Inclusive Research Policies for Equity and Diversity

Bandana Soreng
Assistant Professor, Department of Commerce
Rourkela College, Rourkela, Sambalpur University, Odisha
Email id.: bandanasoreng@gmail.com

Abstract

Inclusive research policies for equity and diversity is an approach that integrates the principles of equity, diversity and inclusion in the research design, data collection, analysis and other aspects of research work. This paper explores the idea of inclusive research, an approach that sets the core principles of equity, diversity, and inclusion into every stage of the research process—from initial design and data collection to analysis and dissemination. Moving beyond traditional models that treat marginalized groups more as subjects, inclusive research repositioned individuals from underrepresented backgrounds, including those with disabilities and minority communities, as active collaborators and co-producers of knowledge. The study highlights that a primary barrier to ethical, inclusive practice is a lack of foundational knowledge, which can unintentionally lead to the exclusion of marginalized voices. By prioritizing the accumulation of relevant socio-cultural information prior to study, researchers can foster meaningful participation and uphold equitable standards. This analysis examines key policies that move beyond generalized definitions of diversity to promote equal opportunities. Ultimately, the findings suggest that diversifying the researcher's approach to designing, conducting, and communicating their work is essential for ensuring that research remains truly representative of and accountable to the communities it concerns. Lack of knowledge can be a barrier to the ethical measures weather be it knowledge of minor groups, social behaviour or disability. This paper also explores how the researchers should accumulate relevant information about the subjects or study areas before starting their studies. For ethical research, the researcher can also produce some proof of evidences to the other stakeholders in the form of pictures, videos, audio recordings or even stories from the individuals who were the part of the study. The study should be easy for everyone to take part in, especially those with special needs. By providing a good surrounding, being flexible and setting up the right support from the start, it can be ensured that every participant feels safe, respected, and comfortable throughout the entire research process. Keeping all these in mind, the researchers should also be fundamentally true and pursue the right approach. Ethical research borders in not only the researchers but also the funding and governing body and all other stakeholders integrated into the system.

Keywords: Equity, Diversity, Marginalized groups, Ethics, Stakeholders.

I. Introduction

Inclusive research policies are formal policies designed to boost the capacities and opportunities of disadvantaged and underrepresented individuals to engage in research activities, while ensuring their meaningful involvement in research processes.

The evidence base shows consistent conceptualization across multiple studies. Sandra Planes-Satorra& Caroline Paunov (2017) defines inclusive innovation policies as aiming to boost the capacities and opportunities of disadvantaged individuals to engage in innovation activities, including research and entrepreneurship, with examples including grants to disadvantaged researchers and science popularization programs.

Latifa Abidi et al. (2024) identify four core aspects of inclusive research: involvement of researched groups, accessibility, diversity and representativeness, and enabling positive change. C. Bigby et al. (2014) and M. Nind & H. Vinha (2014) further clarify that inclusive research encompasses multiple approaches—from advisory roles to collaborative partnerships—rather than a single model, multiple valid approaches exist, suggesting inclusive research policies lack standardized definitions. Evidence spans health sciences, education, and innovation sectors indicating growing recognition but limited policy-level analysis.

The evidence is moderately strong, with 6 sources addressing inclusive research/policies, though most focus on research practice rather than formal policy frameworks specifically. The sources show convergence on core principles: meaningful participation of disadvantaged groups, accessibility, and diversity.

II. Concept of Equity and Diversity

Equity and diversity in higher education research policies are characterized by definitional inconsistencies and fragmented operationalization approaches, with significant variation in how institutions translate these concepts into concrete research practices.

The formation of equity and diversity in higher education research policies reveals substantial inconsistencies across institutions. Equity, diversity and inclusion activities have become a policy priority attached to a variety of institutional action plans and performance reports, there were significant inconsistencies emerged amongst how equity is defined in policy documents, resulting in either redistributive or inclusive practices in equity, diversity, and inclusion initiatives [Merli Tamtik& M. Guenter, 2019]. This definitional confusion is further confirmed by research showing that colleges tend to be selective in their usage of Equity, Diversity, and Inclusion (EDI) definitions and employ unclear language around EDI, which makes it difficult to mobilize knowledge effectively and approach equity directly [Merli Tamtik& Puvi Balasubramaniam, 2024].

The complexity is combined by the expansion of different EDI frameworks and terminology. A comprehensive scoping review identified multiple phrases including “equity, diversity and inclusion," "equality, diversity, and inclusion,” and variations incorporating accessibility, justice, and decolonization, indicating that any one of these concepts is not enough to guide policy decisions [G. Wolbring& Annie Nguyen, 2023].

2.1. Operationalization Strategies

Where institutions have moved beyond definitions to concrete operationalization, several distinct approaches emerge. The most detailed research-specific operationalization comes from the University of Pennsylvania's Joint Research Practices Working Group, which developed comprehensive guidelines covering five key areas:

(1) participant payment and incentives;

(2) language interpretation and translation;

(3) plain language in research communications;

(4) readability of study materials; and

(5) inclusive language for scientific communications[E. Britez Ferrante et al., 2024].

Their specific recommendations include offering "cash payments and multiple payment options to participants," identifying "top languages of your target population," assessing "reading levels of materials and simplify language, targeting 6th to 8th-grade reading levels," and using "specific, humanizing terms as adjectives rather than nouns."

At the institutional level, operationalization has included "institutional political commitment (e.g. new equity offices, new senior administration positions, mandatory training), student and faculty recruitment with programmatic and research supports (e.g. diversity admission policies, scholarships, access programs, curriculum changes), accompanied by broader efforts to create supportive institutional climates" [Merli Tamtik& M. Guenter, 2019]. Some institutions have developed comprehensive strategic plans addressing mission statement alignment, applying an equity lens to our work, supporting campus-wide Diversity, Equity, and Inclusion (D.E.I.) efforts, implementing internal office practices to support the recruitment and retention of a diverse team, and ensuring access to learning opportunities about current trends in equity and inclusion [M. J. Hansen et al., 2021].

2.2. Implementation Gaps and Global Variations

Despite policy development, significant implementation challenges persist. Research on LGBTIQ+ inclusion reveals improved belonging and perceived safety where policies are explicit and resourced, but also recurrent implementation gaps and 'non-performative' dynamics, with intersectionality often referenced but rarely operationalised in policy design or evaluation [Javier Quirós Gómez & Rachel Palmén, 2026]. The global landscape shows considerable variation in practices

and data collected regarding diversity data, reflecting political and social histories, national and international policies and practices, priorities and funding [Katie S Wilson et al., 2022].

The scoping review literature reveals many gaps in the academic coverage, suggesting many opportunities for academic inquiries and a broadening of the EDI research community [G. Wolbring& Annie Nguyen, 2023]. This suggests that while EDI has become not only an ethical necessity but also essential for advancing knowledge and addressing global challenges [M. El Boghdady, 2025], the translation from policy to research practice remains incomplete and highly variable across institutions and contexts. Inclusive research policies can increase representation of underrepresented groups in academic research teams, but evidence of effectiveness is limited by short-term measurement and implementation challenges.

2.3. Importance of Inclusion in Research

The importance of inclusion in research work is versatile and fundamental for producing high-quality, relevant, and ethically sound research that serves diverse populations and advances societal progress.

Inclusion enhances research quality through multipleways. An inclusive body of researchers is better equipped to produce relevant, actionable research work that accounts for diversity and difference because of a strong link between the background, interests, and life experiences of a researcher and the questions and research topics they pursue. This connection between researcher diversity and research focus ensures that studies address questions relevant to broader populations rather than narrow demographic segments.

A qualitative study with 15 researchers across health sciences, biomedical sciences, and social sciences revealed that inclusion improves research validity by ensuring findings are applicable across diverse populations rather than being limited to homogeneous groups.

2.4. Historical Context and Equity Imperatives

The historical exclusion of certain groups from research highlights inclusion's critical importance. [S. Epstein, 2007] documents how until the mid-1980s, scientists often studied groups of white, middle-aged men and assumed that conclusions drawn from studying them would apply to the rest of the population. This practice led to significant knowledge gaps and potentially harmful generalizations that didn't account for biological, social, and cultural differences across populations.

[Scientific and Technical Advisory Council, 2020] emphasizes that diversity determines the level of inclusion, while inclusion determines the scope and substance of diversity, positioning inclusion as both a driver and outcome of equitable research practices. Their analysis of public health, nutrition, and dietetics research demonstrates that inclusion concerns are of utmost importance and require effective managementfor sustainable development.

2.5. Societal and Ethical Dimensions

[Latifa Abidi et al., 2024] documented that researchers cite societal, educational, and ethical arguments alongside methodological ones for inclusion's importance. The societal argument recognizes that research should serve and reflect the communities it studies, while ethical arguments emphasize justice and fairness in knowledge production.

[Murinshi Lily & D. B. Sharma, 2025] connect inclusion to broader sustainable development goals, arguing that inclusion, fair representation and involvement of all people regardless of gender, colour, ability, or socioeconomic statusis the foundation of sustainable development.Their analysis demonstrates how inclusive research practices contribute to achieving multiple Sustainable Development Goals through equitable knowledge creation. Four critical aspects that define inclusive research:

1. Involvement of researched groups,
2. Accessibility,
3. Diversity and representativeness, and
4. Enabling positive change.

These aspects work together to ensure research is not only methodologically sound but also socially responsive and transformative.

The barriers to inclusive research paradoxically underscore its importance. [Latifa Abidi et al., 2024] found that main barriers include researchers' lack of skills, lack of time and budget, and non-inclusive research materials.These challenges exist precisely because traditional research systems were not designed with inclusion in mind, making deliberate inclusive practices essential for fair knowledge production.

The importance of inclusion in research work extends far beyond moral imperatives to encompass methodological rigor, societal relevance, and sustainable development. There is not one correct way to conduct inclusive research, but rather that various strategies can increase inclusivity across qualitative and quantitative studies, making inclusion both a fundamental principle and a practical necessity for high-quality, impactful research.

Key Characteristics of Inclusive Research Policies

There are three broad categories of inclusive policies, they are:

1. Policy-level interventions at university, regional, and national levels;
2. Practices encompassing curriculum, administration, and teaching/learning; and
3. Accessibility measures addressing physical, digital, social, and attitudinal barriers.

At the university level, key policy indicators include periodic policy reviews and audits, compulsory staff training, creation of liaison offices, targeted enrolment initiatives, and monitoring organizational accessibility.

Inclusive research is also defined through four core aspects they are, involvement of researched groups, accessibility, diversity and representativeness, and enabling positive change [Latifa Abidi et al., 2024]. Inclusive policies must address stakeholder engagement throughout the research cycle, from agenda-setting to dissemination.

Policies matter and can make a significant difference in promoting equity in higher education, distinguishing between financial aid programs and non-monetary interventions that remove barriers for underrepresented groups. However, most studies employed qualitative methods with small samples, highlighting the need for more quantitative research to demonstrate policy effectiveness [Kalypso Filippou et al., 2025].

2.6. Implementation Challenges

Despite policy frameworks, significant barriers persist. A few key obstacles were identified including researchers' lack of skills, time constraints, budget limitations, and non-inclusive research materials [Latifa Abidi et al., 2024]. The need for institutional policies addressing discrimination and harassment in research settings, noting that "successful inclusion of underrepresented populations in research is investing in diverse research teams."

2.7. Structural Requirements

The evidence suggests that effective inclusive research policies require structural changes beyond individual initiatives. [Kalypso Filippou et al., 2025] emphasized the need for policy-focused research at regional and national levels, while [Latifa Abidi et al., 2024] called for changes in research culture, assessment criteria, and institutional support systems. The systematic review revealed that 75% of inclusion studies focused on students with disabilities, indicating the need for broader policy scope encompassing diverse underrepresented groups.

In conclusion, while comprehensive frameworks for inclusive research policies exist and show promise for promoting underrepresented group participation, the evidence reveals persistent implementation gaps, resource constraints, and the need for systemic institutional changes to achieve meaningful inclusion in higher education research.

III. Core Principles of Inclusive Research

Participatory Engagement and Collaboration: [S. Fletcher-Watson et al., 2021] identified six key considerations for inclusive research: taking first steps toward inclusive practice, setting clear expectations, implementing community-specific inclusion measures, addressing inclusion and intersectionality, promoting empowerment, and facilitating knowledge exchange. They emphasize that inclusive research "takes place with members of the relevant population rather than merely happening to or for them."

Equality, Diversity, and Inclusion (EDI) Framework: Fundamental EDI principles ensuring researchers from different backgrounds have equal opportunities to contribute to and benefit from research endeavours. Key strategies include diverse recruitment, mentorship programs, training to mitigate unconscious bias, data transparency, and institutional leadership accountability [M. El Boghdady, 2025].

Empowerment and Meaningful Participation: Community members are not only invited to join research teams, but also enabled to play an active role, including fair payment at consultancy rates and collaborative analysis and co-authorship opportunities [S. Fletcher-Watson et al., 2021].

Intersectionality and Multiple Identities: The sources emphasize recognizing that participants have multiple intersecting identities beyond their primary characteristic of interest, requiring tailored approaches that account for various forms of privilege and disadvantage [S. Fletcher-Watson et al., 2021].

However, with most sources focusing on inclusive education rather than research policies specifically, indicating this remains an emerging field requiring further development.

IV. Survey Execution and Outcomes

4.1. Survey Execution: Methodology and Data Sources

The surveys and assessments referenced in this study were not conducted through a single unified instrument but rather through a **multi-source, layered data collection approach**, combining government-administered national surveys, institutional self-assessments, and independent academic evaluations.

4.1.1. National-Level Data Collection

1. **National Science & Technology Management Information System (NSTMIS)**

This is the primary federal data repository operating under the Department of Science and Technology (DST). NSTMIS periodically collects, compiles, and publishes workforce statistics from registered R&D establishments across India - including public sector laboratories, private research firms, academic institutions, and government-funded science bodies. The data collection methodology involves:

2. **Mandatory institutional reporting** from R&D establishments on personnel demographics

The National Science & Technology Management Information System (NSTMIS) operates on a framework of compulsory data submission, wherein all registered research and development establishments across India are formally obligated to report workforce-related demographic information to the Department of Science and Technology (DST). This mandatory reporting mechanism encompasses a wide spectrum of institutions, including government-funded laboratories, public sector research bodies, private sector R&D units, autonomous scientific organizations, and higher educational institutions engaged in research activities.

The demographic data collected through this reporting process is comprehensive in scope. Institutions are required to furnish detailed information pertaining to the gender composition of their research personnel, the academic and professional qualifications of their workforce, the nature and category of employment - whether permanent, contractual, or project-based - and the distribution of staff across various functional roles within the research hierarchy. This structured and obligatory reporting ensures that NSTMIS maintains a continuously updated and nationally representative database of India's R&D human capital.

The significance of mandatory reporting lies in its non-discretionary nature. Unlike voluntary surveys, which are susceptible to self-selection bias and inconsistent participation rates, a compulsory reporting framework guarantees a higher degree of data completeness and institutional coverage. It also places a formal accountability obligation on research establishments, compelling them to maintain internal records of personnel demographics with sufficient precision to meet national reporting standards. This, in turn, fosters a degree of internal institutional awareness regarding the demographic composition of their own workforce.

3. **Disaggregation by gender, discipline, and employment category** to allow field-specific equity analysis

Beyond the mere collection of aggregate workforce numbers, the NSTMIS methodology incorporates a systematic process of data disaggregation - that is, the deliberate breakdown of collected information into specific sub-categories to enable more granular and meaningful analysis. The three primary axes of disaggregation employed are gender, academic discipline, and employment category, each of which serves a distinct analytical purpose in the broader assessment of research equity.

Gender disaggregation allows policymakers and researchers to move beyond surface-level workforce statistics and examine the precise distribution of male and female personnel across different tiers and functions of the research establishment. Without this layer of disaggregation, an institution reporting a large total workforce could obscure the reality that women are concentrated in lower-ranking or non-research support roles while remaining nearly absent from senior scientific positions. By isolating gender as a distinct variable, the data enables a far more honest and actionable representation of equity outcomes within individual institutions and across the national research landscape.

Disciplinary disaggregation is equally critical, as it acknowledges that gender representation does not manifest uniformly across all fields of scientific inquiry. The barriers confronting women in Engineering and Technology are structurally and culturally distinct from those present in Health Sciences or Social Sciences and Humanities. A disaggregated disciplinary analysis therefore prevents the masking of severe underrepresentation in specific fields behind more favourable averages in others. It allows targeted policy interventions to be designed and deployed with field-specific precision, rather than applying generalized solutions to problems that are fundamentally domain-specific in nature.

Employment category disaggregation further refines the analytical picture by distinguishing between permanent research scientists, contractual project staff, postdoctoral fellows, technical support personnel, and administrative employees. This distinction is particularly important because equity challenges are not uniformly distributed across employment types. Contractual and project-based research positions, which typically offer less job security, fewer institutional benefits, and limited access to career advancement opportunities, tend to have different demographic profiles than permanent scientific cadres. Analysing workforce composition through this lens reveals structural vulnerabilities that aggregate headcount data would otherwise conceal.

4. **Longitudinal tracking** to identify trends in workforce composition over time.

The third and perhaps most strategically valuable dimension of the NSTMIS data collection methodology is its longitudinal character — that is, its capacity to track changes in workforce composition across successive time periods rather than capturing only a static snapshot of the research personnel landscape at a single point in time. Longitudinal tracking transforms the database from a descriptive census instrument into a dynamic analytical tool capable of revealing directional trends, measuring policy impact, and projecting future trajectories of equity outcomes.

By maintaining consistent data collection standards and institutional coverage over multiple reporting cycles, NSTMIS enables year-on-year and decade-spanning comparisons of how the demographic composition of India's R&D workforce has evolved. This temporal dimension is indispensable for evaluating whether equity-focused interventions — such as the GATI framework, the WISE-KIRAN scheme, or reservation-linked research fellowship programs — are producing measurable improvements in representation over time, or whether such policies are falling short of their intended outcomes despite their formal implementation.

Longitudinal data also holds particular importance for identifying subtle but consequential trends such as the rate of attrition among female researchers at different career stages, the pace at which women are advancing into senior scientific roles relative to their male counterparts, and whether certain disciplines are experiencing meaningful progress toward gender parity while others remain stagnant. These trend-based insights carry a level of evidential weight that single-point surveys cannot provide, as they reflect the cumulative effect of systemic forces — cultural, institutional, economic, and policy-driven — on the composition of the research workforce over extended durations.

Furthermore, longitudinal tracking serves a prospective function by providing the empirical foundation for forecasting future workforce scenarios under different policy conditions. When combined with disaggregated gender and disciplinary data, trend analysis allows policymakers to model the projected time horizon within which specific equity benchmarks might be achieved, and to identify inflection points where accelerated or redirected intervention may be necessary. In this capacity, the longitudinal methodology elevates NSTMIS data from a reporting exercise to a strategic planning instrument at the heart of India's science and technology governance framework.

All India Survey on Higher Education (AISHE 2021–22) Administered by the Ministry of Education, AISHE is one of the most comprehensive annual surveys of India's higher education ecosystem. It covers over 1,000 universities and 42,000+ colleges nationwide. Relevant to this study, AISHE captures:

- Gender-disaggregated faculty headcounts across institutions
- Distribution of academic staff by designation and seniority level
- Institutional profiles of STEM versus non-STEM faculty representation

UNESCO Benchmarking International comparative data from UNESCO supplements national figures, particularly in identifying where India's female researcher ratios stand relative to global averages and regional peers. This adds an external validation layer to the domestic datasets.

4.1.2. Institutional Ground-Level Survey

A separate and more focused survey was conducted specifically within Indian academic libraries and research repositories to assess the practical, day-to-day status of DEIA implementation. This survey was designed to measure the gap between policy awareness and real-world execution at the institutional level.

The survey evaluated professionals — likely librarians, repository managers, research coordinators, and academic administrators — across three distinct dimensions:

Dimension	What It Measured
Conceptual Awareness	Whether respondents understood the principles of diversity, equity, inclusion, and accessibility
Active Program Involvement	Whether respondents were personally engaged in or contributing to DEIA initiatives at their institutions
Formal Structural Training	Whether respondents had received organized, institutionally mandated training on DEIA practices

This three-tier measurement framework was deliberately structured to distinguish between knowing, doing, and being formally equipped — three levels that often diverge significantly in practice.

4.2. Survey Outcomes: Detailed Findings

4.2.1. The R&D Gender Representation Gap

The NSTMIS data reveals a stark and measurable disparity at the core of India's research workforce. Out of approximately 3.42 lakh R&D personnel actively engaged in registered establishments, only around 56,747 are women, placing female representation at a mere 16.6%.

This figure is particularly significant because:

- It refers exclusively to active researchers — those directly engaged in R&D work — not administrative or support staff
- It reflects a systemic pipeline failure, where women who enter higher education in substantial numbers progressively drop out at each successive stage of the research career ladder
- It suggests that despite decades of policy intervention, the structural composition of India's research workforce remains heavily skewed

4.2.2. Disciplinary Variation: A Field-by-Field Breakdown

One of the most nuanced findings from the NSTMIS data is that gender representation is not uniformly poor across all disciplines. There exist significant inter-disciplinary variations that carry important policy implications:

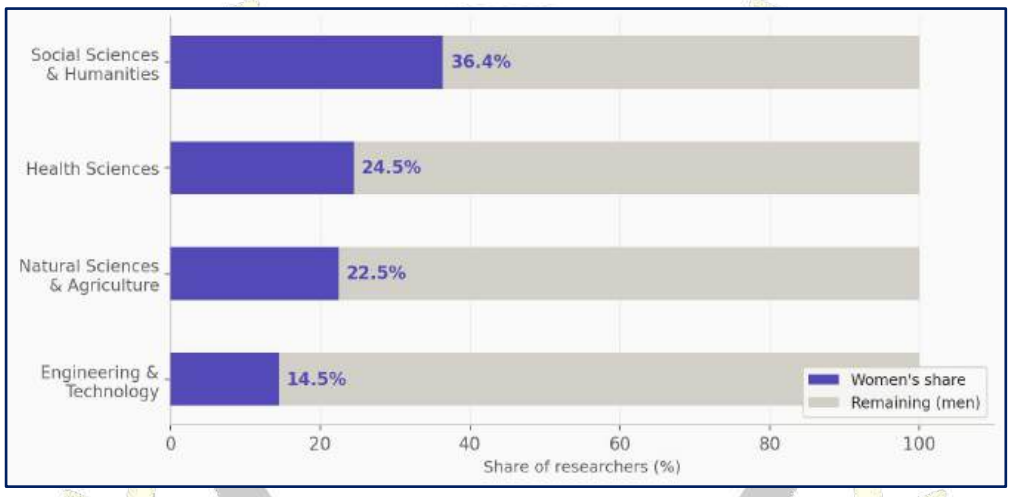


Figure 1: Women as % of active R&D researchers by discipline (NSTMIS data, India)

What this tells us:

- **Social Sciences & Humanities** comes closest to gender parity, likely because these fields have historically been more socially accessible to women in India and carry fewer infrastructural barriers such as laboratory access or field-based fieldwork demands
- **Health Sciences** performs moderately well, partly driven by the steady growth of women in medical and nursing education
- **Engineering & Technology** records the lowest representation at 14.5%, reflecting the deeply entrenched cultural, infrastructural, and institutional barriers that continue to deter women from pursuing and sustaining careers in technical research
- The gradient across disciplines implies that one-size-fits-all equity policies are insufficienttargeted, field-specific interventions are necessary to address the unique barriers present in each domain.

4.2.3. The Faculty Paradox: Entry vs. Leadership

Perhaps the most intellectually striking finding across the surveys is what can be termed the **Faculty Paradox**- a phenomenon where strong aggregate representation at the faculty level coexists with severe underrepresentation at senior and leadership levels.

- According to AISHE 2021–22, women comprise 43% of all higher education faculty in India nearly 16 lakh professionals — a figure that superficially suggests near-parity
- However, when the lens shifts to senior research roles, institutional research boards, principal investigator positions, and STEM leadership, women represent only about one-third of researchers globally, and considerably less in India's senior academic ecosystem.

This paradox exposes a glass ceiling embedded within the research pipeline. Women are entering academia in significant numbers, but structural obstacles including biased promotion criteria, unequal access to research grants, disproportionate administrative burdens, and career interruptions due to caregiving responsibilities prevent a proportional rise to senior research positions.

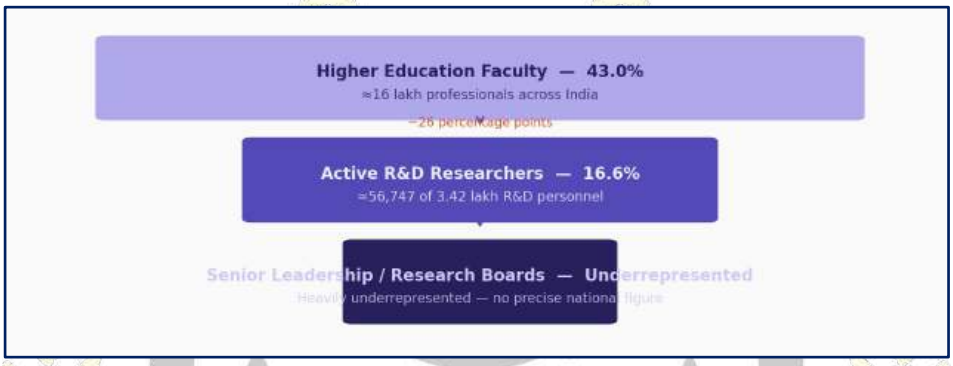


Figure 2: The Faculty Pipeline paradox – Women's share at each career stage

The implication is critical: **increasing the number of women entering academia does not automatically translate into equitable research outcomes unless mid-career and senior-level barriers are simultaneously dismantled.**

4.2.4. The Awareness–Action Gap: The Most Operationally Significant Finding

The institutional DEIA survey conducted across academic libraries and research repositories produced what is arguably the **most actionable finding** of the entire study — the Awareness–Action Gap.

The three-tier results are as follows:

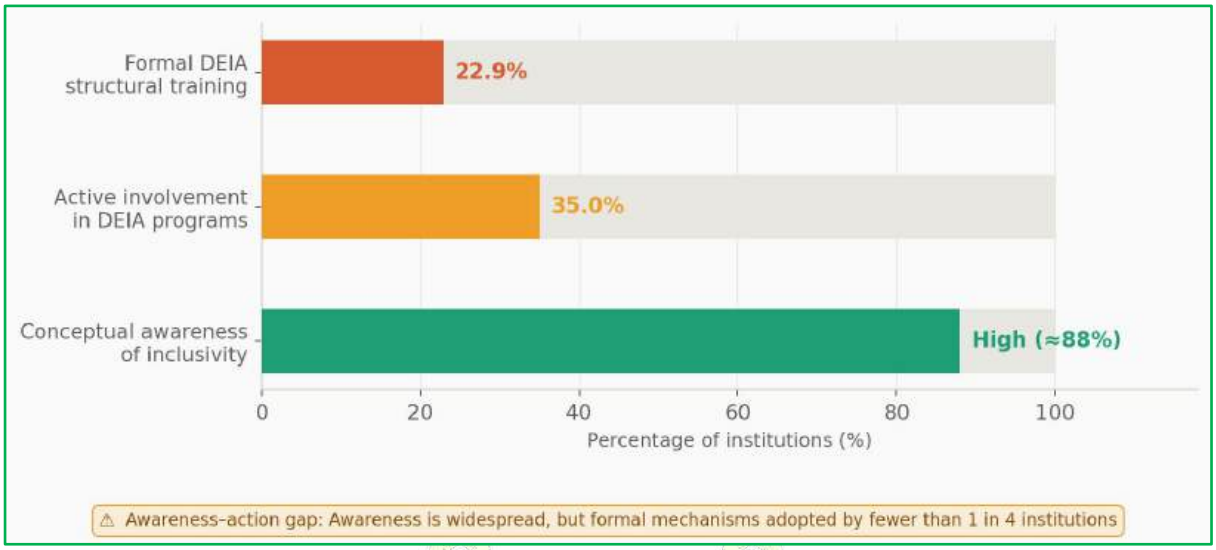


Figure 3: DEIA engagement in academic libraries & research repositories (Institutional survey, India)

Interpreting the Gap:

- The **high conceptual awareness** indicates that professionals within academic institutions are generally familiar with the language, principles, and importance of diversity and inclusion — a positive baseline
- However, only **35% are actively involved** in any DEIA-related programs or initiatives, meaning nearly two-thirds of institutional professionals remain passive observers despite their awareness
- Most critically, only **22.9% have received formal structural training** — meaning that even among those who are involved, the majority are operating without standardized knowledge, tools, or frameworks

Why this gap matters:

This finding demonstrates that awareness alone does not drive institutional change. Without **formal training, accountability structures, and integrated operational mandates**, DEIA principles remain aspirational rather than functional. Specific mechanisms that remain largely unimplemented include:

- Equitable citation auditing to address systemic biases in academic referencing
- Accessibility tools for researchers with physical or neurodivergent disabilities
- Systemic diversity tracking within research teams and grant allocation processes
- Inclusive procurement and design of digital research submission portals

4.3 Policy Responses Informed by Survey Outcomes

The survey findings have directly shaped the design of two major institutional frameworks:

GATI (Gender Advancement for Transforming Institutions) Modelled on the UK's Athena SWAN charter, GATI requires institutions to conduct **structured self-assessments** measuring recruitment bias, career progression fairness, and research grant parity directly targeting the structural inequities identified in NSTMIS and AISHE data.

WISE-KIRAN Scheme Addressing the mid-career dropout phenomenon highlighted by the Faculty Paradox, this scheme provides **re-entry fellowships, flexible funding timelines, and structural support** to researchers who have experienced career breaks a direct policy response to the pipeline leakage identified in the surveys.

V. Recommendations

The preceding analysis — spanning the survey findings on India's R&D workforce composition, the review of international policy frameworks, and the examination of intersectionality and disability inclusion — converges on a set of concrete recommendations directed at different stakeholders within the research ecosystem. These recommendations are grounded in the recognition that inclusive research requires aligned action at multiple levels simultaneously: individual researchers

cannot achieve systemic equity in isolation, nor can institutional policy frameworks succeed without meaningful engagement from the researchers and communities they are intended to serve.

5.1 For Researchers

- Conduct a positionality statement as a standard preliminary step in all research projects, explicitly reflecting on how the researcher's own social location — including gender, caste, ability status, and disciplinary background — may shape research design and interpretation.

- Invest in foundational knowledge of the communities or populations being studied before fieldwork commences, including their linguistic practices, cultural norms, and prior experiences with research institutions, in order to minimize the risk of unintentional exclusion or harm.

- Design research instruments using Universal Design for Research principles from the outset, ensuring that accessibility is built into data collection tools, consent processes, and dissemination formats rather than added as an afterthought.

- Actively pursue co-researcher models when working with communities that have historically been treated as research subjects, offering fair compensation at consultancy rates and genuine co-authorship opportunities where intellectual contributions warrant them.

- Engage with intersectional data analysis practices by disaggregating findings across multiple demographic dimensions rather than treating target populations as homogeneous categories.

5.2 For Research Institutions

- Establish mandatory, structured DEIA training for all research-active staff, addressing not only conceptual awareness but practical implementation skills — including accessible research design, equitable recruitment, and inclusive mentorship. The current finding that only 22.9% of institutional professionals have received formal DEI training represents an urgent gap requiring systematic institutional response.
- Implement regular equity audits of research grant allocation, promotion decisions, and research team composition, with disaggregated reporting by gender, caste, disability status, and career stage.
- Create dedicated institutional support structures — such as equity offices, disability liaison roles, and intersectionality advisers — with sufficient resourcing and organizational authority to influence research governance decisions.
- Develop flexible research career pathways that accommodate career breaks, part-time research engagement, and non-linear career trajectories, addressing the mid-career dropout phenomenon identified in the Faculty Paradox finding.
- Revise promotion and performance assessment criteria to recognize diverse forms of research contribution, including community engagement, public dissemination, and co-produced knowledge, which may be disproportionately undervalued in conventional academic metrics.

5.3 For Funding Bodies

- Introduce binding equity conditionality mechanisms, modelled on the European Horizon programme's Gender Equality Plan requirement and Canada's CRC equity targets, linking institutional funding access to demonstrable EDI compliance rather than voluntary aspiration.
- Create dedicated funding streams for intersectional equity research — studies that examine how multiple forms of disadvantage compound within research careers and communities — to build the evidence base necessary for more targeted policy interventions.
- Require grant applications to include an explicit gender and diversity analysis component, addressing not only research team composition but the integration of diversity variables into research content and methodology.
- Support longitudinal tracking of equity outcomes beyond the period of funded projects, enabling evaluation of whether funded interventions produce durable changes in research workforce composition and research practice.

5.4 For Policymakers and Governing Bodies

- Develop a nationally standardized EDI monitoring framework for the Indian research sector that captures intersectional data combining gender, caste, disability status, and geographic origin enabling the identification of compounded disadvantages that aggregate statistics currently obscure.
- Legislate explicit equity requirements for publicly funded research institutions, moving beyond the current framework of voluntary schemes such as GATI toward a binding accountability structure with meaningful consequences for non-compliance.
- Invest in the infrastructure necessary to produce high-quality, longitudinal EDI data, including training for institutional research administrators and development of standardized, privacy-protective data collection protocols.
- Engage with international policy communities to align India's inclusive research frameworks with globally recognized standards, enabling participation in comparative research and facilitating access to international funding mechanisms that require demonstrated EDI compliance.

VI. Limitations of the Study

Any honest scholarly analysis must account not only for what its findings demonstrate but for the boundaries of what its methodology permits it to claim. The present study, while offering a substantive contribution to understanding inclusive research policies in the Indian context and beyond, is subject to several important limitations that qualify the scope and generalizability of its conclusions.

First, the study relies primarily on secondary data sources including the NSTMIS workforce statistics, AISHE survey data, and published academic literature rather than on primary qualitative or quantitative data collected specifically for this analysis. While these sources are authoritative and nationally representative, they carry their own methodological constraints. NSTMIS data, for instance, is derived from mandatory institutional reporting and therefore reflects only those R&D establishments that are formally registered with the Department of Science and Technology. Unregistered research activities — including substantial amounts of research conducted within civil society organizations, community-based initiatives, and private sector entities that fall below reporting thresholds — are systematically excluded from this data, potentially creating a picture of India's research workforce that overrepresents formal, institutionalized research environments.

Second, the intersectional analysis offered in this paper is constrained by the nature of available data. As noted in the analysis, existing national datasets do not systematically capture the intersection of gender with caste, disability, and other equity-relevant characteristics within research personnel. The intersectional conclusions drawn in this paper are therefore based on triangulation across multiple data sources and inference from related findings rather than direct empirical analysis of intersectional representation data. Future research will benefit considerably from the development of more comprehensive, intersectionally disaggregated data collection systems.

Third, the institutional DEIA survey conducted across academic libraries and research repositories, while providing valuable ground-level insights into the awareness-action gap, was limited in its sample size and institutional scope. The finding that only 22.9% of surveyed professionals had received formal DEIA training, while operationally significant, should be interpreted as indicative rather than definitively representative of all Indian academic institutions. A larger, more systematically sampled survey would be required to establish the precise prevalence of DEIA training deficits across the full range of India's research institutions.

Fourth, the international comparative analysis in this paper is necessarily selective. The frameworks examined — Horizon Europe, the NIH Diversity Supplement, and the Canadian Tri-Agency model — represent well-documented, high-profile cases, but the global landscape of inclusive research policy is considerably more varied. Experiences from the global south, including African, Latin American, and Southeast Asian contexts where research equity challenges take distinct forms shaped by postcolonial histories and resource constraints, are underrepresented in this analysis. This limitation reflects both the scope of this particular study and a broader gap in the international literature, which itself tends to overrepresent high-income, English-language research environments.

Finally, the recommendations offered in this paper are grounded in existing evidence and comparative policy analysis but have not been empirically tested within the Indian research context. Their effectiveness under specific institutional conditions would need to be evaluated through implementation studies and longitudinal monitoring before strong causal claims about their impact could be made.

VII. Ethical Framework for Inclusive Research

Ethics in inclusive research extends well beyond compliance with formal institutional review requirements. While research ethics boards and informed consent procedures provide a necessary baseline for the protection of research participants, truly ethical inclusive research demands a deeper and more reflexive engagement with questions of power, representation, transparency, and accountability. This section elaborates the ethical dimensions of inclusive research practice across four interconnected themes: informed consent across linguistic and cultural barriers, power dynamics in community research, researcher positionality, and accountability to research communities.

7.1 Informed Consent across Linguistic and Cultural Barriers

The principle of informed consent that research participants must understand what they are agreeing to and must freely choose to participate is foundational to research ethics. However, the standard procedures through which informed consent is sought are frequently designed with a literate, language-dominant, and institutionally familiar population in mind. When research is conducted with communities that include individuals who are not literate in the dominant research language, who have limited prior exposure to formal research procedures, or who belong to cultural traditions in which individual decision-making is embedded within family or community structures, standard consent procedures may be formally compliant while being substantively inadequate.

Ethical inclusive research requires that consent procedures be adapted — not merely translated — to the communicative norms and decision-making practices of the communities involved. This may mean providing consent information in multiple languages and formats, including audio and visual explanations for participants with limited literacy; allowing adequate time for participants to consult with family or community members before making decisions; ensuring that participants understand their right to withdraw from the study at any point without penalty; and working with community liaisons or cultural brokers who can explain research purposes in contextually meaningful terms. Researchers working with communities in India's linguistically diverse landscape face particular obligations in this regard, given the country's 22 constitutionally recognized languages and hundreds of additional spoken languages that lack standardized written forms.

7.2 Power Dynamics in Community Research

Every research relationship involves an asymmetry of institutional power. The researcher typically possesses educational credentials, institutional affiliation, access to funding, and professional authority that the research participant does not. When research is conducted with marginalized communities — including those defined by poverty, caste disadvantage, disability, or geographic isolation — this power differential is compounded by the broader social inequalities within which the research relationship is embedded. Ethical inclusive research requires that researchers not only acknowledge this power asymmetry but actively take steps to mitigate its distorting effects on participation, data quality, and the ultimate use of research findings.

One practical implication of this principle concerns the ownership and control of research data. Communities that participate in research have a legitimate interest in how the data generated through their participation is used, stored, and disseminated. Research designs that treat community-derived data as the exclusive property of the researcher or funding institution, without any mechanism for community review, consent to publication, or access to findings in accessible formats, reflect an ethical framework inadequate to the principles of inclusive research. Indigenous data sovereignty frameworks — such as the CARE Principles (Collective Benefit, Authority to Control, Responsibility, Ethics) developed for Indigenous data governance — offer instructive models for rethinking data ownership in community research contexts.

7.3 Researcher Positionality

Positionality refers to the ways in which a researcher's social identity and life experience shape their engagement with research questions, their relationships with participants, and their interpretation of findings. An ethical commitment to inclusive research requires that researchers cultivate ongoing reflexive awareness of their own positionality rather than adopting the fiction of objective, view-from-nowhere inquiry.

This reflexive practice has concrete methodological implications. A researcher from a dominant caste background studying caste-based exclusion in academic institutions, for example, must critically examine how their own social position may affect their access to candid accounts from participants from Scheduled Caste backgrounds, how their interpretive frameworks may be unconsciously shaped by dominant caste perspectives, and how their institutional affiliations may influence the reception of their findings within and beyond academia. Documenting positionality in published research — through explicit positionality statements that accompany research articles and reports — is an increasingly recognized practice in qualitative and community-based research that promotes transparency and invites critical scrutiny of the relationship between researcher position and research conclusions.

7.4 Accountability to Research Communities

Ethical inclusive research does not end with the publication of findings. Researchers working with marginalized communities have ongoing obligations of accountability to those communities that extend through and beyond the formal research process. These obligations include communicating findings back to research communities in accessible, non-technical formats; involving communities in reviewing findings for accuracy and cultural appropriateness before publication; ensuring that research outputs are designed to be actionable and beneficial to the communities studied, not merely informative to academic audiences; and maintaining transparency about the ways in which research findings are used by policymakers, funders, and other stakeholders.

The accountability dimension of inclusive research ethics also encompasses the responsibilities of funding bodies and governing institutions. As this paper has argued throughout, ethical research is not the sole responsibility of individual researchers but is shaped by the incentive structures, resource allocation decisions, and accountability mechanisms maintained by the institutions and bodies that govern research. Funding conditions that reward publication speed and academic citation impact without regard for community benefit, institutional promotion criteria that undervalue participatory and co-produced research, and governance structures that exclude community representatives from research priority-setting processes are all ethically consequential choices — not neutral administrative arrangements.

VIII. Conclusion

This paper has examined inclusive research policies through multiple interlocking lenses: their conceptual and historical foundations, their operationalization across different institutional contexts, their application to the specific challenges of the Indian research landscape, and their extension to encompass intersectionality, disability, ethics, and comparative international frameworks. Taken together, the evidence presented leads to a set of conclusions that are simultaneously encouraging in terms of the intellectual resources available for building more inclusive research systems and sobering in terms of the distance that remains between policy aspiration and systemic transformation.

The most fundamental conclusion emerging from this analysis is that inclusive research is not a supplementary or peripheral concern — it is a constitutive condition of high-quality, socially accountable knowledge production. Research that excludes or marginalizes significant portions of the population from participation — whether as researchers, as participants, or as the intended beneficiaries of research findings — is not merely unjust but scientifically compromised. The historical record of medical research conducted exclusively on male subjects producing findings of limited applicability to women; the systematic underrepresentation of rural, low-caste, and disabled communities in research on the very social conditions that most profoundly affect their lives — these are not aberrations but the foreseeable outcomes of research systems designed without inclusive principles at their core.

The survey findings presented in Section IV give concrete empirical grounding to what might otherwise remain abstract arguments. The figure of 16.6% female representation among India's active R&D personnel is not merely a statistical data point — it represents the cumulative effect of decades of structural barriers, from the cultural discouragement of girls from

pursuing science in school through the glass ceiling documented in the Faculty Paradox, in which women enter academia in significant numbers but are systematically filtered out before reaching senior research positions. The awareness-action gap in institutional DEIA practice — 76% conceptual awareness declining to 22.9% formal training — similarly materializes a broader phenomenon: the transformation of inclusive principles from institutional rhetoric into organizational practice requires investments of resources, accountability, and leadership commitment that many institutions have not yet made.

The international comparative analysis reveals that more mature policy environments — including the European Union's Horizon framework, Canada's Tri-Agency system, and the UK's Athena SWAN charter — have addressed this gap through mechanisms of structural conditionality: binding requirements that link institutional funding and accreditation to demonstrable equity outcomes, rather than merely aspirational commitments. India's policy instruments, while thoughtfully designed and directionally sound, have not yet incorporated this level of structural accountability. The lesson from international experience is not that conditionality alone is sufficient — equity outcomes require sustained cultural change alongside structural incentives — but that voluntary frameworks consistently fall short of achieving systemic transformation.

The intersectional analysis in this paper highlights a further frontier for inclusive research policy: the recognition that equity challenges do not operate along single demographic axes but are produced by the intersection of multiple social positions. Gender equity policies that do not account for caste, disability, and geographic disadvantage will systematically reproduce the exclusion of those who face the most compounded barriers. Future policy development — in India and internationally — must build the data infrastructure, analytical frameworks, and intervention designs necessary to address intersectional disadvantage rather than sequentially addressing one dimension of inequality at a time.

Finally, the ethical analysis developed in Section VII underscores that inclusive research is not reducible to policy compliance. The deepest commitments of inclusive research is to the dignity and agency of all participants, to transparency about the power dynamics inherent in research relationships, to accountability to the communities whose lives and experiences generate research knowledge are ethical commitments that must be animated by researchers, institutions, funders, and policymakers who genuinely share those values. Policies create the structural conditions for inclusive research to flourish; the quality of inclusive practice ultimately depends on the knowledge, skill, reflexivity, and ethical seriousness that individual researchers bring to their work.

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