

SUSTAINABLE ENERGY

As the world grapples with the dual challenges of climate change and energy sustainability, the quest for alternative fuels has never been more urgent. Among these alternatives, ethanol blending in fuel stands out as a practical and environmentally beneficial solution. By blending ethanol-an alcohol-based fuel derived primarily from crops like sugar-cane, maize, and wheat-with gasoline, countries around the globe aim to reduce carbon emissions, promote energy security, and support agricultural economies. However, while the benefits of ethanol blending are clear, there are also challenges that need careful consideration.

The most compelling argument for ethanol blending lies in its potential to reduce greenhouse gas emissions. Ethanol is considered a cleaner alternative to conventional gasoline because it burns more efficiently, emitting fewer harmful pollutants like carbon monoxide and particulate matter. Furthermore, ethanol is a renewable resource, which means that, unlike fossil fuels, it can be replenished annually. The carbon dioxide (CO2) released when ethanol is burned is roughly equivalent to the CO2 absorbed by the crops used to produce it, creating a more balanced carbon cycle. This "carbon-neutral" characteristic positions ethanol as a key player in the fight against climate change.

In addition to reducing CO2 emissions, ethanol blending also helps decrease dependence on fossil fuels, which are finite and often imported from politically unstable regions. By leveraging domestically produced biofuels like ethanol, countries can enhance their energy security and reduce the economic volatility associated with fluctuating oil prices. For nations such as Brazil, the United States, and India, which are major producers of ethanol, this can be a significant boost to both local economies and national security.

Ethanol blending can also offer substantial economic and agricultural benefits. In countries with large agricultural sectors, the demand for biofuels creates new markets for farmers. The production of ethanol from crops like maize, sugarcane, and wheat provides an additional revenue stream for farmers, potentially leading to increased job creation in rural areas. The agricultural sector stands to gain not only from the direct sales of ethanol but also from the by-products of ethanol production, such as distiller's grains, which can be used as animal feed.

Moreover, the ethanol industry has been a significant source of employment in countries like the United States and Brazil. According to some estimates, the U.S. ethanol industry supports over 300,000 jobs, ranging from farm labor to high-tech bioengineering positions. For developing countries, this provides a means of strengthening the agricultural economy and fostering sustainable rural development.

Despite its potential, ethanol blending is not without its challenges. One of the most significant concerns is the impact on food production. The large-scale use of crops like maize for ethanol production has led to fears of food shortages and higher prices, especially in developing nations where food security is already a critical issue. Critics argue that diverting crops from food production to fuel production could exacerbate hunger, particularly in regions where agricultural land is limited.

Furthermore, if forests or wetlands are cleared to make way for biofuel crops, this could release large amounts of CO2 stored in the soil, effectively undermining the environmental benefits of ethanol.

Remembering Maharaja Hari Singh: The monarch who defined borders of India

■ PROF. SHYAM NARAYAN LAL

On 23 September 2025, we mark one hundred years since Maharaja Hari Singh ascended the throne of Jammu and Kashmir. It was a moment of great historical significance-not only for the region, but for the entire subcontinent-shaping the future of Jammu and Kashmir and leaving a lasting imprint on the making of modern India

Born in 1895 at Amar Mahal to Raja Amar Singh and Maharani Bhotiali Chib, he grew up under the care of a mother whose strength and wisdom shaped his character. Inheriting the proud Dogra legacy, he was entrusted with governing one of India's most diverse and strategic states. In 1925, amid intrigue, divisions, and colonial pressure, he chose reform-advancing justice, education, and social progress. Yet his greatest legacy came two decades later, when his decision to accede to India gave the nation its northern frontier and completed the map of India.

This progressive outlook and statesmanlike courage gave him a distinct and enduring place in national history. His role was not confined to the administration of his state; it resonated across India's unfolding struggle for dignity and sovereignty. With a single, decisive signature on the Instrument of Accession in October 1947, Hari Singh secured Jammu and Kashmir's place within the Indian Union and gave India the territorial map that we proudly recognize today. That act was far more than a legal formality; it was a moment of historic courage that safeguarded India's unity, integrity, and sovereignty at its most critical hour. It was Maharaja Hari Singh who transformed the phrase "from Kashmir to Kanyakumari" from a poetic aspiration into a living national reality.

A closer and more discerning reading of history reveals dimensions of his life that conventional accounts often neglect. From an early age, Hari Singh displayed an uncommon sense of responsibility toward his people. His administrative acumen came to the fore during the near-famine of 1921-22, when he was entrusted with managing relief efforts. At a time when food shortages threatened widespread devastation, he acted decisively, ensuring supplies and demonstrating compassion in the face of hardship. This episode foreshadowed the ethos that would guide his later reign: governance rooted not in privilege or pomp, but in justice and welfare. His early conduct showed that he was not content to be a mere inheritor of a dynasty; he intended to be a reformer in his own right.

When he formally ascended the throne, he



declared with striking clarity: "I have no religion; my religion is justice." For a ruler of a deeply religious society to make such a pronouncement was bold, even revolutionary. It underscored his conviction that the state must rise above sectarian loyalties and govern for the good of all subjects equally, irrespective of faith or community. This principle did not remain a lofty slogan but became the cornerstone of his reforms.

That vision of justice found concrete expression in his celebrated Eleven-Point Charter, which laid out an ambitious agenda of modernization. He invested heavily in education, establishing new schools and promoting female education at a time when such initiatives were rare in princely India. He expanded public health services by building hospitals and dispensaries, extending medical care even to remote valleys. Irrigation schemes brought water to arid tracts, increasing agricultural productivity and reducing the vulnerability of cultivators to famine. He reformed forest policy to give local people access to resources that had long been monopolized by elites, and he initiated land transfer measures that weakened feudal structures and empowered small farmers. These were not mere acts of benevolence but structural interventions designed to uplift the marginalized and create a more just society. In many ways, his reforms anticipated the values later embedded in the

Indian Constitution: equality before the law, social justice, and state responsibility for welfare.

His progressive outlook did not remain confined within his own state. Hari Singh understood that Jammu and Kashmir was part of a larger story-the story of India's awakening. This awareness was evident when he represented his state at the First Round Table Conference in London in 1930-31. At a time when many princely rulers hesitated to align openly with nationalist aspirations, Hari Singh's words rang with clarity and conviction: "As Indians, loyal to the land where we derive our birth and infant nurture, we stand shoulder to shoulder with our fellow countrymen for our land's rightful enjoyment of a position of honour and equality within the British Commonwealth of Nations." His intervention challenged colonial stereotypes that sought to divide British India from princely India, and it aligned Jammu and Kashmir with the broader current of national struggle.

The later years of his reign would test these convictions under circumstances of unprecedented gravity. The 1940s brought with them political ferment, communal polarization, and the approach of Partition. When independence dawned in August 1947, Jammu and Kashmir-geographically vast, culturally diverse, and strategically located-stood at the crossroads of history. Pressures mounted from all sides. Pakistan, intent on annexing the state, unleashed tribal militias in a violent invasion that reached the outskirts of Srinagar. In this moment of peril, Maharaja Hari Singh bore the weight of a decision that would determine not only the fate of his state but the destiny of India itself.

On 26 October 1947, he signed the Instrument of Accession, formally integrating Jammu and Kashmir into the Union of India. That act, undertaken amidst invasion and chaos, was not the gesture of a desperate ruler but the decision of a statesman who recognized that his state's future lay with a democratic, secular India rather than with a Pakistan defined by religious exclusivism. With that signature, he safeguarded his people from disintegration and ensured India's territorial integrity. It was, in effect, the culmination of his lifelong creed of justice and equality. By acceding to India, he aligned Jammu and Kashmir with a vision of nationhood that transcended sectarian divisions and embraced pluralism. Without that decision, the map of India as we know it today would have been irrevocably altered.

To understand the magnitude of his courage,

one must recall the precariousness of that moment. Partition had already displaced millions, bloodshed had scarred the land, and the very survival of the subcontinent as a political entity seemed uncertain. In such a climate, Hari Singh's accession was not only pragmatic but civilizational. It affirmed that Jammu and Kashmir would not be a pawn in the politics of division but a partner in the building of a diverse and democratic India. It was the act that gave concrete meaning to the oft-repeated phrase "from Kashmir to Kanyakumari," transforming it into lived national reality.

Yet, despite this decisive role, his legacy has been persistently overshadowed by colonial misrepresentations and later political polemics. Too often he has been portrayed as a monarch mired in crisis, his decisions read through the lens of subsequent conflicts rather than in the light of their own historical context.

The centenary of his accession offers an invaluable opportunity to correct this imbalance. It is not merely an occasion for homage but a moment for historical recovery. It invites us to move beyond inherited colonial prejudices and politicized interpretations, and to recognize a ruler whose governance reflected a progressive spirit and whose decisions shaped the destiny of modern India. His reforms in education, healthcare, irrigation, and land policy were foundational to the modernization of Jammu and Kashmir. His declaration that "justice" was his guiding creed continues to resonate as a principle of good governance. His words at the Round Table Conference remind us that India's demand for dignity was voiced not only by nationalist leaders but also by visionary monarchs.

As the centenary unfolds, let us remember Maharaja Hari Singh not through the haze of colonial prejudice or partisan debate, but in the clear light of history. He was the prince who guided his people through famine, the monarch who proclaimed justice as his only faith, the reformer who opened the doors of progress, and the statesman who carried India's voice to the world stage. And above all, he was the leader who, with a single stroke of the pen, secured India's unity and gave our nation its northern crown. His story is the story of India itself-of courage, vision, and nation-making. To celebrate his centenary is to salute that legacy and bow in gratitude to the Maharaja who helped shape the destiny of our Motherland.

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Transforming Agricultural Education: The scope of the New Education Policy (NEP) 2020 in Agricultural Universities

A new era of education for agriculture, allied sciences and livelihood sustainability

■ PROF. (DR.) PARSHANT BAKSHI

The National Education Policy 2020 (NEP 2020) offers a bold, system-wide rethinking of Indian education. Although, NEP is broad in scope, several of its provisions directly affect agricultural universities (AUs) from undergraduate design to research, extension, and industry linkages. For agricultural higher education, NEP 2020 creates opportunities to make curricula more multidisciplinary and flexible, boost skill-based and vocational training, strengthen research and innovation, widen access and equity, and reorganize institutional structures for better governance and outreach.

► **Why NEP 2020 matters for agricultural universities**

NEP explicitly recognizes that agriculture and allied disciplines are under-represented in higher education and calls for improved capacity and quality to supply professionally trained graduates, technicians and researchers who can raise productivity, foster innovation and link science to markets. Strengthening AUs therefore aligns with national priorities of food security, rural livelihoods, climate resilience and agribusiness growth.

► **Core NEP features that reshape agricultural higher education**

► **Multidisciplinary, flexible degrees and multiple entry exit**

NEP promotes multidisciplinary Higher Education Institutions (HEIs), flexible credit frameworks, multiple entry-exit and degree stacking (e.g., certificates ? diploma ? bachelor ? master). For AUs, this means students could combine core agricultural sciences with economics, data science, environmental science, public policy or entrepreneurship producing graduates with hybrid skills suited to modern agrisystems and agribusiness.

► **Credit bank, credit mobility and inter-institutional collaboration**

A national credit bank/academic bank of credits and mobility across institutions (including HE clusters) enable students to move between agricultural, general and technical institutions - easing cross-discipline exposure (e.g., AI/data courses for plant protection, biotech modules for breeding). ICAR implementation guidance highlights adopting credit systems suited to agri-

cultural curricula.

► **Emphasis on experiential, competency-based and vocational education**

NEP places a strong premium on experiential learning, internships and vocational education aligned to local economies. For AUs, this opens scope to expand field practicums, incubation hubs, on-farm learning, apprenticeship with agribusiness, value-chain internships and short vocational certificates (post-harvest technology, organic farming, precision irrigation).

► **Research, innovation and faculty development**

NEP calls for strengthening research through multidisciplinary centers, improved doctoral supervision, teaching-research integration and incentives for research excellence. Agricultural R&D - historically central to national policy through ICAR - should be reoriented to foster translational research (farm-level uptake), public-private research partnerships, and student involvement in problem-solving projects.

► **Technology, digital delivery and continuous professional development**

NEP endorses digital learning tools and teacher training. AUs can incorporate remote sensing, digital agronomy platforms, e-extension modules, blended instruction and Massive Open Online Courses (MOOCs) for continuing education of farmers, extension personnel and in-service teachers.

► **Local languages, inclusion and equity**

NEP's focus on regional languages, greater access for disadvantaged groups and scholarships can strengthen rural participation in agri-education and produce professionals fluent in local contexts -important for extension and community adoption.

► **Practical implications - what will change on campus and in the field?**

► **Curriculum & Program Design**

Move from narrow, discipline-only degrees to modular curricula that allow minors and electives (e.g., Data Science for Agriculture, Agri-Entrepreneurship). Introduce stackable credentials and shorter industry-aligned certificates for life-long learners (e.g., post-harvest logistics).

► **Teaching & Assessment**

Greater use of project-based learning, problem solving tied to local farms and agri-enterprises; assessment becomes competency-oriented rather than only terminal exams.

► **Research & Extension**

Reconfigured research to be multidisciplinary and translational: AUs can start mission-oriented courses (climate-smart horticulture, digital agriculture), strengthen partnerships with industry and NGOs, and involve students in extension drives.

► **Governance & Institutional Structure**

The NEP vision of multidisciplinary HEIs and Higher Education Clusters offers a roadmap for AUs to collaborate regionally (with general universities, engineering, business schools) or transition some institutions toward multidisciplinary structures (subject to statutory/regulatory frameworks and ICAR coordination).

► **Opportunities created for agricultural education**

► **Produce future-ready graduates with skills in precision agriculture, data analytics, climate adaptation and agribusiness.**

► **Scale vocational training for rural youth and returning farmers via micro-credentials and short courses.**

► **Foster entrepreneurship by linking incubation, market access and credit readiness to curricula.**

► **Enhance extension through blended digital modules and widespread, student-led farmer engagement.**

► **Integrate sustainability into every programme - soil health, biodiversity, circular economies, and low-carbon practices.**

► **Challenges & risks AUs must manage**

► **Regulatory & statutory alignment:** AUs are governed by complex state statutes and by ICAR moving to multidisciplinary models will need policy alignment and legislative clarity.

► **Capacity and faculty training:** Faculty re-skilling for multidisciplinary teaching, digital pedagogy and research mentoring is essential.

► **Infrastructure & funding:** Labs, data infrastructure, extension platforms and partnerships require investment.

► **Change management:** Curricular reform, credit systems

and industry partnerships require coordinated institutional change and stakeholder buy-in.

► **Equitable access:** Ensuring rural and marginalized students benefit requires proactive scholarships and outreach.

► **Roadmap:** recommendations for agricultural universities (practical steps)

► **Curriculum audit & modular redesign:** current programs to NEP competencies; introduce interdisciplinary minors and stackable micro-credentials.

► **Set up HE clusters & MOUs** with nearby universities, engineering and business schools for cross-registration and joint degrees.

► **Scale field-based experiential learning** - mandatory internships, farm labs, community projects and extension fellowships.

► **Faculty development programme** - continuous training in pedagogy, digital tools, supervision and industry engagement.

► **Industry & start-up linkages** - create incubation centres, agritech accelerators and placement pathways.

► **Digital & extension platforms** - deploy e-extension, precision farming toolkits, and remote sensing labs for practical instruction.

► **Governance alignment** with ICAR & state authorities - statutory changes, adopt credit banking and align accreditation roadmaps.

► **NEP 2020 as a catalyst, not a panacea**

NEP 2020 provides a transformative framework for agricultural universities - one that can modernise curricula, bridge academia and field practice, and prepare graduates for rapidly changing agri-ecosystems. Yet transformation will depend on careful implementation: regulatory coordination (especially with ICAR and state governments), sustained investment in faculty and infrastructure, and close collaboration with farmers, industry and extension networks. With deliberate planning, AUs can emerge as multidisciplinary hubs that drive innovation, sustainability and inclusive rural development - realising a new era for agricultural education in India

(The author is Head, Fruit Science, SKUAST Jammu)

Paddling lies, false propaganda about civilian residents of Sainik Colony

■ SANT KUMAR SHARMA

This is in response to article ``Sainik Colony Jammu: A community at war with itself" written by Col Shiv Choudhary (retired) in this prestigious newspaper. A response is warranted to his views expressed from a perspective of power and position. As if delivering sermons to people who need to be schooled. The faster he disabuses himself of this notion of superiority, the better it will be for all. The Management Committee he heads and the civilians he vilifies so blatantly.

His article is basically "suppresso verily, suggesto falsi" in legal parlance. He fails to disclose material facts (suppresso ver) in the process deliberately misrepresenting facts (suggestio falsi) regarding the subject. Every single civilian resident of the colony believes him to be the prime villain of the piece. It needs to be mentioned here that 90 per cent of the population of Sainik Colony are civilians today. Settled here legally, by paying premium to serving and ex servicemen who sold their properties.

He begins by hectoring his invisible opponents by saying that the colony has gone to dogs by deviating from its ``founding ideals". Let's dig facts here. It

was conceived in 1970 as a township for ``serving and retired military personnel". But beginning 1983, civilians were allowed in and till now in 2025, in a span of 42 years, hundreds of civilians have settled here by making their abodes here.

It was these civilians who invested their hard-earned money to make Sainik Colony what it is today. Not people like Lieutenant General Rakesh Sharma (retired) who had plots/shops here but sold them for booking profit, found this colony unlivable and moved to Chhani Himmat. He then showed the temerity to lecture people on virtues of Sainik Colony, service personnel and ex servicemen! What a shameless position of falsehood to be adopted by a decorated soldier.

Colonel Shiv Choudhary (retired) and his team is conspiring to cause great monetary losses to civilians by their hare-brained new policies. The policies regarding which these people went public in mid-June prior to a General Body Meeting (GBM) they had called on July 5. Rather ambitious these people were and they came up with a 59 point charter which they wanted to be ratified at the GBM. Alas, like humpty dumpty, they had a great fall and could not muster quorum at this meeting. On July 5, only 150

people turned up while three times that much, more than 450, were needed!

Showing absolute timidity, and third rate cunning, the Management Committee has failed to call up another GBM and hope to spend the next 30 months like this! Creating chaos and presiding over in this lame duck manner till the next elections! That is their not so secret dream.

Today, he is at the helm of a Management Committee, which was elected in March, barely six months ago and has failed miserably to conduct a single meeting of the colony residents. He and his side-kicks, the elected Directors, believe themselves, falsely, to be lords of all they survey here. This elected committee is loathed by the civilian residents for good reasons as no predecessor of theirs has behaved in so haughty a manner.

The entire revenue is the contribution of the civilians who pay transfer fees and other charges levied on them. The salaries of the staff of the Sainik Cooperative House Building Society Limited Jammu is being paid for by this revenue. How and why? For the simple reason that the contribution of the serving personnel and ex servicemen to this revenue

kitty is zero. Out of the 59 agenda points that the Management Committee wanted to get passed on July 5 was ``Grant of Honorarium" to its seven members.

This too was to be charged on the revenue contributions from the civilians, not ex servicemen like the members of this committee itself. This is a classic case of biting the hand that feeds which can only be classified as third rate ungratefulness towards civilians.

At one place in the article, Col Shiv Choudhary (retired) says: Financial contribution is perhaps the clearest indicator of the mindset within the colony. Very right he is. At least 99 per cent of the funds in the coffers of the society are contributions from civilians. As such, the mindset of the present Management Committee needs to change. Instead of thinking of themselves as supermen, they will do well to engage with civilians.

The sense of entitlement that Col Shiv Choudhary & Co harbour is astounding. They think that the right of civilians to buy and sell in the Sainik Colony which has existed from 1983 to 2025 for a span of 42 years needs to be taken away! This they cannot be

allowed to do at any cost and every conceivable forum will be used to defeat their designs.

The Sainik Colony today has serving IAS officers, as also retired. It has serving IPS officers as also retired. It has serving JKS as also JKPS officers living here as also retired. It has top academicians, including Professors, and a couple of Vice-Chancellors too. It has numerous bank officers of top banks. There are serving Chief Engineers, Superintending Engineers and Executive Engineers as also retired who live here. But they all have no democratic rights here, neither vote, nor contest.

He asks a question rhetorically as to what can happen if the Management Committee ceases to exist tomorrow. It should rest assured that nobody will mourn if this untimely and unplanned demise happens. He styles himself as a motivational speaker but he sure has alienated all civilian residents with his speeches as also actions on the ground.

(The author is a senior journalist and author who inherited a residential plot from his late father, an ex serviceman. He has no rights here despite living here for last 21 years)

