

Wiring Bharat

BharatNet Phase II and the Push Toward Universal Rural Connectivity

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Executive Summary

Phase I of BharatNet proved rural India could be wired for broadband. Phase II is testing whether it can be wired well — and on time.

BharatNet Phase I, completed in December 2017, connected over 100,000 gram panchayats by optical fibre — a genuine infrastructure achievement, and the foundation the pandemic-era shift to digital government services, remote learning and telemedicine leaned on more heavily than anyone anticipated when the project began. Phase II, now underway, targets a considerably larger goal: broadband connectivity extended to roughly 265,000 gram panchayats, plus villages beyond the panchayat network on a demand basis, at a projected outlay in the range of ₹1.39 trillion. This brief looks at what Phase II is trying to fix, how the complementary PM-WANI public Wi-Fi framework fits alongside it, and what would keep this second, larger phase from repeating the implementation delays that slowed parts of Phase I.

1. Why Phase II Looks Different From Phase I

Phase I focused on laying a fibre backbone to gram panchayats — a necessary but not sufficient step, since a panchayat building being connected does not by itself mean households, schools or clinics in that panchayat have usable, affordable access. Phase II is explicitly designed to go further: extending connectivity to villages beyond the panchayat itself on a demand basis, and doing so under revised implementation models — state-led, central-public-sector-led, and private-sector-led — intended to fix the execution bottlenecks that slowed parts of Phase I's rollout in certain states.

The pandemic sharpened the stakes considerably. Government services, school instruction and even routine medical consultation shifted online with little warning in 2020, and the unevenness of rural connectivity became a lived, daily constraint for millions of households rather than an abstract infrastructure statistic. That experience is a large part of why Phase II's ambitions — and its funding — are considerably larger than Phase I's were.

2. PM-WANI: A Complementary, Lighter-Touch Model

Launched in December 2020, the Prime Minister's Wi-Fi Access Network Interface (PM-WANI) framework takes a deliberately different approach from BharatNet's fibre-first model: it allows small local operators — shopkeepers, kirana stores, local entrepreneurs — to set up public Wi-Fi hotspots without needing a telecom licence, registration fee, or the capital intensity of laying fibre themselves. Public Data Office Aggregators

(PDOAs) provide the backend connectivity and billing infrastructure, while individual Public Data Offices (PDOs) operate the actual hotspots.

PM-WANI is still in its early adoption phase as of this writing, but its logic is worth taking seriously alongside BharatNet's more capital-intensive fibre rollout: it offers a considerably faster, lower-cost path to public internet access in areas where full fibre-to-the-home connectivity may be years away, and it does so by mobilising existing local commercial infrastructure rather than waiting for centrally funded fibre to arrive.

3. Where the Real Risk Sits

- **Execution capacity varies sharply by state.** Phase I's uneven rollout speed across states was less a funding problem than an execution one — some states' public works and telecom departments proved far more capable of coordinating right-of-way approvals, contractor management and last-mile handover than others. Phase II's larger scope makes this variance a bigger risk, not a smaller one.
- **Connectivity without content or literacy investment underdelivers.** A fibre connection to a panchayat building is not, by itself, digital inclusion. Without parallel investment in digital literacy, locally relevant content, and affordable end-user devices, the return on Phase II's considerably larger capital outlay risks falling well short of its potential.
- **Demand-based village connectivity is inherently harder to plan and fund than panchayat-level connectivity.** Extending fibre to individual villages beyond the panchayat, only where demand is registered, is administratively more complex than the panchayat-level rollout of Phase I, and will test implementation capacity in exactly the areas where that capacity has historically been weakest.

4. International Context

India's fibre-first, phased rural-connectivity approach is one of several models being tried globally, and the comparisons are instructive for what Phase II might learn from.

- **Australia's National Broadband Network (NBN),** a broadly comparable state-led fibre rollout, took considerably longer and cost substantially more per connected premise than originally projected — a cautionary comparison for Phase II's own cost and timeline assumptions given the similarly large scale involved.
- **Rwanda's national fibre backbone,** built through a public-private partnership model on a much smaller population base, achieved high connectivity relatively quickly but has faced persistent affordability and last-mile usage challenges post-connection — a preview of exactly the "connectivity without content or literacy investment" risk this brief flags for Phase II.

5. Stakeholder Implications

- **For state telecom and IT departments:** Phase II's execution burden falls most heavily here, and states with weaker existing coordination capacity for right-of-way approvals and contractor

management face a genuine risk of falling further behind stronger-capacity states, widening rather than narrowing regional digital divides.

- **For rural households and small businesses:** The practical value of Phase II connectivity depends heavily on affordable end-user devices and locally relevant digital services being available alongside the fibre itself — connectivity alone is necessary but not sufficient for the economic benefits this investment is meant to unlock.
- **For private telecom operators:** Phase II's private-sector-led implementation track creates a genuine commercial opportunity in underserved markets, though one that will likely require patient capital given the multi-year timelines involved in rural fibre deployment.

6. Recommendations

1. Set explicit, state-wise execution benchmarks and publish progress against them.

Phase I's uneven pace across states was visible only in retrospect; publishing state-level Phase II progress in real time would let policymakers intervene in lagging states well before delays compound.

2. Pair every Phase II connectivity milestone with a matched digital-literacy commitment.

Connectivity and literacy investment should not be sequenced — treating literacy as an afterthought once fibre arrives risks years of underused infrastructure in exactly the communities Phase II is meant to serve.

3. Actively promote PM-WANI as a bridging solution in areas where Phase II fibre rollout is not yet scheduled.

PM-WANI's lower capital and regulatory barriers make it a genuinely useful interim step, not merely a smaller-scale alternative, and its adoption should be encouraged specifically in Phase II's longer-lead-time areas.

4. Build a transparent, public demand-registration process for non-panchayat village connectivity.

If village-level connectivity truly depends on registered demand, the mechanism for registering that demand needs to be simple, well-publicised and trackable — otherwise the demand-based model risks systematically underserving the villages with the least existing digital access and, therefore, the least awareness of how to request it.

7. Conclusion

BharatNet Phase I proved that connecting rural India to a fibre backbone at scale is achievable. Phase II is a considerably harder test: whether that connectivity can be extended further, faster, and with the complementary literacy and content investment that turns a fibre connection into genuine digital inclusion. PM-WANI's lighter-touch model offers a useful bridge while that larger test plays out.

References

Department of Telecommunications — BharatNet Phase I completion status (December 2017)

Department of Telecommunications — BharatNet Phase II programme documentation

Ministry of Communications — PM-WANI framework guidelines (December 2020)

Contemporaneous reporting on rural connectivity and pandemic-era digital service delivery (2020–2022)