhra Pradesh Drought Mitigation Project

# I. Strategic context and rationale

## A. Country and rural development and poverty context

1. India is now the third largest economy in the world, having grown at a robust 7.5 per cent per year between 2004 and 2013. Poverty declined significantly over the last decade, from 39 per cent in 2005 to 22 percent in 2014. Despite India's strong economic growth, poverty remains a major issue, with 23.6 per cent of the population living on less than US$1.25 per day. India has 33 per cent of the world's poor people, and nutritional levels are unacceptably low, with 29.4 per cent of children underweight.

2. India's extremely strong agricultural performance in recent decades transformed the nation from chronic dependence on grain imports into a net exporter of food. However, as growth in other sectors outstripped that in the agricultural sector, the latter's share of the national economy declined, now accounting for less than17 per cent. Still, structural transformation has been slow; agriculture remains the main livelihood for just over half of the population, and nearly three-quarters of India's population depend on rural incomes.

3. In the state of Andhra Pradesh, agriculture is the principal source of livelihood for over 62 per cent of the population and accounted for 27 per cent of state GDP in 2014/2015. Annual average rainfall is 966 mm. Canals and groundwater are the major sources of irrigation. Small and marginal farmers account for approximately 80 per cent of agricultural landholders, together cultivating 54 per cent of the farmland. Rainfed agriculture is practiced on nearly 57 per cent of the net sown area.

4. In the five districts of the project – Anantapur, Chittoor, Kadapa, Kurnool and Prakasam – there are approximately 3 million farmers, 80 per cent of whom are small and marginal farmers cultivating less than 2 hectares. Agricultural production is largely based on cash crops – primarily oilseeds (groundnuts) followed by pulses and cotton. Furthermore, the cattle and buffalo number are declining due to their replacement by tractors and to increasing shortages of fodder and water. However, the number of small ruminants is on the rise as they are well adapted to survive drought. The five project districts have the highest number (12 million) of such small ruminants in the state. Sheep outnumber goats. However, animal productivity is low and mortality rates high due to poor access to support services and inputs, delivery of support being made more difficult by flock migration in search of seasonal grazing.

5. Less than one fifth of the predominantly rainfed area is irrigated, mainly by groundwater, with irrigation used for commercial horticulture and some paddy and dry-season crops, along with supplementary irrigation for rainfed crops. Groundwater is also used for commercial purposes (e.g. packaged drinking water and beverages). As a result, groundwater levels are declining and no longer a reliable source of irrigation for many small farmers. In the districts of Chittoor and Anantapur, for example, groundwater levels have reached a critical point where well failure is a common occurrence. Drilling in these districts has become

expensive, as average depths reach up to 1,000 feet. As many as 95 per cent of drilled wells fail or do not yield any water. It is estimated that groundwater depletion now affects 30 per cent of all *mandals*/blocks (administrative subdivision of districts in Andhra Pradesh) in the project area.

6. Soils over most of the project area are thin and have weak water-holding capacity. Uncertain rainfall means crop areas and yields vary significantly from year to year. Over the past 20 years in Anantapur district, the area of groundnuts has varied by a factor of two and yields by a factor of 20 (between 1,310 kg/ha and 67 kg/ha). Low and unreliable rainfall is an overriding constraint, and irrigation resources are limited.

7. The risks involved in farming – relating to both rainfall and irrigation – mean that farmers are finding themselves increasingly in debt. In particular, they are unable to repay the loans they took to pay for sinking boreholes that produce no water. This has caused considerable distress, with an increase in suicide among farmers, especially those who made large investments in commercial horticulture. In the project area, a wealth-ranking exercise conducted during project design showed that 51 per cent of rural households were in the poor and poorest categories.

8. The state of Andhra Pradesh is responding to the challenge of drought and depletion of groundwater by experimenting with a demand-side approach to water management. Such an approach piloted from 2004 to 2009 the Andhra Pradesh Farmer Managed Groundwater Systems Project (APFAMGS), implemented by the Food and Agriculture Organization of the United Nations (FAO) in approximately 640 villages demonstrated the following main results: reduction in groundwater draft; replacement of bananas, rice and cotton by other crops that need less water, such as peanuts and a locally bred variety of green lentils; replicable as no authoritative leadership is required for enforcement of water management rules. Andhra Pradesh authorities decided to replicate demand-side water management in all drought-prone *mandals* in the project area through a saturation approach covering all villages, and both rainfed farmers and farmers using borewells for irrigation.

## B. Rationale and alignment with government priorities and RB-COSOP

9. The overarching problem the project will address is the low productivity and high risk of farming in the drought-prone districts of Andhra Pradesh it covers. The situation is further aggravated by poor access among farmers to information, especially relating to weather and weather-related decisions (e.g. crop choices, planting dates, pest and disease control), by the lack of any governance or management system for water resources specifically limiting new borewell drilling, by poor farming practices, and by suboptimal use of technology. Hence, the project will make a concerted and coordinated effort to mitigate the problems of cyclical drought and enable farmers to increase their incomes despite this very difficult farming environment. This will be achieved through the adoption of resilient and better-adapted agriculture; the integration of livestock (sheep and backyard poultry) to improve the drought resilience of the farming system; better management of water resources through groundwater-demand management at the community level and its embedding in local government structures; and rainwater harvesting and storage, and improved recharge of groundwater aquifers, to make more water available.

10. The Andhra Pradesh Drought Mitigation Project (APDMP) is closely aligned with the priorities and strategies of the state government of Andhra Pradesh. The Andhra Pradesh state Strategy Paper for the Primary Sector, produced in 2014 with assistance from the International Centre for Research in the Semi-Arid Tropics, places priority on harvesting more rainwater in dry districts and managing scarce groundwater resources. The Strategy Paper also supports soil health mapping and increasing organic soil matter, organic farming and the development of horticulture.

The project objective and outcomes are fully aligned with the Andhra Pradesh state strategy.

11. With regard to the results-based country strategic opportunities programmes (COSOP) (extended until 2016), APDMP is fully aligned with the first strategic objective, increased access to agricultural technologies and natural resources. It is noteworthy that the 2015 country programme evaluation assessed the relevance of the COSOP as satisfactory.

# II. Project description

## A. Project area and target group

12. The project area will be located in Anantapur, Chittoor, Kadapa, Kurnool (the Rayalaseema region) and Prakasam, the five driest districts of the state of Andhra Pradesh. The project will be implemented in village clusters that equate to *gram panchayats* (GPs), the lowest level of local government in India. The project will aim to cover 330 GPs, covering a total of 165,000 farming households. The project will adopt a saturation approach in these GPs by targeting all farmers. In addition, APDMP will engage with clusters of GPs that belong to the same drainage basin: the river drainage basin together with the underlying groundwater define hydrological units (HUs). Each HU includes on average five GPs.

13. The project target group will include all categories of farmers and landless people, including Scheduled Castes and Scheduled Tribes, and vulnerable households, such as women-headed households. Gender equity will be mainstreamed in project activities. The project will adopt a two-step targeting strategy. First, the project will adopt geographic targeting by focusing on the worst drought-affected villages in the poorest *mandals*. Secondly, the project will adopt a social targeting approach. Andhra Pradesh state has requested that the project ensure support is provided to the 100 poorest households in each GP.

## B. Project development objective

14. The overall project goal is to improve the incomes of approximately 165,000 farming households and strengthen their resilience to drought. This goal will be achieved through the development objective of strengthening the adaptive capacity and productivity of agriculture in the rainfed zones of five districts in southern Andhra Pradesh state.

## C. Components/outcomes

15. The project will comprise three components: (i) climate-resilient production systems; (ii) drought-proofing through natural resource management and governance; and (iii) project management and lesson learning.

16. **Component 1: Climate-resilient production systems** aims to increase the resilience of crop and livestock production systems to climate change (specifically drought) and provide farmers (individuals and small groups) with information to make informed decisions on how to invest in protective irrigation, improve soil fertility practices, diversify cropping systems and improve their livestock productivity. Accordingly, component 1 will involve three subcomponents:

    (i) Improved crop production systems through support to farmer information centres, farmer field schools and the promotion of integrated soil fertility management and protective irrigation.

    (ii) Improved livestock production systems through support to community livestock facilitators providing fee-based services to sheep producers (improved housing, feeding and breeding) and a backyard poultry scheme targeted at the poorest women.

    (iii) Strengthened farmers' organizations through a flexible approach, working with existing organizations where possible and forming new organizations where needed to support farmers through input supply, seed multiplication, production services, machinery-hire centres and marketing support.

17. **Component 2: Drought-proofing through natural resource management and governance** aims to mitigate drought and make agriculture more productive by managing and investing in common property resources. Component 2's objective will be achieved through the following three subcomponents:

    (i) Water governance will support water planning and supply and demand management through water subcommittees at the GP level, which will form hydrological unit networks (HUNs) that will operate at the drainage basin level to further optimize investments in the conservation of surface water and groundwater. Training and workshops will build local capacity and support the development of surface water and groundwater planning and monitoring.

    (ii) Water monitoring and conservation will cover local hydrological and meteorological monitoring to support local decision-making and planning for water resources as well as collaboration between GP water subcommittees and HUNs and relevant administrations involved in water supply and demand monitoring. A pilot hydrological mapping of aquifers is proposed to complement available knowledge and information on groundwater. Soil and water conservation activities will support the recharge of soil moisture and groundwater, and geographically targeted water-harvesting activities will complement local water supply management.

    (iii) Regeneration of common property rangeland will support vegetative methods for water conservation and strengthen community management of grazing, rainwater harvesting and other environmental services.

18. **Component 3: Management and lesson learning** will see the establishment of a state project management unit (SPMU) at the Andhra Pradesh state level and of a district project management unit (DPMU) in each of the five districts. Lesson learning will cover water resource planning and management, drought-resilient agriculture and climate change adaptation, and the development of policies for the crop and livestock sectors, especially for small ruminants.

# III. Project implementation

## A. Approach

19. The project will build on and scale up a number of current and recent initiatives for farming in a drought-prone environment. These include the APFAMGS, mentioned above, and state-led soil and water conservation works with the objective of harvesting rainfall and recharging aquifers. In addition, APDMP will incorporate aspects of a number of programmes of the Andhra Pradesh state Department of Agriculture and Cooperation (DAC), including community seed multiplication, millet production, groundwater sharing, rainfed farming, and farmer producer organizations (FPOs). APDMP will also capitalize on innovations in plant breeding for drought tolerance, soil fertility management, farm ponds to store water for protective irrigation, and community management of common property rangeland.

## B. Organizational framework

20. At the Andhra Pradesh state level, the DAC will be the nodal agency, the Directorate of Agriculture will be the lead project agency and host the SPMU. The Director of Agriculture will serve as ex officio project director. The Agricultural Technology Management Agency (ATMA) will implement the project at the district level. ATMA is an autonomous government agency responsible for extension services with a mandate for multisectoral support including livestock and horticulture. To implement APDMP, the capacity of ATMA will be strengthened through PMUs with additional staff. A lead technical agency (LTA) will be contracted to advise the SPMU on planning, capacity-building, monitoring, documentation and information technology services. To support implementation at the field level, facilitating agencies (FAs) will be hired to: (i) carry out participatory planning at the community level; (ii) form and support FPOs and the GP water subcommittees and HUNs; (iii) organize farmer field schools and other extension provision capacity-

building; and (iv) monitor implementation, including oversight of financial expenditure by FPOs.

## C. Planning, monitoring and evaluation, and learning and knowledge management

21. **Planning.** A draft annual workplan and budget (AWPB) will be consolidated by the SPMU with inputs from the DPMUs and other entities such as LTA and FAs. Each DPMU will consolidate proposals made by project GPs or FPOs. The AWPB will then be approved by the project steering committee and submitted to IFAD for approval by 31 January every year.

22. **Monitoring and evaluation.** The monitoring and evaluation (M&E) system, guided by an M&E framework set out in the project implementation manual (PIM), will collect data and information to measure performance and progress towards objectives; serve as a learning tool to provide information for critical reflection on project strategies and operations; support decision-making at various levels; and serve as a basis for results-based management. Responsibility for overall M&E and reporting will lie with the additional project director and the planning and monitoring manager in the SPMU. The LTA M&E unit will assist in conducting outcome and impact monitoring, and preparing consolidated reports on project progress and results.

23. **Learning and knowledge management.** In line with IFAD policy, learning and knowledge management will be key elements of APDMP, through an integrated approach whereby M&E will feed in to generating learning for the project and from the project. The LTA will prepare a knowledge management strategy, building on IFAD's knowledge management strategy, during the first year of project implementation.

## D. Financial management, procurement and governance

24. **Financial management.** In order to ensure the effective and efficient financial management of APDMP, in addition to finance staff seconded by the state government of Andhra Pradesh in charge of the management of all disbursements via the Single Treasury Account (STS) and the personal deposit accounts, the SPMU will recruit a finance officer and a finance support officer locally. The finance officer will be responsible for the preparation of consolidated interim financial reports (IFRs), the preparation of project's financial statements, the review of financial reports and audits of FAs, and a number of internal control and administrative organizational activities. The PIM will detail sound internal control procedures to be followed in the daily administration of the project, at the central and district levels alike. The financial management assessment of the project rated the fiduciary risk as high, and the measures described above would mitigate this risk.

25. At the district level, in each ATMA district office, an accounting officer will be recruited locally to manage financial resources received from the SPMU and prepare the related financial reports. S/he will be supported by an accounts assistant seconded from DAC or other another government department.

26. **Flow of funds.** IFAD financing will be channelled through a designated account denominated in United States dollars to be opened at the Reserve Bank of India and administered by the Office of Controller of Aid Accounts and Audit. IFAD will establish an authorized allocation for initial advance in a maximum amount of US$5 million. The SPMU will use the State Treasury System for all its disbursements. The flow of funds from the state to the districts shall be done using the STS and its authorization procedures whereby funds will be credited to the ATMA DPMU project bank accounts at the district level, which will be opened in a bank selected by the state government. Disbursements to the LTA and to all other FAs will be managed at the SPMU level, while procedures for district office disbursements will be detailed in the PIM.

27. The ATMA DPMUs will submit monthly financial reports to the SPMU based on the actual expenditures incurred. The SPMU will consolidate the district expenditures

and its own and report quarterly consolidated IFRs, subject to audit certification at the end of each financial year.

28. For the preparation of IFRs, withdrawal applications and financial reports, the STS reporting facility will be supplemented by an accounting software procured on the market and deployed in the SPMU and all district offices.

29. **Audit.** The Accountant General of Andhra Pradesh (AG-AP) will conduct annual audits of APDMP. The AG-AP will perform a "certification audit" for externally financed projects, including a number of specific activities such as audits of the project's financial statements, of the IFRs submitted to IFAD, of APDMP treasury transactions and the District ATMA Societies. AG-AP will issue separate opinions covering each of the financial statements, IFRs and the use of the STS and commercial banking system. The audited financial statements and audit report, including the management letter, will be submitted to IFAD within six months following the end of each financial year.

30. **Retroactive financing**. With a view to ensuring APDMP preparatory activities proceed smoothly, activities related to baseline and land surveys, and to the preparation of the PIM, manuals and guidelines are proposed between September 2016 and the date of entry into force of the financing agreement. Accordingly, as an exception to the General Conditions for Agricultural Development Financing, it is recommended that IFAD retroactive financing be approved for expenditures totalling up to US$1 million. These proposed expenditures will fall under three expenditure categories: (i) consultancies; (ii) goods services and inputs; and (iii) salaries and allowances. The expenditures incurred will be reimbursed to the borrower after the project enters into force.

31. **Procurement.** Procurement of goods, works and services under APDMP financed from resources provided or administered by IFAD will be conducted in accordance with IFAD's Procurement Guidelines and Handbook, 2010. Procurement will be undertaken in accordance with a consolidated procurement plan submitted by the SPMU, approved by the Project Steering Committee and acceptable to IFAD.

32. **Governance.** As part of the robust e-governance policy and framework of the state government of Andhra Pradesh, the SPMU will disclose the following minimum documents either via the project web site or that of the Directorate of Agriculture: (i) a procurement plan any revisions thereto; (ii) a procurement manual; (iii) invitations for bids for goods and works for all national competitive bidding contracts; (iv) request for expression of interest for selection/recruitment of consulting services; iv) contract awards of goods, works and all consultancy services; (v) list of contracts following direct contracting or single source selection; (vi) shortlist of consultants, (vii) contract award of all consultancy services; and (viii) reports of action taken on any complaints received. In addition, the SPMU will disclose relevant information related to government funds as specified by the Right to Information Act and the decisions of the State Information Commissioner applicable to project implementation.

## E. Supervision

33. IFAD will directly supervise the project, supporting project start-up and conducting annual field supervision missions to review progress towards physical targets, compliance with fiduciary responsibilities and follow-up on audit recommendations and produce agreed actions to further enhance performance. IFAD and the Andhra Pradesh state government will undertake a first main review no later than 24 months following the date of entry into force of the financing agreement, to be followed by a midterm review within the subsequent 18 months.

# IV. Project costs, financing, and benefits

## A. Project costs

34. Total project costs are estimated at US$151.9 million over a seven-year period, including overall physical and price contingencies. Key assumptions in this estimate

include: (i) price contingencies of 5 per cent applied on all items; (ii) an exchange rate of 70 Indian Rupees to one United States dollar; and (iii) taxes and duties of 12.5 per cent on works and 5 per cent on goods, inputs and services.

## B. Project financing

35. Project financing will comprise, approximately: US$75.5 million, or 49.7 per cent of total project costs, from IFAD; US$6.2 million from the Rural Infrastructure Development Fund (RIDF); US$42.3 million from the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS); US$2.8 million from the Rashtriya Krishi Vikas Yojana (RKVY); US$15.0 million equivalents in government counterpart financcing, including taxes and duties and salaries of seconded staff; and US$10.1 million equivalents from beneficiaries. Taxes and duties account for US$5.5 million equivalents.

Table 1
**Project costs by component and financier**
(Thousands of United States Dollars)

| | *IFAD loan* | | *GoAP** | | *NREGS* | | *RIDF* | | *RKVY* | | *Beneficiaries* | | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Component* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* |
| 1 Climate-resilient production systems | 64 000 | 57 | 11 000 | 9.8 | 19 200 | 17 | 5 500 | 5 | 2 800 | 2.5 | 9 700 | 8.7 | 112 200 |
| 2 Drought-proofing through natural resource management and governance | 6 200 | 20 | 900 | 3 | 23 100 | 74 | 700 | 2 | - | | 400 | 1 | 31 300 |
| 3 Management and lesson learning | 5 300 | 63 | 3 100 | 37 | - | | - | | - | | - | | 8 400 |
| **Total** | 75 500 | 49.7 | 15 000 | 9.8 | 42 300 | 27.9 | 6 200 | 4 | 2 800 | 1.9 | 10 100 | 6.7 | 151 900 |

* GoAP - state government of Andhra Pradesh.

Table 2
**Project costs by expenditure category and financier**
(Thousands of United States dollars)

| *Expenditure Category* | *IFAD loan* | | *GoAP* | | *NREGS* | | *RIDF* | | *RKVY* | | *Beneficiaries* | | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* | *%* | *Amount* |
| Works | 2 430 | 7 | 2 450 | 7 | 29 100 | 81 | 620 | 2 | - | - | 1 120 | 3 | 35 720 |
| Training | 4 340 | 99 | 10 | 1 | - | - | - | - | - | - | - | - | 4 350 |
| Consultancies | 21 280 | 86 | 3 540 | 14 | - | - | - | - | - | - | - | - | 24 820 |
| Goods, services and inputs | 43 320 | 55 | 6 120 | 7 | 13 200 | 17 | 4 940 | 6 | 2 800 | 4 | 8 980 | 11 | 79 360 |
| Grants and subsidies | 1 030 | 59 | 70 | 4 | - | - | 640 | 37 | - | - | - | - | 1 740 |
| Salaries and allowances | 3 100 | 52 | 2 810 | 48 | - | - | - | - | - | - | - | - | 5 910 |
| **Total** | 75 500 | 49.7 | 15 000 | 9.8 | 42 300 | 27.9 | 6 200 | 4 | 2 800 | 1.9 | 10 100 | 6.7 | 151 900 |

## C. Summary benefit and economic analysis

36. Investments under the project will have an overall economic internal rate of return of 19 per cent and the net present value (discount rate at 10 per cent) remains over 10 per cent if costs increase by 20 per cent or benefits decrease by 20 per cent. Benefits have been calculated based on two cropping system farm models (red soils and black soils, each for an average farm size of 1.62 ha), reflecting the

different cropping patterns on these soil types. Sensitivity analysis confirms that the project would remain moderately robust to decreases in benefits and increases in costs alike.

37. The project is expected to benefit a total of approximately 643,500 people through 165,000 farming households.

## D. Sustainability

38. Project interventions will be sustainable. Improved agricultural practices, if found by farmers to be useful and profitable, will be sustained, provided inputs and markets are available. Many of the support services that the project will establish can be operated as businesses by individuals or small informal groups.

39. Groundwater demand management will be sustained as water subcommittees are embedded in the GP local government structure. It will also be important to sustain groundwater-sharing networks, and provision has been made to establish a user maintenance fund. Likewise, farm ponds will need require maintenance (desilting and linings repairs), and entrusting the responsibility for this to the pond owner(s) directly will contribute to strengthening their sense of ownership.

## E. Risk identification and mitigation

40. There are a number of risks associated with the project, as detailed in the logical framework. A significant risk at the development objective level is that of climate change and increasing labour costs, further hindering the capacity of farming in the rainfed areas of southern Andhra Pradesh to compete with other parts of India with higher rainfall. This relates to the high climate change risk rating for the project, which will be mitigated by increasing the productivity and the resilience to climate change of rainfed agriculture. Should rainfed agriculture continues to face difficulties in competing, then activities can be refocused towards more resilient livestock and limited areas of irrigated horticulture. The risks associated with drought-proofing via natural resource management and governance will be mitigated by, among other support, building strong community ownership for local groundwater demand management, reinforced by legal sanctions. The financial management assessment of the project rated the fiduciary risk as high.

# V. Corporate considerations

## A. Compliance with IFAD policies

41. The project is fully aligned with IFAD's Strategic Framework (2016-2025) and adheres to IFAD policies for targeting and gender mainstreaming, environment and natural resource management, climate change and social, environmental and climate assessment. Since the project is classified as a category B operation, no further environmental assessment is considered necessary. The climate risk classification is deemed to be high.

## B. Alignment and harmonization

42. The state Government has been actively involved in the formulation and appraisal of the APDMP. The project, built on the alignment with existing government structures of DAC and ATMA, will be dynamic and flexible. The proposed arrangement is based on the current assessment of project needs and may be modified should further requirements arise during implementation.

## C. Innovations and scaling up

43. The project will seek to scale up and improve on experience in Andhra Pradesh state of groundwater management in order to provide a holistic and integrated response to the multifaceted and complex acute drought situation facing many districts. The project will expand and adapt the participatory hydrological monitoring programme of APFAMGS, implemented with the assistance of FAO, and combine it with groundwater water-sharing and water supply investments from public and private funds. Comprehensive M&E, together with special studies, will generate detailed information on the process and results of project implementation.

These will bring together lessons learned and collect more information to help formulate future strategies and support additional convergence.

### D. Policy engagement

44. The project will generate knowledge on water management and water use efficiency that will inform future policies at state level. The proposed hydrological survey under component 2 will contribute to decisions regarding groundwater exploitation, recharge and management, and the findings will be reflected in the GP and HU management plans and shared with the concerned line departments. The experience of community water management involving GPs and water resource planning at the GP and HU levels will also inform state strategies regarding water resource planning and management, and conservation of groundwater resources.

## VI. Legal instruments and authority

45. A project financing agreement between the Republic of India and IFAD will constitute the legal instrument for extending the proposed financing to the borrower. A project agreement will be entered into between the state of Andhra Pradesh and IFAD. A copy of the negotiated financing agreement will be tabled at the session.

46. The Republic of India is empowered under its laws to receive financing from IFAD.

47. I am satisfied that the proposed financing will comply with the Agreement Establishing IFAD and the Policies and Criteria for IFAD Financing.

## VII. Recommendation

48. I recommend that the Executive Board approve the proposed financing in terms of the following resolution:

> RESOLVED: that the Fund shall provide a loan on blend terms to the Republic of India in an amount equivalent to seventy-five million five hundred thousand United States dollars (US$75,500,000), and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Kanayo F. Nwanze
President

# Negotiated financing agreement

To be tabled at the session.

# Logical framework

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions (A)/ Risks(R) |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| ***Goal***: Improve the incomes of 165,000 farm households and strengthen their resilience to drought. | ▪ At least 75 percent of households report increased assets of 20% (W/M) (ST/SC) | 0 | | 124 000 | RIMS+ impact surveys | At baseline and completion | Contracted agency | Continued economic stability ensures an expanding market with reasonable prices for farm products (A);<br>Effective coverage of Gvt social safety net programmes (PDS) |
| | ▪ Reduction in the prevalence of child malnutrition(Boys/Girls) | 0 | | 5% | RIMS + impact surveys + on-going health and nutrition surveys by GVT | | | |
| | ▪ Number of households reporting cultivation of more than 2 crops in kharif, at least 15% increase in rabi cultivated area, and integration with livestock | | | 165 000 | Annual survey | Yearly | Project M&E unit / contracted agency | |
| ***Development objective***: Strengthen the adaptive capacity and productivity of agriculture in the rainfed zones of 5 districts in southern AP | ▪ Overall project profitability | EIRR=19% | | EIRR=19% | Annual outcome surveys (drought resilience index) | Yearly | Project M&E unit | Climate change and other opportunities combine to mean the rainfed areas of southern AP can no longer compete with more favoured part of India (R). |
| | ▪ Number of households reporting increased adaptive capacity* | TBD | | 165 000 | | | | |
| | ▪ Average annual income from farm activities (W/M) (ST/SC) | INR47 000 per HH | | INR 67500 per HH | | | | |
| | ▪ Number of farmers using protective irrigation and the area receiving protective irrigation (W/M) (ST/SC) | 35,310 farmers 42,762 ha | | 52,800 farmers 52,662 ha | | | | |
| | ▪ Yield of main crops relative to non-project farmers. | G-nut rainfed 650kg/ha, irrig. 900kg/ha | | G-nut rainfed 800kg/ha, irrig. 1200kg/ha | | | | |
| | ▪ Offtake of sheep breeding flocks | 30% | | 50% | | | | |
| **Component 1: Climate resilient production systems** | | | | | | | | |
| **Outcome 1:** Adoption of more productive and resilient crop and livestock production systems | ▪ No of farmers (W/M) (ST/SC) who adopt sustainable PoP for rainfed crops, and/or livestock, and/or supplemental irrigation | 0 | | 132,000 | Annual outcome survey | Yearly | DPMU and District FAs | PoP are profitable and sustainable |
| Output 1.1: Improved crop production systems | ▪ Numbers of farmers (W/M) (ST/SC) accessing CLIC services | 0 | | 132,000 | DPMU reports | Annually / seasonally | | |
| | ▪ Numbers of farmers (W/M) (ST/SC) trained via FFS | 0 | | 115,500 | DPMU & FA reports | Yearly | Project M&E unit | Control of wild animal damage by community (A) |
| | ▪ Increased production of nutritious crops (coarse cereals, pulses and vegetables) (W/M) (ST/SC) | 710 kg/HH/yr | | 1120 kg/HH/yr | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions (A)/ Risks(R) |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| Output 1.2 Improved livestock production systems for small ruminants and poultry | ▪ Number of livestock producers using Pashu Sakhi services | 0 | | 43,000 | Annual outcome surveys<br>Pashu Sakhi records | Yearly<br>Quarterly | Project M&E unit DFA | Migration of sheep flocks reduces as better grazing, enabling provision of supporting services (A) |
| Output 1.3 Farmer Producer Organizations established | ▪ No of FPOs established and registered | 0 | | 40 | DPMU reports | Quarterly | | FPOs continue to be a major part of policy for the agricultural sector (A) |
| **Component 2: Drought proofing via NRM & governance** | | | | | | | | |
| **Outcome 2:**<br>Water committees empowered at GP and HUN level to plan investments in water supply and manage water demand | ▪ No of functional Water Committees at GP and HUN level in project area | TBD | | 300 | Water Management Plan adoption suvey<br>Annual assessment of the performance of water committees at GP and HUN levels | yearly | GP WMC supported by DFA organisations<br>Via FA and Dept of GW | Economic and other pressures mean communities fail to reach agreement on, and enforce, sustainable water resource management. |
| Output1.1: Water Management Committees established in Gram Panchayats and strengthened take lead in water governance | ▪ Water Management Committees (WMC) established | 0 | | 330 | DPMU reports | monthly | DFA | Govt policy continues to allow GP to make local decisions on the use of groundwater resources (A) |
| Output 1.2: Rainwater harvesting and conservation infrastructure built and maintained | ▪ Water harvesting capacity | 0 | | Increase of 9.9 million $m^3$ | DPMU reports | Monthly | DFA | Effective convergence with MGNREGS and other state programmes for soil and water conservation and rangeland development (A) |
| Output 1.3: Common property rangelands developed | ▪ Area of improved rangeland | 0 | | 42,900 ha | DPMU reports | Quarterly | DFA | |
| **Component 3: Management and lesson learning** | | | | | | | | |
| **Outcome 3:**<br>Lessons from the project identified and utilised to inform future development strategies. | ▪ Three major lessons from APDMP discussed within the government and public institutions | N/A | | 3 | PMU reports | Yearly | SPMU | Champions for drought mitigation identified and lobby for replication of APMP approach |
| **Outputs:**<br>3.1 Lesson learning-related documents and events | ▪ Number and type of evidence-led documents and events | 0 | | 21 | PMU reports | Yearly | SPMU | Project able to engage experts who can prepare high calibre documents and events. |

1- Adaptive capacity to drought is defined as the number of farm HHs having access to at least four project activities of the following: i) Participation in Groundwater Sharing arrangements, ii)Access to weather and other crop/livestock information through CLICs, iii) Access to micro-irrigation, iv) Participation in crops FFS, v) Participation in livestock FFS, vi) access to Pashu Sakhi services and vii) Access to fodder from regenerated common property resources.