

Case Study of Structural Distress Assessment, Rehabilitation Strategy, and Post-Survey Condition Evaluation of Rural Housing: A Two-Phase Case Study of Twenty-Five Indira Awaas Yojana Houses, Khammam District, Telangana, India

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Abstract - This case study presents a visual structural condition assessment and rehabilitation strategy for twenty-five single-storey load-bearing masonry houses built under the Indira Awaas Yojana (IAY) at Chandraiahpalem village, Sathupally Mandal, Khammam District, Telangana. No construction year, structural drawings, or maintenance history were available—a problem common to old rural public housing in India. A walk-through visual survey with hammer-tap sounding across all twenty-five units found severe, widespread damage: spalled and cracked RCC roof slabs with exposed, rusting reinforcement; no terrace waterproofing at all; failed internal plaster; non-functional doors and windows; and degraded electrical wiring posing a fire hazard. A tiered, priority-ordered rehabilitation methodology is proposed, covering temporary propping, concrete restoration using polymer-modified mortar and micro-concreting, crack injection grouting, brick-bat-coba terrace waterproofing, replastering, and complete replacement of openings and wiring. A detailed bill of quantities gave an estimated rehabilitation cost of ₹57.09 lakh for the twenty-five houses (≈₹2.28 lakh per house). A pilot reconstruction at one surveyed house, coordinated with the local Forest Department and Village Panchayat, documents the propping and slab-recasting methodology in practice. The study illustrates a replicable, low-cost diagnostic and rehabilitation framework for ageing rural housing stock lacking formal structural records, underscoring the value of systematic visual condition surveys in public housing asset management.

Key Words: structural distress assessment; rural housing rehabilitation; Indira Awaas Yojana; RCC slab spalling; reinforcement corrosion; waterproofing; visual condition survey; case study

1. INTRODUCTION

Public rural housing schemes in India, including the Indira Awaas Yojana (IAY) and its successor the Pradhan Mantri Awaas Yojana–Gramin (PMAY-G), have built millions of single-storey load-bearing masonry houses since the 1980s. Many of these units, especially those built in the earlier phases of the programme, were put up with very little supervision, poor quality control, and — most importantly — no terrace waterproofing. After decades of monsoon exposure and no routine maintenance, a large share of this housing stock is now in an advanced state of structural distress.

This case study presents a field condition assessment of twenty-five such IAY houses at Chandraiahpalem, a hamlet under Rudrakshapalli Gram Panchayat in Sathupally Mandal, Khammam District, Telangana. The assessment was carried out at the request of the District Forest Officer (DFO), Khammam, whose jurisdiction covers the settlement, after residents complained of continuous roof leakage and visible deterioration of slab soffits. The study had three objectives: (i) to document the nature, severity, and extent of structural distress across the housing cluster through visual and hammer-tap survey; (ii) to identify the likely causes of deterioration; and (iii) to prepare a prioritised, costed rehabilitation plan that the responsible authority could implement.

The case study is meant to serve as a practical reference for engineers, housing authorities, and rural development agencies dealing with similar old housing stock where no as-built drawings, construction records, or past inspection history are available — a situation this study found to be the norm rather than the exception.

2. STUDY AREA AND PROJECT BACKGROUND

Chandraiahpalem is about 87 km east of Khammam district headquarters and 7 km from Sathupally town, in the Sathupally Mandal of Khammam District, Telangana State, India. The twenty-five houses surveyed form a separate cluster within the village and were originally given under the IAY scheme to economically weaker section beneficiaries. Table 1 (Section 4) and the photographic log (Section 5) list the individual beneficiary households that were inspected.

2.1 Available Records One of the main problems faced during this assessment, and one that directly affected how it was carried out, was that basic documents were completely missing:

- Year of construction and age of the buildings: not known.
- Architectural and structural drawings: not available.
- Earlier structural audit history: none found.
- Details of past repairs not known. This lack of records is itself something worth noting for those managing housing assets: if no baseline inspection and document set is prepared at handover, it becomes impossible to track how distributed rural housing stock is deteriorating, and any repair work will end up being done only after problems appear rather than as part of a plan.

2.2 Construction Typology All twenty-five houses are single-storey, load-bearing masonry structures with red brick walls (both external and internal) supporting a cast-in-situ RCC flat roof slab. No terrace waterproofing layer was provided when the houses were originally built — a shortcoming identified as the main cause of the damage documented in this study.

3. METHODOLOGY

The investigation was a preliminary visual inspection — a non-destructive condition survey at reconnaissance level, consistent with the scope of a basic structural health screening rather than a full structural audit. The methodology comprised:

1. Visual inspection of the external building envelope and accessible internal rooms (typically two rooms per house) of all twenty-five units, conducted on 19 September 2025.
2. Hammer-tap sounding of RCC slab soffits and exposed concrete/unplastered surfaces to identify hollowness, delamination, and early signs of spalling not visible to the eye.
3. Visual assessment of exposed reinforcement, where present, for corrosion state and section loss.
4. Photographic documentation of representative defects at each house, cross-referenced to the beneficiary register (Section 5).
5. Measurement-tape recording of crack widths and affected areas where accessible.

The survey was clearly limited in scope and instrumentation, and these limitations are stated here for transparency rather than omitted:

- Mode of inspection: purely visual and tactile (hammer-tap); no instrumental non-destructive testing (e.g., rebound hammer, ultrasonic pulse velocity, half-cell potential, or cover meter survey) was conducted.
- Tools: limited to a measuring tape; no advanced diagnostic equipment was deployed.
- Coverage: external faces and two internal rooms per house; areas concealed by existing plaster, paint, or unrelated renovation work could not be assessed.
- Scope exclusions: assessment of foundations and seismic performance was specifically outside the scope of this structural damage assessment.

Despite these constraints, hammer-tap sounding combined with visual crack and spalling assessment is a well-established first-stage screening method for RCC distress and is appropriate for prioritising a large housing cluster before committing resources to instrumented testing of individual units.

4.OBSERVATIONS & DISTRESS CLASSIFICATION

The survey identified structural deterioration ranging from mild to moderate to severe across all twenty-five houses. The failure patterns were consistent throughout the cluster, pointing to a common root cause: no terrace waterproofing was provided at the time of original construction, and the buildings have since been exposed to decades of monsoon weather without any remedial intervention. The findings are summarised by category in **Table 1**.

Category	Specific Defect Observed	Severity & Extent
Structural (critical)	Cracked and spalled concrete with exposed reinforcement in RCC slabs; cracking at multiple locations; reduction in load-bearing capacity of structural elements.	Severe — seen in all 25 houses; a critical safety concern.
Waterproofing & dampness	Active water leakage through all roof slabs; fungal growth on internal walls; discoloured plaster indicating persistent dampness.	Widespread — present in all houses; contributing to reinforcement corrosion and unhealthy living conditions.
Internal finishes (walls & floors)	Internal plaster missing entirely; discoloured and damaged existing plaster; deteriorated flooring requiring replacement; absence of paint.	Total failure — finishes beyond repair, require complete reinstatement.
Doors & windows	All openings in non-repairable condition.	Total failure — complete replacement required.
Electrical services	Existing wiring degraded and requires complete replacement in all rooms.	Critical safety hazard — fire risk from aged, damaged wiring.

Table 1. Summary of distress categories, defects observed, and severity across the twenty-five-house cluster.

4.1 Roof Slab and Reinforcement: Cracking and spalling were found on the underside of the roof slabs in every house surveyed, with reinforcement left exposed and actively corroding. This is the most serious structural issue identified in the assessment. Once the concrete cover is lost, the reinforcing bars are directly exposed to moisture and to chloride and carbonation ingress, which speeds up section loss. If this is not addressed, the slab's ability to carry load will gradually be reduced.



Figure 1. Close-up of an RCC slab soffit showing extensive moisture staining, efflorescence, and surface deterioration consistent with long-term water ingress through an unwaterproofed terrace.



Figure 2. Interior room corner showing heavy fungal staining at the slab-wall junction and degraded surface-mounted electrical wiring routed through the damp zone — a combined structural and fire-safety hazard.

4.2 Waterproofing and Dampness: Not a single one of the twenty-five houses had a working terrace waterproofing system. Every household reported leakage during and after rain, and this was confirmed on site during the inspection. In several cases, residents had tied tarpaulin sheets over their roofs as a temporary fix while waiting for proper repairs to be carried out.



Figure 3. Temporary tarpaulin sheeting deployed over a damaged roof section by a beneficiary household as an interim measure against active slab leakage.



Figure 4. Tarpaulin-covered roof at a second affected house, illustrating the prevalence of this informal coping measure across the surveyed cluster prior to rehabilitation.

4.3 Internal Finishes, Openings, and Services: In every house, the internal plaster was completely gone. What remained of the external plaster was discoloured and crumbly to the touch. The flooring in all units had deteriorated to the point where it will need to be fully replaced. Every door and window was beyond repair. The electrical wiring was also found to be degraded throughout and poses a fire-safety risk, so it will need to be completely replaced. This is a matter we have treated as just as urgent as the structural repairs, given the risk to life safety.



Figure 5. Representative external view of a surveyed IAY house, showing the single-storey load-bearing masonry construction typical of the cluster.



Figure 6. External wall and boundary masonry at a second surveyed property, showing weathering and surface staining consistent with prolonged moisture exposure.

5.0 PROBABLE CAUSES OF DISTRESS

The distress pattern was consistent across all twenty-five houses, regardless of how each one had been maintained. It was concentrated at the roof slab and spread outward from there. This suggests that the problem stems from a few common causes rather than from defects unique to individual houses:

- No terrace waterproofing was provided at the time of original construction. As a result, rainwater has been entering the slab directly over many monsoon cycles.
- The slab and plaster have cracked over time due to material ageing and thermal movement. With no remedial action taken, these cracks have widened progressively as water continues to enter.
- The roof slope is inadequate or absent altogether, so water tends to pond on the roof instead of draining away.
- No preventive maintenance has been carried out over the entire service life of the houses, and there is no record of any prior repair work.
- Reinforcement corrosion is a consequence of the above, not an independent cause. Continuous moisture ingress has led to the spalling and loss of cover described in Section 4.1.

6.0 RECOMMENDED REHABILITATION METHODOLOGY

The rehabilitation work is proposed in stages, arranged by priority. The idea is to first make the structure safe, then stop the underlying cause of deterioration — water ingress — and finally restore the houses to a habitable condition. This staged approach allows the work to be taken up in phases depending on available funds. Stage I, however, must be carried out regardless of whether funding is available.

6.1 Stage I — Temporary Propping and Structural Stabilisation where the slab distress is severe, temporary support should be provided immediately, before any permanent repair work begins:

1. Erect temporary M.S. (mild steel) props under the affected slab areas at 1.2 m centres in both directions, as directed by the consulting engineer.
 2. Place wooden chavis (packing pieces) of 4 in × 4 in section on top of each prop, aligned along the long span direction, so that the load is distributed evenly to the slab soffit.
 3. Install the propping in a proper, step-by-step sequence, making sure each prop is correctly seated and checked before the load is transferred to it.
- 6.2 Stage II — Concrete and Reinforcement Restoration for RCC elements that are badly spalled or weakened, the following steps should be followed:
1. Remove all loose and damaged concrete or plaster down to the depth of carbonation. Taper the edges and square the shoulders so that a sound substrate is left behind.
 2. Clean the exposed reinforcement of rust using an alkaline chemical rust remover, then wire-brush it and wash it thoroughly with water.
 3. Check the remaining sound reinforcement. Tie additional rings, lap rods, or weld mesh as needed to restore continuity.
 4. Apply a rust passivator/converter to any remaining corrosion on the bars, followed by a protective rust-preventive coating.
 5. Carry out cementitious pressure grouting with a non-shrink additive to seal honeycombing and voids.
 6. Restore the concrete section. For cover failures up to 25 mm deep, use polymer-modified mortar (1:5:15). For failures deeper than 25 mm, use micro-concreting with new reinforcement, a bond coat, and shear connectors, as per the consultant's design.

The exact repair method for each element should be finalised only after the damaged concrete has been removed and the structural member is exposed for inspection. The methodology given above is a general design framework and is not a substitute for engineering judgement specific to the site.

6.3 Stage III — Crack Repair (Separation Cracks)

1. Chase the crack into a V-groove 50–75 mm wide using a sharp chisel.
 2. Clean the prepared surface thoroughly with a water jet to remove dust, dirt, oil, and grease.
 3. Moisten the crack and apply a priming bond coat of polymer and cement (1:1 by weight).
 4. Fill the crack with polymer-modified mortar (1:5:15) as per specification.
 5. Finish it level with the adjacent existing plaster.
 6. Install grouting nipples at 1.0 m intervals and carry out cementitious pressure grouting with a non-shrink additive to ensure proper flow, adhesion, and control of shrinkage.
- 6.4 Stage IV — Terrace Waterproofing, Re-plastering, and Chajja Repair Once the structural repairs (Sections 6.1–6.3) are complete, the following work should be taken up: remove all damaged external plaster and any improper waterproofing previously done on chajjas (eaves) and projections; reinstate any weak structural elements (beams, columns, lintels); inspect and repair or replace weak brick masonry; re-plaster the external and internal surfaces in

two coats, using waterproof sand-faced plaster on external areas; redo the chajja waterproofing with particular care taken to seal the masonry–concrete junction; and provide an effective brick-bat-coba layer at the chajja–wall junction.

The terrace waterproofing itself should follow the integral cement-based brick-bat-coba system as per IS 2645. This involves a neat-cement slurry coat over the prepared slab and the adjoining wall upskirting, a brick-bat layer laid to falls in mortar admixed with waterproofing compound, a second slurry coat after curing, and a finishing 20 mm jointless cement mortar topping with embedded glass-fibre cloth, trowel-finished and pattern-cut into 300 × 300 mm panels. After completion, the terrace should be flooded and kept under a ponding test for a minimum of two weeks for curing before it is accepted.

- 6.5 Stage V — Internal and External Painting Scrape and wash the surfaces to remove loose material. Widen cracks up to 3 mm and seal them with two coats of a flexible, fibre-reinforced acrylic crack filler. Apply one coat of a suitable exterior base/primer, and finish with two coats of a high-quality elastomeric exterior top coat suited to the local climate.
- 6.6 Stage VI — Flooring: Remove the deteriorated flooring to an adequate depth and reinstate it with a 75 mm thick layer of plain cement concrete (1:2:4), laid to the required slope, beneath the final floor finish.
- 6.7 Stage VII — Interior Finishes: Openings, and Electrical Services Complete the internal structural and plaster repairs as needed, based on the consultant's site-specific advice. Apply two to three coats of approved-quality paint. Replace all doors and windows that cannot be repaired. Fully replace the degraded electrical wiring and fittings in every room to remove the fire-safety hazard that was identified.

7. PILOT IMPLEMENTATION: WORKED EXAMPLE

To test the proposed methodology under actual field conditions and to show the implementing authority that it is feasible, a pilot rehabilitation was carried out at one of the surveyed houses. This was done in coordination with the Forest Department and the village Vana Samrakshana Samithi (VSS). The pilot followed the Stage I–II sequence described in Sections 6.1–6.2. Temporary M.S. propping at 1.2 m centres was first installed beneath the distressed slab (Figure 7). This was followed by RCC column strengthening and slab recasting (Figure 8, Figure 9). Each construction milestone was geotagged and time-stamped so that a verifiable photographic record of the work was maintained.

The pilot was completed successfully. According to the implementing team and the field inputs from the Forest Department, it confirmed that the proposed repair sequence can be carried out in practice using locally available materials, skilled masonry labour, and ordinary propping hardware — no specialized plant or equipment was needed. This pilot can therefore serve as a field-

validated precedent for the District Forest Officer's office when scaling up the methodology to the remaining houses in the cluster.

8. COST ESTIMATE

A detailed, item-rate bill of quantities (BOQ) was prepared covering the full rehabilitation scope for all twenty-five houses and is summarised in Table 2. The quantities shown are aggregated across the cluster as a whole; a per-house average is also given for budgeting purposes, since the actual scope of work at any individual house will vary depending on how far the distress has progressed there.

Sl.	Item of Work	Qty.	Unit	Rate (₹)	Amount (₹)
1	Chipping of unsound/weak concrete from slab soffits (avg. 25 mm depth), manual/mechanical, incl. disposal	495	Sqm	50	24,750
2	Derusting of exposed reinforcement (bars up to 12 mm dia.) with chemical rust remover and wire brushing	4,000	m	150	6,00,000
3	Epoxy bonding adhesive applied to chipped RCC surfaces prior to restoration	819	Sqm	300	2,45,700
4	SBR-polymer modified cement mortar (1:4) restoration, 25 mm average thickness	495	Sqm	200	99,000
5	Integral cement-based terrace waterproofing treatment (brick-bat coba system) to IS 2645	1,008	Sqm	1,500	15,12,000
6	Cement concrete flooring (1:2:4), rooms and plinth protection	57.4	Cum	5,500	3,15,563
7	GI chicken-wire mesh reinforcement to damaged ceiling areas prior to plastering	819	Sqm	25	20,475
8	Repairs to wall/ceiling plaster, 12–20 mm, cement mortar 1:4	3,843	Sqm	350	13,45,050
9	Distempering (2 coats) over cement primer, walls and ceilings	3,843	Sqm	100	3,84,300
10	White-cement putty finish, 1 mm average thickness	3,843	Sqm	120	4,61,160
11	Supply and fixing of windows	75	Nos	1,500	1,12,500
12	Supply and fixing of doors	75	Nos	2,000	1,50,000

13	Supply and fixing of electrical wiring and fittings (all houses)	—	LS	—	3,68,935
14	Consulting engineer's fee and site-visit expenses	10	Visits	7,000	70,000
	Grand Total for 25 IAY Houses				57,09,432
	Cost per House (average)				2,28,377

Table 2. Summary bill of quantities for structural repair, waterproofing, and finishing works across the 25-house cluster (September 2025 rates, Indian Rupees).

The estimate comes to roughly ₹57.09 lakh and each house costing ₹57.09, and around 2.28 lakh per house. This covers structural repair, waterproofing, flooring, plastering, finishing, replacement of doors and windows, electrical rewiring, and the consulting engineer's fees. It does not include contingency, taxes, or any site-specific items that only come to light after concrete removal and inspection during execution — an exclusion that is consistent with the staged-discovery approach described in Section 6.2.

9. DISCUSSION

This case study points to a pattern that is likely to recur across much of India's older rural public housing stock: uniform, slab-originated water-ingress distress traceable to a single design omission — the absence of terrace waterproofing at original construction — compounded by the absence of any subsequent preventive maintenance regime. What stands out is the consistency of the findings across all twenty-five independently occupied houses. This is not a scattering of unrelated, house-specific defects but a single systemic failure repeating itself. That consistency supports treating the cluster as one rehabilitation programme rather than twenty-five separate repair contracts, which brings economies of scale in procurement, in mobilising propping equipment, and in site supervision.

The absence of any construction records or prior audit trail, noted in Section 2.1, reflects a broader challenge facing rural housing-asset managers. Without a baseline condition record at handover and periodic re-inspection thereafter, deterioration is detected only once it becomes visually severe — and, in this case, potentially unsafe. A practical recommendation arising from this study is that implementing authorities for rural housing schemes institute a structured periodic visual inspection protocol. Even something as limited in instrumentation as the survey reported here would enable earlier, lower-cost intervention before distress reaches the severity documented in Section 4.

The pilot implementation described in Section 7 demonstrates that the proposed methodology can be executed with conventional materials and locally available skilled labour. This matters for scaling repair programmes across dispersed rural settlements, where access to specialised contractors or plant is often limited.

10. LIMITATIONS OF THE STUDY

- The assessment was a visual and hammer-tap reconnaissance survey only. No instrumental non-destructive or destructive testing was performed — no rebound hammer, ultrasonic pulse velocity, carbonation

depth testing, chloride/sulphate analysis, or core extraction. Quantitative residual strength or service-life estimates cannot be derived from this study alone.

- Foundation condition and seismic performance were explicitly outside the scope of the assessment and are not addressed by this case study.
- Internal inspection was limited to two rooms per house. Concealed defects behind existing plaster, paint, or prior renovation could not be captured.
- No construction drawings, design loading, or material specification records were available, so all repair recommendations are necessarily based on generic best-practice methodology rather than verification against original design intent.
- Cost estimates reflect September 2025 local material and labour rates for Khammam District and are not directly transferable to other regions or time periods without re-rating.

11. CONCLUSIONS AND RECOMMENDATIONS

The visual condition survey of twenty-five IAY houses at Chandraiahpalem village confirmed structural deterioration of mild-to-severe extent in every house inspected. Roof slab cracking and spalling, exposed corroding reinforcement, and the complete absence of terrace waterproofing emerged as the dominant and consistent failure mode. Internal finishes, doors, windows, and electrical wiring were uniformly assessed as requiring full replacement.

A staged, priority-ordered rehabilitation methodology is recommended: temporary propping, concrete and reinforcement restoration, crack injection, brick-bat-coba terrace waterproofing, re-plastering and painting, flooring renewal, and complete replacement of openings and electrical services. The estimated cost is ₹57.09 lakh for the cluster, or approximately ₹2.28 lakh per house. A field pilot at one house validated the propping and slab-recasting methodology as practicable for scale-up.

Given the severity of the structural findings — explicitly flagged in this report as a critical safety concern affecting load-bearing slab elements in all twenty-five houses — it is recommended that the implementing authority proceed with Stage I propping at the earliest opportunity at any house showing visible slab spalling or exposed reinforcement. This should happen ahead of, and independent of, the timeline for full rehabilitation funding, so that occupant safety is safeguarded in the interim. Periodic condition monitoring following completion of repairs is also recommended, both to verify the long-term effectiveness of the waterproofing intervention and to catch any recurrence of distress at an early, low-cost stage.

CONSTRUCTION OF A NEW MODEL HOUSE FOR FULL DAMAGED HOUSE REMOVED AND PUBLIC AWARENESS DEMONSTRATION



Before House removed



New Demo House Stage -1



Demo House Slab Casting - 2



Demo House Slab Completion



Completed House

After this assessment report was submitted, the department went ahead and built one new model house at Chandraiahpalem village. This was a full replacement for one of the badly damaged IAY houses covered in the survey. The idea behind it was simple: some houses had deteriorated so much that repairing them no longer made economic sense, so this unit was taken up as a complete reconstruction to show how it should be done. It also serves as a live demonstration for the other beneficiary households, who can now see for themselves what a properly built house looks like. Local materials and ordinary construction methods were used throughout, in keeping with the low-cost, easily replicable approach recommended in this study. The model house gives residents a clear, tangible reference for the standard of construction, terrace waterproofing, and finishing that future rehabilitation or reconstruction work should aim for. More importantly, it is expected to spread awareness within the community and encourage families to report problems in their own houses early, rather than waiting until the damage becomes severe — which is exactly the preventive maintenance approach emphasised in Sections 9 and 11 of this report.

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DECLARATIONS

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ANNEX A. BENEFICIARY REGISTER AND REPORTED ISSUES

The following twenty-five households made up the surveyed cluster, with the principal issue reported or observed at each. The phrase "slab leakage and no plastering inside and outside and flooring works" indicates the typical compound defect pattern described in Sections 4–5; entries are abbreviated below for brevity.

1. Pandla Subbalu — slab leakage; no internal/external plastering; flooring works required.
2. Matta Rajamma — slab leakage; flooring works required.
3. Matta Bucchal — slab leakage; flooring works required.
4. Yatagani Venkateswararao — slab leakage; no internal/external plastering; flooring works required.
5. Muthina Arjunarao — slab leakage; no internal/external plastering; flooring works required.
6. Yatagani Korrajulu — internal plastering issue.
7. Pandla Subbalu (second unit) — slab leakage; no internal/external plastering; flooring works required.
8. Pandla Rambayamma — slab leakage; no internal/external plastering; flooring works required.
9. Muthina Krishnaiah — slab leakage; no internal/external plastering; flooring works required.
10. Kunta Shivaji — slab leakage; no internal/external plastering; flooring works required (site of pilot rehabilitation, Section 7).
11. Regula Hanumanth — slab leakage; no internal/external plastering; flooring works required.
12. Thota Venkateswararao — slab leakage.
13. Pattela Venkateswararao — slab leakage; no internal/external plastering; flooring works required.
14. Nallabothula Laxminarayana — slab leakage; no internal/external plastering; flooring works required (four rooms).
15. Nallabothula Pentaiah — slab leakage; no internal/external plastering; flooring works required; no toilet facility.
16. Rajani Suresh — slab leakage; flooring works required.
17. Pittala Thulasamma — slab leakage; no internal/external plastering; flooring works required.
18. Poojala Govardhan — slab leakage; no internal/external plastering; flooring works required.
19. Muthina Narasimha — slab leakage; no internal/external plastering; flooring works required.
20. Pandla Babu — slab leakage; no internal/external plastering; flooring works required.
21. Yeddi Raju Seethaiah — slab leakage; no internal/external plastering; flooring works required.
22. Yettagani Ramullamma — slab leakage; no internal/external plastering.
23. Sanku Rajamma — slab leakage; no internal/external plastering.
24. Matta Jogamma — no issues observed.
25. Jakka Chukkam — slab leakage (small patches).