



Researching Realities, Shaping Futures in Jammu and Kashmir

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¹ Abstract —Learning changes how people live, work, and care for nature in Jammu and Kashmir - helping them create stronger local communities. Still, even though it matters so much, schools here struggle with old buildings, spotty internet, teachers using ways that don't fit today's world, plus little support when picking jobs or next steps. Because of this mix, what kids learn at school often misses real job needs and eco-knowledge, which leaves plenty unsure where they're headed after classes end. On top of that, not having a connected setup - where students' passions, skills, and aims link up with actual eco-conscious options - makes things even tougher. Because kids face money-related hurdles, local limitations, or simply don't get to see green tech or sustainability jobs up close, their growth often stalls. To tackle these issues, this research introduces a personalized, all-in-one career and eco-education helper - powered by AI, built to save energy, focused on protecting nature, offering tailored job routes, training tips, and school advice. Instead of just pushing trends, it highlights sustainability skills, global environmental targets, simple tech use, lightweight online courses, plus choices that care for the planet. Using real-time data analysis, the tool aims to connect schooling, jobs, and earth-friendly habits, making sure learners in Jammu and Kashmir get fair chances to grow through green, forward-looking education.

Index Terms—Education System · Jammu and Kashmir · Career Guidance · Employability · Personalized Learning · Artificial

Intelligence · Educational Counselling · Skill Development · Academic Growth · Career Awareness · Student Empowerment · Digital Education · Sustainable Development · Eco-Friendly Technology · Green Careers

I. INTRODUCTION

The Union Territory of Jammu and Kashmir, located in northern India, is estimated to be home to about 13–14 million people and measures approximately 22,236 square kilometres. Referred to as “Paradise on Earth” for its breathtaking natural beauty, the region is divided into two parts: Jammu and Kashmir, which together have a total of 20 districts. Despite its rich cultural heritage, the area poses enormous challenges due to its mountainous terrain, limited connectivity, and long-lasting impacts of political conflict that impede development generally, and specifically in education.

Years of unrest and difficult geography have disrupted

regular schooling, especially in rural areas, with damage to infrastructure, thereby restraining access to quality education. Although the current literacy rate is around 82% as of 2025, Jammu and Kashmir lags behind compared to the rest of India in terms of quality education and career awareness. Outdated teaching methods, poor infrastructure, and a lack of counseling services make the gap between learning and employability wider, with many students still uncertain about which direction to take in the future.

This paper therefore proposes a One-stop Digital Guidance Platform: an artificial intelligence-driven, eco-friendly integrated platform that will offer personalized academic and career recommendations, keeping in mind the interest, aptitude, and goals of the students. The platform supports sustainable, paperless education to reduce the use of printed materials and physical counseling; this will help in reducing environmental impact. The proposed framework would lead to narrower gaps between education and employment, especially for rural and underprivileged students, with a focus on environmental awareness and green career opportunities.

Along with improvement in school infrastructure, teacher training, and vocational learning linked to local industry sectors such as tourism, agriculture, and IT, these efforts can bring improvement in literacy, reduction of dropouts, and build a skilled, sustainable, and eco-conscious Jammu and Kashmir.

II. HISTORICAL BACKGROUND

Jammu and Kashmir is believed to be paradise on earth, not for its natural beauty only but also for being the meeting ground of various cultures. Intellectual development has been the part of life of people of Jammu and Kashmir since time immemorial. The region’s breathtaking environment has always been an integral part of its identity, shaping its traditions, livelihoods, and even its educational values. Intellectual development has been part of life in Jammu and Kashmir for centuries. Kashmir is the birthplace of Mahayana Buddhism and has made significant contributions to Shaivist philosophy, both of which promote harmony between human life and nature.

Over time, this rich cultural and intellectual history inspired the people of Jammu and Kashmir to create more structured forms of learning, leading to the region’s system of higher education. The early institutions of learning were not only centers of academic growth but also emphasized respect for nature and sustainable living—values deeply rooted in the region’s cultural and spiritual life.

In 1905, Dr. Annie Besant advised the establishment of the Hindu College in Srinagar. The Prince of Wales College was started in 1908, and the Hindu College became Sri Partap College in 1911. The Sharp Committee in 1916 recommended partial cost coverage by beneficiaries and a tutorial system for

intermediate classes. By 1940–41, college enrollments increased significantly, leading to the bifurcation of S.P. College into Amar Singh Degree College in 1942. Additional colleges were established, and by 1948, higher education in Jammu and Kashmir transitioned from Punjab University affiliation to the University of Jammu and Kashmir. These expanding educational institutions gradually became platforms for spreading awareness about agriculture, forest preservation, and sustainable development—key aspects of maintaining the region’s eco-balance.

Development in the Post-Independence Period: Post-independence, the political changes necessitated educational reorganization. The Educational Reorganization Committee, chaired by Shri A.A. Kazimi in 1950, made several recommendations that shaped the educational structure of the region. During this period, several key developments took place. Two colleges for women were established in Jammu and Srinagar to promote women's education, and education was made free at all levels, ensuring wider accessibility. A Textbook Advisory Board was constituted to oversee textbooks, while intermediate colleges were started in Sopore and Anantnag to meet the growing demand for higher education.

Secondary Education Commission (1952–53) were considered in Jammu and Kashmir, and the All India Surveys of Education (1957 and 1965) highlight policy changes. Many of these

The Hindus and Muslims had their own systems of education imparted in the Partshalas and Makhtabs and communicated through sacred languages of Sanskrit, Arabic, and Persian and various vernaculars. These systems often integrated teachings about nature, balance, and coexistence, reflecting the eco-friendly philosophy embedded in traditional education.

The literacy rate in Jammu and Kashmir has gone up consistently since 1951 - starting at 18.33% back then, climbing to 67.16% by 2011. You can see this change clearly through each decade’s census numbers: 1951 hit 18.33%, then 1961 reached 28.30%, followed by 1971 at

34.45%; jump ahead to 2001 with 55.52%, until finally hitting 67.16% in 2011.

Year | Literacy Rate 1951 | nearly one fifth

1961 | almost 28.3 percent

1971 | 34.45%

1981 | Info missing - the census was skipped in Jammu and Kashmir that year

1991| Info missing 'cause the census didn't happen in Jammu

and Kashmir that year

2001 | over half - about 55.5 percent 2011 | 67.16%

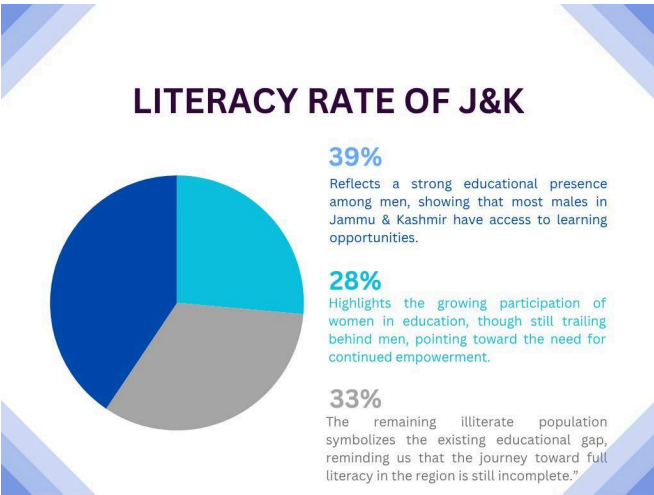
Most people in Jammu and Kashmir can read or write - about 68.74 percent, based on 2011 census data mentioned across several reports - but that's still below India's overall mark of 74.04 percent.

A noticeable gap shows up when comparing men's literacy - about 76.75% - with women's, which sits near 56.43%. Still, thanks to better schooling and wider understanding, people now pay closer attention to things like protecting nature, farming that lasts, and eco-friendly growth - tying learning gains directly to saving the region's landscape.

STATUS OF EDUCATION IN JAMMU AND KASHMIR INCLUDING DATA AND CENSUS.

The education system is primarily managed by the Jammu and Kashmir Board of School Education (JKBOSE), the Central Board of Secondary Education (CBSE), and the Department of Higher Education.

According to the 2011 Census, the literacy rate of J&K was 67.16% — with male literacy at 76.75% and female literacy at 56.43%. Although the literacy rate has improved gradually over the years, the region still faces issues such as gender inequality, rural–urban educational gaps, and insufficient infrastructure in remote and tribal areas.



Data Source: Census 2011, GOVERNMENT OF INDIA

Fig 1. Literate males≈ 39%

Literate females ≈ 28%

Illiterate people ≈ 33%

Between 2020 and 2025, various government and private initiatives have aimed to improve the educational landscape. However, despite these efforts, challenges such as high dropout rates, declining enrolment, and uneven quality of education persist.

Reports from ASER (Annual Status of Education Report) and UDISE highlight these concerns while also noting steady progress in infrastructure, digital learning, and teacher training.

The Enrollment data between 2020 and 2025 in J&K:

YEAR	GOVERNMENT SCHOOL ENROLLMENT
2020-21	1,324,301 students
2021-22	1,473,368 students
2022-23	1,454,668 students
2023-24	1,421,643 students

Fig 2. This table shows how the government schools enrollment rates have changed over thAnalytical Interpretation

Enrollment Trend:

Enrollment in government schools peaked in 2021–22 with over 1.47 million students, but it gradually declined in the following years to 1.42 million by 2023–24. This decrease can be linked to demographic shifts, migration to private schools, and reduced birth rates.

Participation of Children (6–14 years):

The share of children attending government schools fell from 58.3% (2018) to 55.5% (2022), then showed a slight recovery to 57.2% in 2024, possibly due to renewed enrollment drives and digital inclusion programs.

Dropout Rates:

Dropout rates have shown a worrying rise. The

The primary-level dropout rate increased from 3.89% (2022–23) to 8.87% (2023–24), while the secondary-level dropout rate

remained above 6%. This reflects persistent challenges such as socio-economic hardship, poor school accessibility in remote areas, and limited motivation to continue education beyond basic levels.

Gender and Regional Disparities:

Despite increased infrastructure and government initiatives, female literacy and participation remain significantly lower than male counterparts, especially in rural and tribal districts.

Government Initiatives

To improve access and quality, several key programs have been implemented:

Mid-Day Meal Scheme – improves health and attendance using eco-friendly practices.

Shagun Shiksha – supports girls’ education and spreads awareness about hygiene and the environment.

Inclusive Education for Disabled Students (IEDSS): This helps children with special needs in safe, green classrooms.

DIKSHA Platform – promotes digital learning and reduces paper use.

Madrasas Scheme – combines traditional learning with awareness of cleanliness and tree planting.

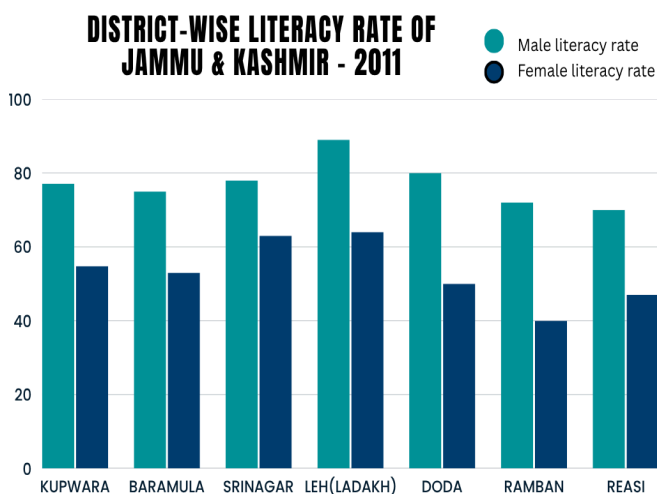


Fig 3. The X-axis represents different districts of J&K, while the Y-axis shows their respective literacy rates (in %).

III. PROBLEMS AND CHALLENGES

Students in Jammu and Kashmir have to surmount multiple interlinked challenges that create an impact on learning

outcomes and future opportunities. Besides political instability, economic pressures, and infrastructural issues, environmental and ecological problems, such as climate vulnerability, deforestation, and limited sustainable practices, are emerging as major obstacles in attaining quality education in this region.

Political and Security Issues

Disruptions: Political unrest, curfews, and conflicts often lead to closure, causing immense loss in learning and disrupted academic sessions.

Safety concerns: It creates an unsafe environment for schoolchildren, especially females, which has made some parents keep them out of school.

Fear and abduction: In addition, some male students fear abduction during political activities, which discourages such people from pursuing their studies.

Eco-Impact of Instability: Frequent unrest and conflicts in these countries often disrupt the systems of waste management and energy at schools, thus leading to unhygienic conditions and damage to infrastructure. Neglect of the environment during these times increases the challenge of creating healthy learning environments.

Educational System and Quality Infrastructure: Most locations have poor infrastructure in terms of classrooms and teaching aids. Many schools are located in buildings without any ecological criteria in their structure, that is to say, proper ventilation, insulation, or renewable energy sources. The absence of a sustainable building means expensive maintenance and hazardous conditions for occupants during periods of extreme cold.

Teacher quality and training: There is an acute shortage of qualified, subject-specific teachers, particularly in government schools. The teaching methodology focuses on memorization rather than critical thinking and creativity. There is also limited training of teachers with respect to environmental education, which should have led to students gaining a clear perception about sustainability and climate resilience.

Special education: There is a shortage of special educators and facilities for students with disabilities. Environmental hazards related to air quality or cold can further aggravate accessibility in these cases for physically challenged students.

Outdated curriculum: The curriculum can be outdated, oriented more to memorization rather than practical and knowledge-based learning. It rarely incorporates climate education, eco-literacy, or sustainable practices that students need to gain awareness about current environmental challenges

affecting their own region. When anthropologists refer to cultural trait, they simply mean a particular characteristic which belongs to the culture of a specific group.

Economic and Social Factors Financial burden: The male students might even be compelled to provide for their families financially, which will make them discontinue their schooling.

Gender inequality: These factors include social and economic elements that create inequality between genders in education, where girls face specific difficulties in accessing and continuing education.

Eco-related economic strain: Climate change, therefore, brings frequent floods and landslides, changing weather patterns that destroy schools, roads, and farmlands. Families dependent on agriculture often face losses in income that push children out of school to work. Besides, the long winters with shortages of electricity make heating more expensive and further burden the already struggling households.

Access to Higher Education Travel barriers: Higher education mostly takes students to other parts of the country, but rough terrain, harsh weather conditions, and poor public transport hinder commuting, especially during snowfall in winters. A dearth of eco-resilient transport systems further isolates students from educational hubs.

Discriminatory experiences: Students from Kashmir in other parts of India complained of racism and stereotyping that has affected their sense of belonging and even their mental health. Environmental accessibility issues: Mountainous geography and regular natural disasters commonly disrupt physical access to colleges and universities. And remote learning is hindered by unreliable electricity and internet connectivity—partly due to unsustainable energy systems and weak infrastructure.

Eco-Friendly and Environmental Problems in Education Climate Change Impacts: Frequent flooding, glacial melting, and erratic weather disrupt the school calendar, damage buildings, and reduce attendance. Deforestation and Land Degradation: Loss of forests in hilly areas causes landslides, destroying school routes and thereby restricting safe travel to school by students. Energy Inefficiency: Most schools depend on either diesel generators or coal-based heating, which add to pollution and health concerns. Waste Mismanagement: Lack of recycling systems and improper disposal of plastic and electronic waste near schools affect sanitation and environmental health. Limited Green Education: Few schools include sustainability or eco-literacy programs that would better prepare students for green careers or foster environmental responsibility.

IV. METHODOLOGY

This work uses a mix of methods to explore environmentally sound learning growth in Jammu and Kashmir. Instead of relying on just numbers or stories alone, it combines both to see how things like green buildings, ready-to-teach staff, updated nature-based lessons, tech use, along with local involvement help boost schooling there. It looks at chosen

countryside and city areas across hilly zones, flat valleys, and halfway-between towns - this way catching varied landscapes and different education realities. People involved are heads of schools, instructors, learners, moms and dads, plus locals who take part in community life. To pick about 15 schools, three dozen educators, two hundred pupils, and twenty family or neighborhood reps, researchers used targeted selection layered by key traits.

Step 1: Data Collection Planning

The study kicked off by spotting main info needs along with important people involved - schools were included, also teachers, plus students, together with official papers shaping decisions.

Step 2: Primary Data Collection

Fresh info came from hands-on methods out in the field - like organized surveys, casual chats with set topics, small group talks on specific themes, along with firsthand looks at classrooms, toilets, how water's handled, solar panels or similar setups, where trash gets sorted, and tech used for e-learning.

Step 3: Secondary Data Collection

Extra details came from official school records, rulebooks issued by authorities, papers put out by organizations, numbers pulled from population counts, also academic writings tied to the topic - all helping back up what we saw on the ground.

Step 4: Data Processing and Organization

Data was gathered then sorted into groups, tagged for reference, checked carefully - so it could work with number-based reviews along with pattern spotting.

Step 5: Data Analysis

Numbers got checked with basic stats to spot how things are moving, whereas written feedback was sorted by key ideas to see what people think about green actions and real-world roadblocks.

Step 6: Ethical Compliance

Fair steps - like clear permission, keeping info private, also getting official go-aheads - were carefully kept up to back trust

plus meet moral standards.

Step 7: Interpretation, Findings & Recommendations

Outcomes got pieced together to shape practical tips that back green upgrades in schools across Jammu and Kashmir - backing fair access, long-term solutions, or classrooms ready for what's ahead. Primary details come from fixed-format surveys, guided chats, group talks, plus on-site checks at schools - looking into buildings, clean water access, hygiene setups, green power use, trash sorting methods, alongside tech-supported classrooms. Info from official education updates, rulebooks, university releases, population records, or research papers makes up the backup material. Numbers get broken down with basic math summaries to spot common behaviors and shifts, whereas personal feedback gets sorted by key topics to grasp how people feel, what eco-habits exist, along with hurdles faced. Rules around ethics - like clear permission, privacy protection, authorization from bodies - are carefully respected throughout. This way of working keeps findings trustworthy and meaningful when exploring lasting ways to run schools, hoping to deliver practical suggestions that support cleaner, fairer, forward-looking teaching environments across Jammu and Kashmir.

SUGGESTIONS

Solving the Education Problems in Jammu and Kashmir
Improving education in Jammu and Kashmir is not only about renovating schools but also about building hope, stability, and a sustainable future for its youth. While the unique beauty and tough terrain of the region pose a challenge to development, they also offer an opportunity to create something special: a system of learning that honors people and the planet. It will take all of us to turn this vision into reality-government leaders, teachers, parents, and communities. And this time, the focus needs to go beyond textbooks; education here needs to become greener, smarter, and kinder to the environment.

Infrastructure Development Invest in Rural Schools:

Isolated mountain and valley schools need more than just buildings; they need strong and sustainable ones. Utilizing local, environmentally friendly materials, such as bamboo, stone, and recycled bricks, could help reduce costs and offer protection to the environment. Designs incorporating natural light, fresh air, and solar power will go a long way in making classrooms healthier and energy-efficient.

Provide Basic, Sustainable Facilities:

Clean drinking water, safe toilets, and playgrounds are essential, yet they can be ecologically friendly. Rainwater harvesting, solar water heaters, and proper segregation at the waste

generation source can make schools cleaner and greener while teaching children the importance of conservation.

Modernize Smartly:

Technology can reduce the use of paper and make lessons interactive. Simple changes, like energy-saving lights, digital lessons, and recycling bins, go a long way in building habits for sustainability early on.

Teacher Development and Support Training for the Future:

Teachers form the backbone of education. Providing them with practical training in environmental education and sustainable teaching methods equips them to motivate the students toward care for their surroundings.

Reward Green Leadership: Recognize and support the teachers who lead eco-clubs, organize clean-up drives, or initiate school gardens. The small incentives can turn classrooms into centers of community change.

Collaborate and Learn:

Partnerships with universities and green organizations throughout the country can bring new teaching ideas and eco-education methods into J&K schools. Summative assessments refer to the formal and regular processes by which students' work is assessed. Curriculum and Pedagogy Reform

Update What We Teach: Learning should be related to life. Students should study renewable energy, recycling, climate change, and sustainable agriculture, in particular because the problem concerns their own mountains and rivers.

Skill-Based, Green Learning: Provide additional training in organic farming, solar installation, or ecotourism. In this way, the youth will have the ability to employ themselves in jobs that also protect the environment.

Peace and Planet Together: Peace education goes hand in hand with environmental ethics. Teaching students to care for nature can also help them value peace, balance, and community harmony.

Technology Integration and Access Connect Sustainably:

Internet access is necessary, but it has to have a green twist to it. Schools will set up solar-powered computer labs and use energy-efficient devices so that learning can still take place during a power cut. Go Digital, Go Green: Online tools replace heavy textbooks, reducing the use of paper. Interactive learning through virtual labs and eco-aware platforms makes learning fun while reducing waste. ---

Community and Student Support Grow with Nature:

Activities such as tree planting, gardening, and nature walks reduce stress while helping students connect emotionally to their surroundings. Involve Everyone: Parents and local communities can be very strong allies. Cleanup campaigns, recycling drives, and school eco-committees are ways in which education can become a shared mission.

Support Girls and Green Innovators: Encourage girls to participate in science, technology, and environmental projects. Further, scholarships for eco-innovation may help young women to become leaders in sustainability.

V. CONCLUSION

This study shows the path ahead for schools in Jammu and Kashmir lies in mixing strong academics with green habits along with smart tech use. Students deal with tough conditions - remote locations, old buildings, uneven internet access, or weather risks - not only hurting grades but slowing long-term growth too. Using firsthand info plus existing reports, the paper proves switching to clean campuses powered by sun energy, online classes, zero-waste policies, and lessons focused on climate can seriously boost student success and local life quality.

A new digital tool powered by smart tech offers fresh ways for students to follow custom study routes, pick up eco-friendly know-how, plus aim toward jobs ahead - all without using paper or wasting power. This shows how thoughtfully built systems can help those in remote areas or tough situations catch up, close gaps in abilities, and push young people into roles where they lead with planet-smart choices.

In the end, what we discovered shows something strong - learning isn't just about making money; it's also key to keeping lives going and shaping society in smart ways. Where places like Jammu and Kashmir are both full of culture and sensitive to environmental shifts, using eco-friendly, open, technology-powered teaching methods goes beyond new ideas - it's essential. When schools, officials, and local people work together on this approach, each classroom could become a space ready for climate challenges, while students grow into caretakers of harmony, forward movement, and Earth itself. A lasting Jammu & Kashmir won't come from luck, yet from deliberate action - shaped by mindful learning, responsible innovation, because young minds study not merely for diplomas, instead for what's ahead. "Smart minds build careers; sustainable minds build communities and futures."

Future Scope

Eco-Smart Schools:

Promote green buildings with solar energy, rainwater harvesting, and waste recycling systems.

Environmental Education:

Introduce sustainability and climate studies in school curriculum to build eco-awareness.

Teacher Training:

Train teachers in modern, eco-friendly, and digital teaching methods.

Technology Integration:

Use online learning platforms powered by renewable energy to overcome geographical barriers.

Government & Community Support:

Strengthen policies and local participation for climate-resilient education.

Green Career Opportunities:

Encourage skill development in renewable energy, forestry, and sustainable agriculture.

REFERENCES

- [1]https://www.academia.edu/88181771/Education_in_Jammu_and_Kashmir_Issues_and_Challenges
- [2]<https://ijeks.com/wp-content/uploads/2024/07/IJEKS-3-05-003.pdf>
- [3]https://scholar.google.com/scholar?cites=14290241199069715965&as_sdt=2005&sciodt=0,5&hl=en
- [4] D. Rajasekhar, M. Rafi D, S. Chandre, V. Kate, J. Prasad and A. Gopatoti, "An Improved Machine Learning and Deep Learning based Breast Cancer Detection using Thermographic Images," 2023 Second International Conference on Electronics and Renewable Systems (ICEARS), Tuticorin, India, 2023, pp. 1152-1157, doi: 10.1109/ICEARS56392.2023.10085612.
- [5]<https://share.google/FubJjGO1vm7Aujzo4>
- [6]<https://share.google/wA7Net5HJULpMLQZ7>
- [7]<https://share.google/TXBxa41Eb8xBj4Deu>
- [8]<https://share.google/G2BOmLUAb8AsdtB9Y>