What should we know, and what should we ask **about data centers?**

A Citizen Awareness Module to Understand the Socio-Environmental Impacts

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Disclaimer

This module is intended as a public-awareness resource to support informed discussion of digital infrastructure, communities, and sustainable development. The information presented is based on publicly available sources, field interactions, and expert consultations.

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Digital Infrastructure and Communities: Key Connections

Data → Data Centers → Land → Water → Energy → Livelihoods → Governance

Executive Summary

Digital technologies are increasingly shaping economies, public services, and everyday life. Behind many digital platforms, including cloud computing, online services, and artificial intelligence systems, are large physical facilities known as data centers, which store and process vast amounts of digital information.

India has over 900 million internet users, making it one of the world's largest digital markets. At the same time, the country hosts around 20% of the world's data but only about 3% of global data-center capacity, highlighting the rapid growth expected in digital infrastructure in the coming years. While data centers operate in the digital realm, they depend on physical infrastructure and natural resources, including land, electricity, water, and connectivity. In regions experiencing rapid infrastructure development, such as parts of Telangana, the expansion of data centers is occurring in areas that have historically supported agriculture and rural livelihoods. As India's digital economy grows, understanding the physical infrastructure behind digital technologies becomes increasingly important.

Data centers support many services that people rely on daily, but they also interact with land, water, electricity infrastructure, and local livelihoods. This module explores these connections and aims to support informed discussions about how digital infrastructure development can be planned in ways that are sustainable, transparent, and responsive to community perspectives.

About This Module

This module introduces the growing landscape of data centers, with a focus on the expansion of AI-driven infrastructure in India, particularly in Telangana. Readers will gain a foundational understanding of key concepts such as what data is, how data centers function, and how AI data centers differ from traditional infrastructure.

The module also examines the resources these facilities depend on, including land, water, and electricity, and how these shape local environments. It concludes by encouraging critical reflection through key questions related to development, sustainability, and governance.

Who Can Use This Module

This module is designed as a resource to support awareness, learning, and discussion around data center development. It can be used by community organisations, civil society groups, researchers, educators, local governance institutions, as well as students and youth groups interested in understanding these issues more deeply.

The content includes explanatory sections to build foundational understanding, real-world examples to provide context, and prompts that encourage discussion and reflection. It is designed to support informed engagement and thoughtful consideration of how such developments may affect communities and local environments.

Methodology

This module is based on a combination of qualitative field-based inquiry and secondary research. The research involved reviewing publicly available reports, policy documents, and credible media sources related to digital infrastructure, data centers, and their socio-environmental implications in India. In addition to secondary research, the study incorporated field interactions with community representatives and local stakeholders in areas experiencing rapid infrastructure development. These engagements helped capture perspectives on changes in land use, livelihoods, and local resource systems.

The research also included interviews with subject-matter experts working on land governance, water resources, and energy systems, in order to better understand the broader infrastructure and policy dimensions associated with the growth of data centers. Community interactions were conducted with the objective of listening to local perspectives and experiences related to infrastructure development, and the insights shared during these discussions helped inform the themes presented in this module.

These sources informed the development of this citizen awareness module, which aims to present accessible insights on how digital infrastructure expansion interacts with communities, natural resources, and governance systems.

Section 1

Data, Data Centers, and Their Role in Digital Infrastructure

What data and data centers are, and how they depend on physical infrastructure such as land, electricity, water, and connectivity.

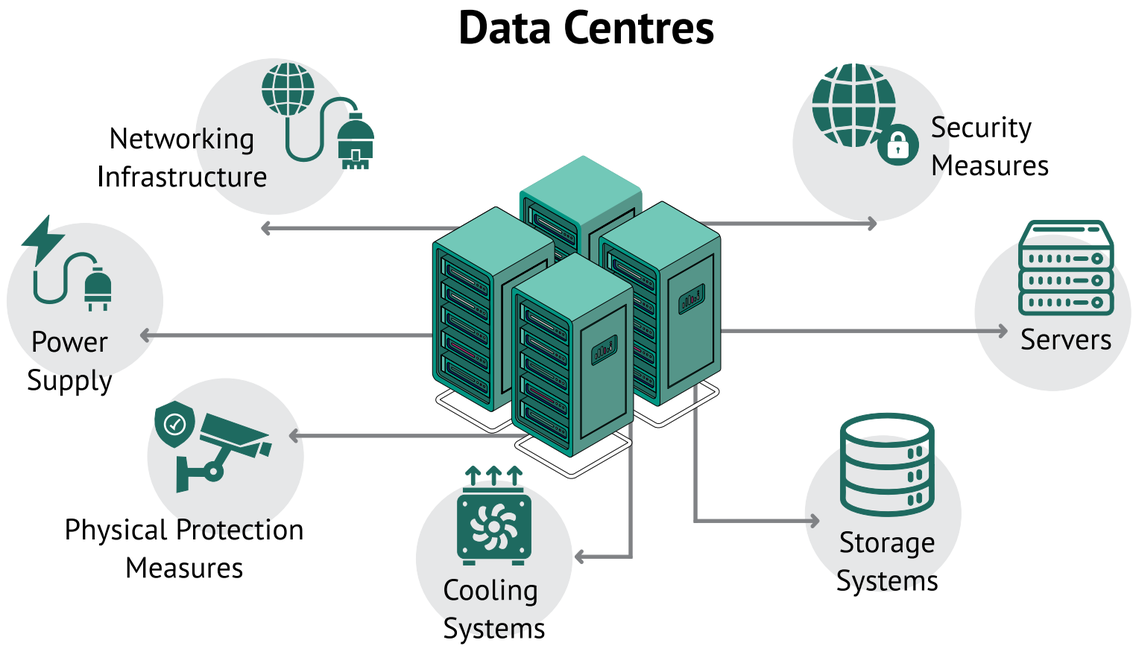
What is Data?

Data refers to facts, numbers, words, observations, or other forms of recorded information. On its own, it may not carry meaning, but when it is processed and analysed, it helps organisations understand patterns and make informed decisions.

Organisations collect data from many sources and in different forms. This includes qualitative data, such as customer feedback, and quantitative data, such as sales figures. Data can also be public, like government statistics, or private, such as purchase histories or health records.

Over the past decade, "big data" (large and complex datasets from sources such as social media, e-commerce, and financial systems) has become increasingly important and has driven digital transformation across industries. Because of its economic value, big data is often referred to as "the new oil."

Building on this, data plays a crucial role in the development and functioning of Artificial Intelligence (AI). AI systems rely on large volumes of data to learn patterns, make predictions, and improve their performance over time. AI analyses both structured and unstructured data such as text, images, audio, and numerical records, and simulates human-like decision-making and solve complex problems efficiently. The quality and diversity of data directly influence the accuracy and fairness of AI outcomes, making reliable data collection and management essential. As organisations continue to adopt AI technologies, data serves as the foundation that enables innovation, automation, and smarter decision-making across various sectors.



What is a Data Center?

A data center is a physical space, like a room, building, or large facility, that houses IT infrastructure. It is used to run applications and services, and to store and manage the data connected to them. Earlier, data centers were usually privately owned and located on-site, meaning they were built and controlled by a single company for its own use.

Today, this has changed. Many data centers are now remote facilities or part of larger networks owned by cloud service providers (CSPs). These data centers use virtualised infrastructure, which allows multiple companies and users to share the same systems and services.

What are Cloud Service Providers (CSPs)?

Cloud Service Providers (CSPs) are companies that provide services like data storage, software, and computing power over the internet. Instead of setting up their own data centers, people and organisations can use these services online, anytime and from anywhere. CSPs run large data centers and allow many users to share the same systems, making it easier and more affordable to use digital services.

Example: If you store photos on Google Drive or use Gmail, your data is not saved on your own device, it is stored in Google's data centers. Google (a CSP) manages this for you.

Other examples of CSPs: Amazon Web Services (AWS), Microsoft Azure, Google Cloud.

Types of Data Centers

1. Enterprise (On-Premises) Data Centers

These are data centers that a company builds and runs on its own premises. This means all the data and IT systems are stored and managed within the company itself. Many organisations choose this model because it gives them more control over their data and security. It can also make it easier to follow laws and regulations, such as GDPR (in the European Union) or HIPAA (in the United States). However, in this setup, the company is responsible for everything, setting up the systems, monitoring them, and managing day-to-day operations.

2. Public Cloud and Hyperscale Data Centers

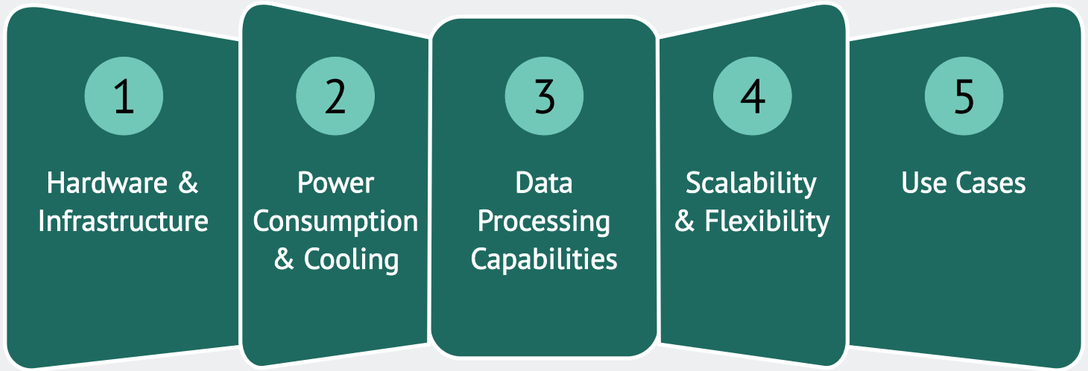
Cloud data centers are facilities where IT resources are shared by many users over the internet. Instead of owning infrastructure, companies can access services remotely. Some of the largest cloud data centers are called hyperscale data centers. These are operated by major Cloud Service Providers (CSPs) like Amazon Web Services (AWS), Microsoft Azure, Google Cloud, and IBM Cloud. These companies run data centers across different parts of the world.

Hyperscale data centers are much larger than traditional ones. They can cover huge areas, contain thousands of servers (often more than 5,000), and include extensive networking systems. Some can be as large as tens of thousands of square feet.

What is an AI Data Center?

An AI data center is a facility that contains the specialised IT infrastructure needed to build, run, and deliver AI applications and services. It is designed with advanced computing, networking, storage, and cooling systems to handle the high demands of AI workloads. While traditional data centers may have similar basic components, their computing power and capabilities are very different. Organisations that want to use AI effectively need access to this kind of specialised AI infrastructure.

Key Differences between
AI Data Centers & Traditional Data Centers



Traditional *vs* AI Data Centers

Feature	Traditional Data Centers	AI Data Centers
Purpose & Workload	Support general computing like websites, business applications, and databases	Designed for AI and machine learning tasks like image recognition and language processing
Hardware & Infrastructure	Mainly use CPUs for everyday computing tasks	Use GPUs, TPUs, and specialised chips for high-speed AI processing
Cooling & Power	Require cooling, but power use is more balanced	Generate more heat and need advanced cooling (like liquid cooling)
Networking & Data Processing	Use standard networks for data transfer	Need very fast, low-delay networks for quick data movement
Storage & Data Management	Store mostly structured data (like databases)	Handle large amounts of unstructured data (images, videos, etc.)
Scalability & Flexibility	Can scale, but often slowly and with higher effort	Designed to scale quickly, especially with cloud-based systems
Cost	Generally lower cost using standard hardware	More expensive due to specialised hardware and infrastructure

Benefits of Data Centers

Data centers help use computing, storage, and network resources more efficiently. They make it easier to quickly set up and run applications and services. They are also flexible, allowing organisations to increase or decrease their usage based on need. Data centers offer different kinds of services, making them useful for a wide range of digital activities. They also support cloud-based development, where applications are built and run online instead of on local systems.

Why Talk *About* Data Centers?

Digital technologies are now part of everyday life, used for communication, payments, public services, entertainment, and artificial intelligence. These services may seem invisible, but they depend on data centers that store and process large amounts of information. Data centers require land, electricity, water, cooling systems, and connectivity, and they operate continuously, 24 hours a day. This makes them resource-intensive facilities. As they expand, they place increasing pressure on local environments, natural resources, and existing uses of land, energy and water.

Digital Infrastructure as Public Infrastructure

As data centers rely on shared resources, they are not just private technical systems; they also function as public infrastructure. Their development affects how land, energy, and water are allocated and used. While digital services are often described as "virtual" or "in the cloud," they are built on physical systems that have real impacts on communities and the environment. Recognising this helps shift the conversation from technology alone to questions of resource use, access, and governance.

In this sense, the growth of AI data centers can be seen as part of a broader process of industrialisation. However, unlike traditional industries, they use resources differently and connect to local economies in different ways. Understanding these differences is important for assessing how this form of infrastructure shapes development and who benefits from it.

How Data Centers Differ from Traditional Industries

Data centers are large infrastructure facilities, but they operate differently from many traditional industries. Both require land and infrastructure, yet they differ in how they use resources and how they interact with local economies and livelihoods.

Feature	Data Centers	Traditional Manufacturing Industries
Primary Function	Store and process digital information used by online services, cloud computing, artificial intelligence systems, and digital platforms.	Produce physical goods such as textiles, automobiles, electronics, chemicals, machinery, or consumer products.
Land Use	Require large campuses for server halls, cooling systems, electrical infrastructure, and secure operational zones.	Require factory buildings, warehouses, production lines, storage areas, and logistics infrastructure.
Electricity Demand	Very high and continuous. Servers and cooling systems operate 24 hours a day throughout the year to ensure uninterrupted digital services.	Electricity demand may be high but often varies depending on production cycles, shifts, and operational schedules.
Water Use	Some cooling technologies use water to regulate server temperatures, depending on the design of the cooling system.	Water may be used for industrial processes, cleaning, cooling, or manufacturing operations depending on the industry.
Employment Patterns	Construction may create temporary jobs. Long-term operations typically employ a relatively small workforce, mainly specialised technical staff such as engineers, network specialists, and facility operators.	Manufacturing industries typically employ larger numbers of workers across production, assembly, maintenance, logistics, and administration.
Skill Requirements	Greater demand for specialised technical roles such as data-center operations engineers, electrical technicians, and network specialists.	Wide range of roles including skilled, semi-skilled, and manual labour depending on the sector.
Local Economic Linkages	Economic value is often connected to digital services such as cloud computing, artificial intelligence, fintech, and e-commerce. Direct local employment after construction may be limited.	Often generate significant direct and indirect employment and support local supply chains such as transport, services, and small businesses.
Operational Schedule	Operate continuously 24 hours a day, 365 days a year to support uninterrupted digital services.	Many industries operate in shifts or production cycles, though some heavy industries run continuously.

In summary, data centers are an important part of the digital economy. However, compared to many traditional industries, they are often more resource-intensive while typically employing fewer workers during long-term operations, as most processes are automated and technology-driven. Understanding these differences can help communities assess how different types of infrastructure affect local development and livelihoods.

Section 2

Data Center Expansion in India: Growth, Lifecycle, and Resource Dependencies

How growing digital demand and AI are driving the development of data centers

Growth of Data Centers in India

As digital demand continues to grow, data-center development is expanding rapidly across India. Several cities have emerged as major hubs due to strong connectivity, available infrastructure, and supportive policy incentives.

As per industry estimates, India hosts about 20% of global data but has only around 3% of data-center capacity, showing strong growth potential. Its capacity was about 1.4 gigawatts in 2025 and is expected to reach around 8 gigawatts by 2030. This growth is concentrated in key urban centres such as Mumbai, Chennai, Hyderabad, Bengaluru, Delhi NCR, and Pune, while industry trends also point to increasing development in Tier-2 and Tier-3 cities.

Why Data Centers *Are* Expanding

Several factors are contributing to the rapid expansion of data centers:

- Growth of digital services, internet usage, and mobile consumption
- Increasing demand for cloud computing
- Expansion of artificial intelligence and data-intensive technologies
- Rising use of smartphones and digital platforms
- Demand from sectors like fintech, e-commerce, and OTT services
- Expansion of fibre-optic networks and connectivity infrastructure
- Improving electricity infrastructure and availability of power
- Availability of land in emerging regions
- Data localisation requirements and regulatory needs
- Government policies and initiatives supporting digital infrastructure investment

As a result, India's data-center market is expected to grow significantly over the coming decade.

*W*here and How Resource Questions *A*rise: Understanding the Data Center Lifecycle

The development of a data-center unfolds across multiple stages, from initial planning and site selection to construction, deployment, and long-term operations. At each of these stages, questions around the use of land, water, electricity, and other resources emerge in different ways, shaping how the infrastructure interacts with local environments over time.

Pre-Construction: Planning & Site Selection

This phase focuses on early planning and decision-making. Key factors include translating business and technology needs into long-term infrastructure requirements, coordinating across stakeholders, and standardizing plans across multiple locations. This is where site selection takes place, often based on access to power, water, land, and incentives, shaping long-term reliance on local resources.

Construction: Building the Facility

This phase focuses on execution and coordination. Key factors include managing contractors and maintaining quality, handling scope changes during the build, and tracking timelines and dependencies. This is when infrastructure begins to physically impact the local environment.

Infrastructure Deployment: Making It Operational

This phase focuses on integrating and activating systems. Key factors include coordinating vendors and teams during commissioning, validating and documenting systems, and managing the complexity of modern infrastructure setups. This is when the facility transitions into an active system with continuous resource consumption.

Operations: Running Long-Term

This phase focuses on maintaining performance and reliability over time. Key factors include managing asset lifecycles and maintenance, responding to incidents, and using operational data to guide decisions. This is when long-term demand for power, cooling, and local infrastructure becomes sustained and ongoing.

Takeaway

Across all stages, site selection plays a critical role in shaping both the performance of the data center and its long-term impact on local resources and communities.

Section 3

LAND, LIVELIHOODS AND LOCAL CONTEXT: THE TELANGANA CASE STORY

How infrastructure expansion interacts with land use, livelihoods, and regional economies.

Telangana's Data Center Boom

As India's digital infrastructure expands, several states have positioned themselves as major data-center hubs by offering policy incentives, land, and infrastructure support. Telangana has emerged as one of the fastest-growing locations for data-center development.

In recent months, several large investment announcements have been made, including:

- Amazon Web Services – ₹60,000 crore
- NTT Data & Neysa Networks – ₹10,500 crore
- CtrlS Data Centers – ₹10,000 crore
- Microsoft – ₹15,000 crore expansion
- STT Global Data Centres – ₹3,500 crore
- Yotta Data Services – ₹70,000 crore

These publicly reported announcements represent over ₹1 lakh crore in proposed digital infrastructure investment.

Technology Corridors and Future Development Projects

Telangana has seen a growing push toward building technology-driven ecosystems through large-scale development initiatives. These often take the form of dedicated corridors or cities focused on specific areas of innovation.

Examples include:

- AI City – a proposed hub for artificial intelligence research and development
- Quantum City – a centre focused on advancing quantum technologies
- Bharat Future City – a large urban development project planned across 765 square kilometres in the Ranga Reddy district

These initiatives aim to strengthen research, innovation, and the broader technology ecosystem in the region. However, as such projects expand into peri-urban and rural areas, they can significantly reshape existing land-use and livelihood patterns. This expansion also raises questions around land governance, ownership, and how local communities are affected by these transformations.

Land Use and Assigned Lands

As urban expansion and infrastructure development extend into peri-urban regions, land-use patterns are undergoing significant change. In Telangana, these shifts have increasingly led to concerns among local communities, particularly in areas where agricultural land is being converted for infrastructure projects.

A key issue relates to assigned lands, which are government-allotted lands provided to landless households, particularly among Scheduled Castes and Scheduled Tribes, to support livelihood security. Under the Telangana Assigned Lands (Prohibition of Transfers) Act, 1977, such lands are generally not transferable in the open market and can typically only be transacted through the government. Journalistic reports and field interactions have highlighted emerging tensions between local communities, especially farmers, and institutions involved in land acquisition.

In villages such as Mekaguda and Begarikancha in Ranga Reddy district, some farmers have reported concerns regarding compensation, stating that the amounts received may not reflect prevailing market values. Some residents have also expressed perceptions of disparity between compensation received during acquisition and the higher value associated with subsequent development, contributing to a sense of inequality.

These concerns have led to forms of engagement such as community protests and legal action, reflecting broader questions around land valuation, consent, and governance.

Changing Rural Economies and Livelihoods

In addition to land-use changes, shifts are also being observed in rural economies and livelihood patterns.

Historically, many villages around Hyderabad have depended on:

- Agriculture
- Dairy Production
- Local Rural Markets

In some areas such as Mekaguda, industrial activity has already altered livelihood patterns, with some residents shifting from agriculture to dairy-based work. However, community members have reported concerns that industrial activity may have affected water quality, contributed to cattle deaths, and increased livelihood stress.

In this context, the introduction of additional infrastructure projects, including AI data centers, has raised further concerns among some residents, particularly where alternative livelihood opportunities are limited. Similarly, in Begarikancha, farmers and local representatives have expressed apprehension regarding the acquisition of surrounding agricultural land for infrastructure projects. The ongoing conversion of farmland may reshape agricultural practices and influence long-term livelihood options in the region.

Employment, Skills and Job Creation

As infrastructure expands and rural economies change, employment outcomes may not always align with expectations. In some locations, community members have indicated that early discussions around such projects included expectations of local employment opportunities. However, their experiences suggest a more complex reality.

Data centers are capital-intensive, requiring significant financial investment but relatively fewer workers once operational. Some estimates suggest that a ₹ 10,000 crore AI data-center cluster may generate around 3,600 jobs across construction and operational phases.

During construction, employment is often temporary and may involve workers from outside the region. Once operational, available roles tend to require specialised technical skills, such as data-center operations, electrical systems management, and network engineering. These may not align with the existing skill profiles of local communities.

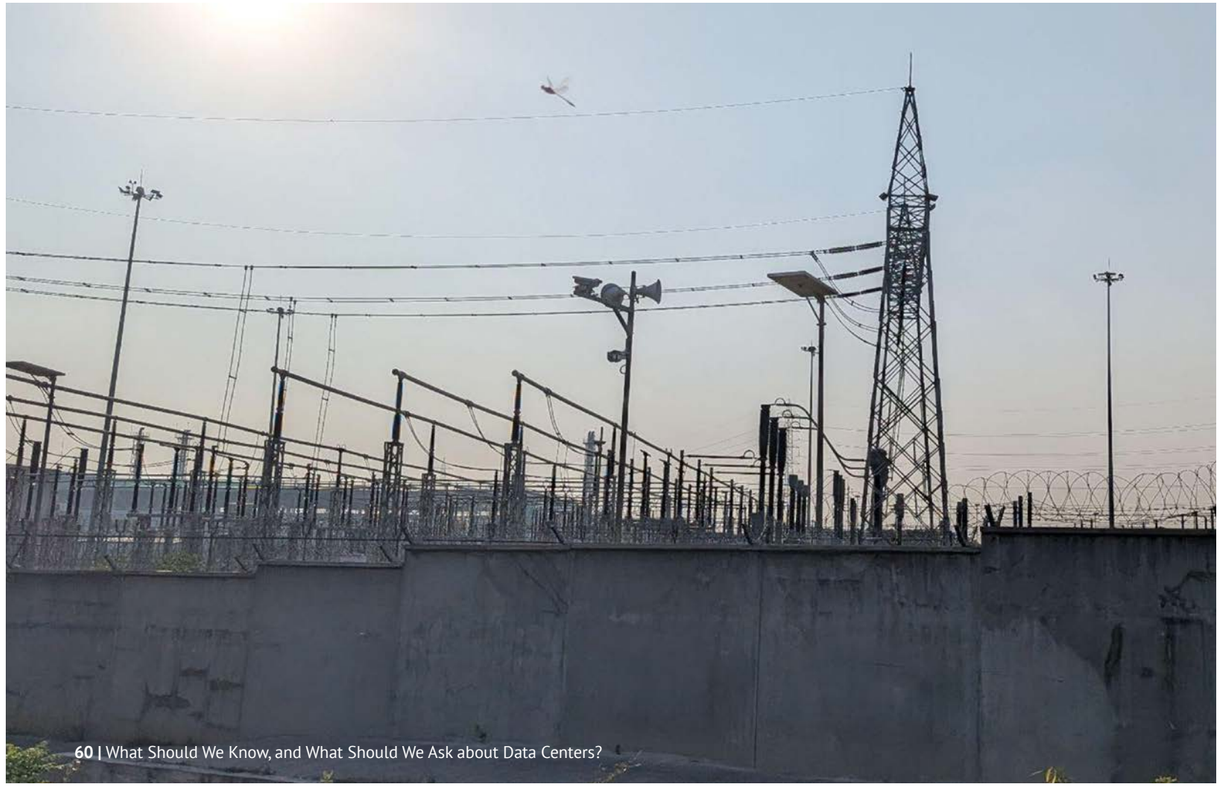
While the Government of Telangana has undertaken skill development initiatives, unemployment among educated youth remains a concern. Estimates indicate that around 20% of college graduates and 19.7% of diploma holders in the state are unemployed, suggesting a gap between available skills and employment opportunities.

Taken together, these dynamics raise questions about the extent to which such projects contribute to long-term local employment, particularly when compared with more labour-intensive industries.

Section 4

RESOURCES, GOVERNANCE AND COMMUNITY PARTICIPATION

Balancing digital infrastructure growth with sustainable resource use and community participation.



Electricity Demand and Digital Infrastructure

Data centers require continuous electricity to operate servers and cooling systems. Currently, they account for approximately 0.5% of India's electricity consumption, and this share is projected to rise to around 3% by 2030 as digital infrastructure expands. Ensuring a reliable and stable power supply is therefore a critical aspect of their development.

At the local level, while communities may not always be fully aware of broader power demand or grid capacity issues, concerns often emerge around the presence of high-voltage infrastructure in their vicinity. In some villages, residents have expressed apprehensions related to large power lines, substations, and perceived health risks such as radiation, reflecting the need for clearer communication and engagement around such developments.

At the same time, the implications of rising electricity demand are not limited to communities located near data centers. They also raise broader questions about state-level infrastructure and the capacity of existing power systems. As data centers place increasing strain on electricity grids, this can affect the reliability, distribution, and cost of power for citizens across the state. In this way, the expansion of digital infrastructure becomes not only a local concern but also a wider public issue, influencing how energy resources are managed and shared among different sectors and users.

Water Use and Cooling Systems

Along with electricity demand, cooling systems are another major requirement for data centers. As servers process data, they generate significant heat, which must be managed to maintain safe operating conditions. Many cooling systems rely on water, making water consumption a key concern. Industry estimates suggest that data centers may require around 26 million litres of water per megawatt each year.

This becomes particularly significant in regions like Telangana, which already face water stress. Groundwater levels in the state have declined to about 7.72 metres below ground level in 2024, and nearly 500 villages have reported challenges related to groundwater depletion. In such contexts, additional water demand from data center infrastructure places added pressure on state systems, raising important questions about long-term sustainability and resource allocation.

Governance, Transparency and Data Sovereignty

Governments often support digital infrastructure development through:

- Land Allocation
- Electricity Infrastructure
- Policy Incentives
- Streamlined Approvals

These measures are intended to attract investment and strengthen the digital economy. However, concerns related to land use, resource allocation, and livelihoods highlight the need for greater transparency and more inclusive decision-making processes. Providing accessible information and enabling meaningful public engagement can help reduce uncertainty and build trust.

At the same time, the expansion of digital infrastructure raises broader questions about data governance and sovereignty. Data sovereignty refers to the idea that data is subject to the laws and governance structures of the country in which it is collected or stored. This includes questions such as:

- Where Data is Stored
- Who Controls it
- How it is Regulated

These questions are increasingly important in discussions around accountability, regulation, and public oversight.

Policy and Governance Considerations

As digital infrastructure expands, it becomes important to balance technological growth with careful use of land, water, energy, and meaningful community participation. Several policy considerations are emerging as governments and stakeholders plan for the expansion of data centers and digital infrastructure.

- **Resource Planning**

  Data centers require reliable access to electricity and cooling systems. Long-term planning is therefore important to ensure that expanding digital infrastructure aligns with broader energy and water management strategies.

- **Environmental Assessment**

  Large infrastructure projects often involve environmental planning and regulatory review processes. Ensuring that environmental assessments consider resource use, ecological conditions, and local impacts can help support sustainable infrastructure development.

- **Transparency and Public Information**

  Providing accessible information about major infrastructure projects can help strengthen public understanding and dialogue. This may include information about land use, project scale, infrastructure requirements, and potential economic impacts.

- **Skills and Workforce Development**

  As the digital economy grows, education and training systems may play an important role in preparing workers for emerging technology sectors, including data center operations, cloud computing, and digital infrastructure management.

- **Community Engagement: Infrastructure development** can benefit from meaningful engagement with local communities and governance institutions. In India, local bodies such as Panchayati Raj Institutions (PRIs) play an important role in representing community perspectives in development discussions. Infrastructure projects often involve decisions about land use, resource allocation, and regional development priorities. Communities living in areas where such projects are proposed may therefore have an interest in understanding how these decisions are made and how local institutions are involved. Meaningful access to information and opportunities for dialogue can help communities engage constructively in discussions about development planning.

Community Participation and Local Governance

In India, Panchayati Raj Institutions (PRIs) form the system of rural local self-government. PRIs were constitutionalised through the 73rd Constitutional Amendment Act, 1992 to strengthen democracy at the grassroots level and enable local participation in development planning. Local governance institutions can play an important role in representing community perspectives in development discussions. As large infrastructure projects expand in rural and peri-urban regions, an important question arises:

Are elected community representatives and local governance institutions part of consultation and decision-making processes?

Questions Communities Can *Ask About* Data Center Projects

Community awareness and participation are essential when engaging with large infrastructure projects such as data centers. Their impacts on land, resources, and livelihoods are often complex and not always clearly communicated. The following are guiding questions for reflection to help communities better understand the scale, implications, and governance of such developments.

Land & Livelihoods

- What type of land is being allocated for the project?
- Have land transfers been conducted with fair compensation and informed consent from affected communities?
- How might this project affect agriculture, land use, or lead to displacement?

Water & Environment

- What level of water consumption will the facility require?
- Could this contribute to existing or future water scarcity in the region?

Energy & Infrastructure

- What additional electricity demand will the project generate?
- Is existing infrastructure capable of supporting this demand without affecting local access?
- In what ways does the project depend on or contribute to local infrastructure systems?

Economy & Employment

- How might the project influence existing local economic activities?
- What types of employment will be created, and to what extent are they long-term and locally accessible?

Governance & Decision-Making

- Were local institutions and communities meaningfully consulted during planning and approval processes?
- What forms of public support (such as tax incentives or subsidies) have been provided, and on what basis?
- What mechanisms are in place to ensure accountability if commitments are not fulfilled?

Data & Long-Term Impact

- What types of data will be processed, and who retains control over it?
- How might this project shape the region's social, economic, and environmental conditions over time?
- How are the benefits and burdens of this infrastructure distributed?

Key Takeaways

Digital infrastructure is often presented as a sign of progress, but its local impacts can be complex and uneven. Data centers require significant amounts of land, water, and electricity, often in regions that may already face resource constraints. This can affect access to land and natural resources and influence existing livelihoods.

Governments may provide incentives to attract such investments. However, the distribution of benefits is not always even, and long-term local employment opportunities may be limited compared to more labour-intensive industries. Data centers also rely on large-scale data processing, raising broader questions about awareness, control, and accountability in the digital economy.

Overall, while data centers are central to digital systems, their expansion highlights the need to balance technological growth with sustainability, equity, and transparent, community-centric data and AI governance.

Glossary of Key Terms

Data Center – a facility housing servers that store and process digital information.

Digital Infrastructure – systems that support digital services.

Artificial Intelligence – computer systems capable of performing tasks requiring human-like intelligence.

Data Sovereignty – the principle that data is governed by the laws of the country where it is stored.

Assigned Lands – government lands allocated to landless households.

Panchayati Raj Institutions – local self-government institutions established through the 73rd Constitutional Amendment.

Community-centric data governance: Data governance that centers community ownership, informed consent, and shared benefits.

Community-centric AI governance: AI governance that centers community participation, social justice, and accountability.

Quick Facts

- India has over 900 million internet users, making it one of the largest digital markets in the world.
- India hosts around 20% of the world's digital data but only about 3% of global data-center capacity, indicating significant expected growth in digital infrastructure.
- India's installed data-center capacity was approximately 1.4 gigawatts in 2025 and could reach around 8 gigawatts by 2030.
- Data centers currently consume about 0.5% of India's electricity, and this could increase to around 3% by 2030 as digital infrastructure expands.
- Data centers may require around 26 million litres of water per megawatt annually for cooling systems.
- Hyderabad's data-center capacity was about 52.32 MW in 2024 and is projected to reach around 196.76 MW by 2031, reflecting rapid growth in the sector.
- Hyderabad's data-center market is expected to grow at over 20% annually between 2026 and 2032.
- Installed IT load in the Hyderabad data-center market could increase from around 859 MW in 2025 to over 4,600 MW by 2032.
- Telangana has announced over ₹ 1 lakh crore in data-center and AI infrastructure investments, including projects by companies such as Amazon Web Services, Microsoft, NTT Data, CtrlS, STT Global Data Centres, and Yotta Data Services.
- Large AI infrastructure projects may involve tens of thousands of GPUs operating together, significantly increasing computing and energy demand.
- A ₹ 10,000 crore AI data-center cluster may generate around 3,600 jobs across construction and operational phases, reflecting the capital-intensive nature of such facilities.
- In Telangana, around 20% of college graduates and 19.7% of diploma holders are unemployed, indicating a mismatch between skills and employment opportunities.
- Groundwater levels in Telangana declined to around 7.72 metres below ground level in 2024, and around 500 villages have reported severe groundwater depletion.
- Telangana's electricity demand was around 17,162 MW in 2024–25 and could rise to 31,808 MW by 2034–35, reflecting growing infrastructure and digital demand.

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About the Module

Digital services often feel invisible. But the infrastructure that supports them is very real. Data centers require land, electricity, water, and connectivity. As digital infrastructure expands, it interacts with communities, natural resources, and local economies.

What Should We Know, and What Should We Ask about Data Centers? is a citizen awareness resource developed by the Digital Empowerment Foundation as part of the research project **Just AI, Just Land: Implications of Data Centers on Communities and Rights-Based Data Governance**. Supported by the Association for Progressive Communications (APC), this study is led and implemented by the Digital Empowerment Foundation (DEF), with Knowledge Partners Commons Collective and the AI + Planetary Justice Alliance.

This ***Citizen Awareness Module*** examines how the rapid expansion of data centers and artificial intelligence infrastructure intersects with land use, livelihoods, water and energy systems, and governance processes in India. Drawing on community interactions, secondary research, and expert consultations, it presents accessible insights into how emerging digital infrastructure can shape local environments and regional development patterns.

Designed as a public awareness resource, it is intended for community organisations, civil society groups, researchers, educators, students, and local governance institutions seeking to better understand the socio-environmental implications of digital infrastructure expansion and encourage informed dialogue on sustainable and inclusive development.

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