

EXERCISE TRISHUL Entrepreneurial Opportunities in Mushroom Farming

India's security landscape has witnessed significant evolution over the last few decades, shaped by changing geopolitical realities and emerging threats. In this context, Exercise Trishul, a joint military exercise conducted by the Indian armed forces, has emerged as a crucial platform to demonstrate and enhance India's defence preparedness, operational synergy, and rapid response capability. The exercise, conducted across strategically important locations, underscores India's commitment to maintaining a robust defence posture while fostering coordination among its army, air force, and paramilitary forces.

At its core, Exercise Trishul is not merely a routine drill. It is a meticulously planned, multi-dimensional simulation designed to replicate real-time combat scenarios that India could potentially face along its diverse borders. The exercise tests the readiness of troops in dealing with conventional threats, insurgencies, and cross-border challenges. By simulating hostile environments and complex operational situations, the armed forces are able to refine strategies, streamline communication, and identify gaps in logistics, intelligence, and tactical deployment. This preparation ensures that India remains vigilant and capable of responding decisively to any security breach.

One of the most remarkable aspects of Exercise Trishul is its emphasis on inter-service coordination. Modern warfare demands seamless integration among land, air, and, in some cases, naval units. Trishul provides a platform where infantry units, artillery regiments, armored divisions, and air squadrons operate in tandem, reflecting the reality of contemporary combat. Such exercises are vital in cultivating mutual understanding, improving interoperability, and fostering the spirit of joint operational command. In an era where rapid technological advancements define military efficacy, Trishul also integrates modern surveillance systems, drones, and cyber monitoring tools, preparing the forces for hybrid warfare scenarios.

Beyond tactical and operational training, Exercise Trishul carries a strong psychological and strategic message. It signals to both domestic and international observers that India is not only prepared to defend its sovereignty but also willing to adapt to evolving challenges with efficiency and precision. The visibility of such exercises reinforces public confidence in the armed forces, reminding citizens that the nation's security apparatus is vigilant, proactive, and resilient. In regions prone to border tensions, the exercise also serves as a deterrent, sending a clear message to potential aggressors that any act of provocation will be met with a coordinated and swift response.

Importantly, Exercise Trishul is not limited to combat readiness. It emphasizes humanitarian and disaster-response capabilities as well. Modern military operations increasingly intersect with natural calamities and civilian emergencies. Troops trained in multi-faceted exercises like Trishul can efficiently mobilize for rescue operations, relief distribution, and medical aid, showcasing the armed forces' dual role as defenders and protectors of the people.

However, the exercise also reflects India's forward-looking defence philosophy. Recognizing that future conflicts will be as much about technological superiority as manpower, Trishul integrates cyber warfare simulations, electronic intelligence systems, and advanced communication networks. This ensures that India's forces are not only physically prepared but also digitally equipped to counter emerging threats in an era of cyber vulnerabilities and asymmetric warfare.

■ DR. BANARSI LAL

The agriculture, which is an engine of growth and development and a significant contributor to national economy, has been greatly influenced by the process of globalisation. In India, majority of population still dependent on agriculture and it is estimated that more than 600 million tonnes of agro-wastes are produced annually. There is a matter great concern about imbalance of total production, the urban-rural divide, national food security and economic access to food. The agricultural strategy in the country seeks to bridge the product and production gaps. The policy envisages promotion of sustainable agriculture through a regionally differentiated approach, improvement in the input use efficiency, development and transfer of technology. There is a need to focus on technology generation and its application in agro-ecological or social circumstances. Once considered as a niche cultivation practice, mushroom farming is now witnessing exponential growth across rural and semi-urban India.

Mushroom farming has emerged as one of the most profitable practices in India. It is a booming sector in agribusiness in India. It's cultivation is gaining momentum rapidly. It is gaining popularity because of its ability to transform laborious farming efforts into substantial profit. Mushroom farming provides an excellent opportunity for farmers to explore domestic and export markets. Mushrooms are edible fungi that grow on moist surfaces such wood or other organic matter. They are the fleshy-to-tough structures which are the part of the reproductive phase of a certain group of fungi. All mushrooms are not edible. Mushroom cultivation was started in the 16th century but on a commercial scale it was started in Europe in 17th century and many farms for the mushroom production were established. India with the diverse climate conditions and abundant agricultural wastes has been producing the mushroom from the last four decades. Commercial mushroom cultivation in India has started recently and growing mushroom under controlled condition is of recent origin. Its popularity is increasing day by day and it has become a business which is export-oriented. Today mushroom cultivation has been taken up commercially in states like Uttar Pradesh, Haryana, Jammu and Kashmir, Rajasthan, etc. (during winter months) while earlier it was confined to Himachal Pradesh, J&K and other hilly areas. Mushroom is an excellent source of proteins, vitamins, carbohydrates, fibres, minerals, folic acid and is a good source of iron for anemic patients and is described as one of the best options to convert agro-wastes into quality proteins. Mushroom can be taken by the diabetic and heart patients as it has low calorific value. Mushrooms are of different types: a) Button Mushroom (*Agrius bisporus*) b) Dhingri (*Pleurortus*) c) Milky mushroom (*Calocybe indica*). Of all the types, button mushroom is the most popular one (85%). Mushroom cultivation can be done at cottage and small-scale levels besides large-scale farming. Mushroom cultivation provides option for income and employment generation specially for the educated youths and women without any major arable resources. China claims to grow 60 types of mushrooms and the reported production of all mushrooms put together was 18.2 million tonnes in 2008 which was around 70% of world production. Mushroom cultivation in the Union Territory of Jammu and Kashmir started in 1964 by the Department of Agriculture, Lal Mandi, Srinagar and work on edible fungi was taken by RRL at Srinagar. Presently more than 600 tons of mushrooms is being produced annually in the Union Territory of Jammu and Kashmir especially from Jammu, Kathua, Reasi and Udhampur. There is immense scope for round the year mushroom cultivation in Jammu region because of diverse agro-climatic conditions and availability of raw material. The farmers are showing keen interest in mushroom cultivation because mushroom cultivation generates more income as compared to other crops. The three types of mushrooms vary in their shape, size, colour and biochemical composition. Earlier only the button mushroom was grown but now oyster and milky mushrooms are also grown in J&K.

The main consumers of mushrooms are food restaurant, hotels, clubs and households. Mushrooms are mostly sold through vegetable shops. The growing domestic and export market as also the delicacy and food value provides extensive and good potential for cultivation of mushroom. Marketing is an Individual affair in our country and there are subsidies for establishing Canning Units and other such products but the marketing channels are limited. The seasonal growers do not have cooperatives. There is demand for opening the market outlets but this is feasible only when there is ample mushroom production. It has been observed that the mushroom growers lack basic knowledge of production technology and marketing channels.

Mushrooms have perishable nature and this is the reason that the trade of mushrooms is limited. The canned mushrooms can be kept for a long time and can be transported in a better way. The USA and European Union are the major producers of mushroom but these are the major importers of mushroom as there is great demand of mushroom in these countries. China, India and Indonesia are three most important mushroom exporting countries in the world. Initially there were very few quality strains of mushroom. S-11 was introduced in mid 60s continues in use for 2-3 decades and is still used by the seasonal growers. Presently Krishi Vigyan Kendras (KVKs) of State Agricultural Universities (SAUs) and Horticultural Boards are playing a big role in popularizing mushroom cultivation among the farmers.

Spawn is mushroom seed. Spawns are available in the Directorate of Agriculture and State Agricultural Universities (SAUs). If desired, the same can be produced and sold commercially. There are two methods of composting for mushroom cultivation. One is long method and another is short method. Short method requires less time but it is costly. Most of the growers still use the long method for the compost making which leads to the poor yield and also requires indiscriminate use of chemicals. There is need to diversify and popularize different types of mushrooms and go for multifunctional use of mushroom tunnels. These tunnels should not only be used for pasteurizing compost for button but can also be used for pasteurizing straw for oyster, milky and button mushrooms cultivation. This will help in product diversification and there will be less use of power.

There are several mixtures for compost formation and anyone that suits the entrepreneur can be chosen. It is prepared by using wheat/paddy straw into which various ingredients are added. In synthetic compost wheat straw is supplemented with poultry manure, urea, gypsum and mustard oil cake. In organic compost, horse dung is added. The compost can be prepared by the long or short composting methods. Only those who have pasteurizing facility can employ short cut method. In long method 7-8 turns at regular intervals are required for a period of 28 days. Good compost is dark-brown, ammonia free, little greasiness and having 65-70% moisture. Mushroom seed is said to be spawn which is white in colour. It should be free from any disease and insect-pests. Before spawning the surface should be washed

with 2% formalin. For mixing spawn with compost any of the three procedures can be followed: (i) Compost is divided into equal layers and spawns spread in each layer. Result is spawning in different layers. (ii) 3 to 5 cms of compost is remixed, spawns spread and covered with compost. (iii) Spawns are mixed with compost and pressed. A bottle of spawns is good enough for 35 kg of compost spread over 0.75 sq.mt. area (about 2 trays). That is, spawn to compost ratio is 0.5%. Trays are then arranged in tiers in the cropping room and covered with newspapers. 2% formalin is sprinkled over them. Desired room temperature should be around 18 degree C with 95% humidity. Spawned compost is covered with suitable material is said to be casing. It helps to convert vegetative phase into reproductive phase. Besides temperature and humidity mentioned above, proper room ventilation should be ensured. After casing mushroom bags should be kept moistened. Mushrooms prop up in 30-35 days. These fungal fruit bodies appear in flushes and harvested when buttons are tightly closed. In a cropping cycle of 8-10 weeks an average yield of 10 kg mushroom/sq. metre is feasible. Cropped mushrooms can be packed for marketing.

Technical training and assistance can be taken from. (a) Krishi Vigyan Kendras (KVKs) of State Agricultural Universities (SAUs) (b) Rashtriya Anusandhan Evam Prashikshan Kendra, Chambaghat, Solan (H.P.). (c) Regional Research Lab, Jorhat, Assam. (d) Regional Research Lab, Jammu. (e) Central Food Technology Research Institute, Cheluvamba Mansion, Mysore etc. Raw materials should be procured preferably from local areas. It has been observed that the mushrooms are having good demand in the market. Mushrooms cultivation requires awareness on modern production technology and health benefits, product diversification, better transportation with cold chain facilities, cooperatives, incorporation of mushroom in Indian food habits, introduction of mushrooms in mid-day meal scheme in schools and dissemination of information for scientific mushrooms cultivation through electronic media. There is ample scope of integrating mushroom farming in existing integrated farming system. There is need of simple scientific technology, better strains and more value addition methods of mushrooms for the mushroom growers. There is need to organize the trade and marketing of mushrooms within J&K and country.

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Progressive Ladakh: A New Era of Empowerment, Development & Local Participation

■ SONAM DORJAY

As the Union Territory of Ladakh celebrates its Foundation Day on 31st October, the region stands as a testimony to visionary governance, strategic investment, and inclusive development. Since its formation in 2019, Ladakh has experienced a major transformation-marked by focused budgetary planning, infrastructure expansion, and the empowerment of local institutions. The creation of the Union Territory fulfilled a long-standing public demand for direct governance, efficient administration, and equitable development, ensuring that the region's growth received undivided attention and tailored solutions suited to its distinct geographical challenges.

Following its reorganization, the

Government of India and the Ladakh Administration have taken significant measures to safeguard local interests, including provisions related to land, employment, and administrative control. Recruitment processes are now being conducted locally under the Ladakh Administration, allowing the youth of the region to play an active role in its development. This approach has deepened public participation and strengthened the sense of ownership among Ladakhis in the governance process.

From a modest allocation of Rs 1135.56 crore in 2019, Ladakh's annual budget has grown to Rs 5958.00 crore, reflecting the Centre's commitment to creating robust physical and social infrastructure. Over Rs 10,847.94 crore has

already been spent on projects that have improved healthcare, education, connectivity, and power supply. New hospitals, residential quarters for medical staff, and modern educational facilities such as the Medical College in Leh (Rs 785.60 crore) and Sindhu Central University at Khaltsi (Rs 812.53 crore) are creating long-term foundations for a healthier, more educated society.

Connectivity has been a cornerstone of Ladakh's progress. Strategic road projects including Kargil-Zanskar, Nimo-Padum-Darcha, and the Khaltsi-Batalik routes are expanding access and linking remote areas to markets. Landmark projects like the Zojila Tunnel (Rs 4509.50 crore) and the Shinkun La Tunnel (Rs 3107.57 crore) promise year-round connectivity

between Ladakh and the rest of India, revolutionizing mobility and trade.

In the aviation sector, the Kushok Bakula Rimpochee Airport in Leh is being upgraded at a cost of Rs 640.00 crore, boosting tourism and logistics. Urban infrastructure is also being strengthened through initiatives like the proposed 24x7 Water Supply Project for Leh and Kargil (Rs 755.48 crore). Ladakh's power sector has entered a new phase of sustainable growth. Projects like the 220KV Drass-Padum and 220KV Phyang-Disket transmission lines (Rs 1925.28 crore), along with renewable energy initiatives such as the Green Energy Corridor (Rs 20,000 crore) and solarization of 1500 government buildings (Rs 54.70 crore), are turning Ladakh

into a clean energy hub.

Digital inclusion has also advanced rapidly, with 148 towers already functional under the 4G saturation project, ensuring seamless communication even in remote valleys.

Tourism and cultural preservation are being promoted through policies like the New Ladakh Homestay Policy (2023) and the Adventure Tourism Policy (2024), enabling communities to benefit directly from the region's natural beauty. The establishment of India's first Dark Sky Reserve at Hanle has positioned Ladakh on the global map of astrotourism.

Special initiatives such as the Rs 129.50 crore package for Changthang region and the establishment of a modern dehairing plant (Rs 19.75 crore) for the pashmina

sector underline the Administration's commitment to livelihood and local enterprise. In sports, the construction of 24x7 Ice Hockey Rinks in Leh and Kargil (Rs 74.29 crore) is providing youth with opportunities for excellence at the national and international levels.

The journey of Ladakh since 2019 is one of empowerment, participation, and transformation. The administrative reforms and development initiatives undertaken reflect a clear vision-to build a self-reliant, connected, and prosperous Ladakh where growth is guided by local aspirations and national priorities. As the UT celebrates its Foundation Day, it stands as a symbol of how dedicated governance and people-centric planning can turn aspirations into enduring progress.

Jammu's Pothole Ridden Roads-A Call for Action

■ BAIRAJ CHAWALGAMI

The condition of roads in Jammu has today reached a point where citizens are questioning whether the city is even moving forward in terms of development or sliding backward into chaos. The recent reports of September 2025, coupled with the lived experiences of residents across different localities, paint a grim and disturbing picture of the road infrastructure in the city. Roads that once served as vital arteries for trade, travel, and daily movement have now been reduced to stretches of potholes, broken surfaces, and misaligned manholes. For commuters, whether they are government employees rushing to offices, traders heading to the city markets, or students travelling to schools and colleges, these roads have turned into veritable traps of inconvenience and danger. The situation is compounded by the continuous heavy rains and flash floods that the region has witnessed this season, which have not only deteriorated road surfaces further but also worsened drainage problems, creating widespread waterlogging. The plight of motorists on certain key routes reflects the urgency of the crisis. The stretch from Camp Road Gole Gujral to Talab Tillo Chowk has virtually ceased to be a road; instead, it is described by residents as a series of craters stitched together by patches of asphalt that collapse

within days of repair. The road is so bumpy that people joke there is less road and more pothole, but the grim reality is that this dangerous terrain is leading to accidents, vehicle breakdowns, and avoidable injuries. The situation is not much different on the road from Tomal Anand Nagar Bohri to Jewel Chowk, where the surface has been reduced to rubble. The Akalpur Chowk interior road, connecting to Muthi village, is another glaring example of the government's indifference to Jammu roads. Already, narrow, this road has been eaten away by potholes, leaving no space for smooth navigation. Residents complain that driving here is less about steering a vehicle and more about navigating obstacles, often forcing drivers onto unsafe edges or into incoming traffic. The condition of all most all roads of Jammu is also similar that is shabby, poor and deplorable.

Traffic jams have become a daily ordeal. From Canal Road to Jewel Chowk, snarls are the order of the day, with bottlenecks lasting for hours, particularly during peak traffic hours. Vehicles slow down to crawl speeds, not due to any traffic management issue alone but largely because drivers must negotiate the broken roads cautiously to save their vehicles from damage. This slow-down cascades into massive congestion, leaving commuters frustrated and wasting precious hours of the

day. The road connecting SOS School Gole Gujral to Bhagwati Nagar is another in shambles, a road so riddled with cracks and depressions that school buses, auto-rickshaws, and private cars alike face the daily risk of breakdowns. For parents, this is a source of constant anxiety, as children travelling to school are exposed to unsafe conditions. Beyond mere inconvenience, these roads have now become safety hazards. Open manholes, left without proper covers, present lethal traps, especially during waterlogging when they remain invisible under murky rainwater. Poor or non-existent street lighting in several areas further compounds the problem, making night driving a gamble with fate. There have been frequent reports of accidents where bikers have skidded over water-filled potholes or pedestrians have fallen while attempting to cross broken stretches. For the elderly and physically vulnerable, merely stepping outside becomes a dangerous exercise in balancing through uneven pavements and submerged craters.

The issue of waterlogging stands out as a chronic problem that worsens the poor condition of the roads. Jammu's drainage system, already inadequate, has collapsed under the pressure of recent heavy rains. When water accumulates on these already broken roads, it masks the depth and spread of potholes, mak-

ing navigation treacherous. Pedestrians are forced to wade through ankle-deep or even knee-deep waters, risking both accidents and waterborne diseases. The absence of a systematic drainage upgrade has turned every bout of rainfall into a civic nightmare, with roads becoming temporary ponds and traffic grinding to a halt. The economic impact of this crisis is significant. Vehicle owners are reporting unprecedented wear and tear on their cars, bikes, and even commercial vehicles. Repeated damage to tyres, shock absorbers, and suspensions is draining household budgets. Fuel consumption has also risen as vehicles are forced to run in lower gears and stop-start patterns in endless traffic jams. For commercial vehicles, this means higher operational costs, delays in deliveries, and a cascading effect on local businesses. Traders lament that not only does it affect the transport of goods but also discourages customers from visiting markets in damaged road areas. A city that aspires to expand its trade and industry cannot afford to neglect the foundational infrastructure of its roads, which form the very backbone of economic activity.

Despite the glaring problems, the official response has remained limited and cosmetic. Authorities have attempted to fill potholes using temporary materials like loose gravel

and asphalt patches. However, these quick fixes have proved to be short-lived, with rains washing away the patchwork within days, leaving the roads worse than before. This piecemeal approach reflects a lack of long-term planning and commitment to quality. Residents and civic bodies, including members of the Chamber of Commerce & Industry, have repeatedly raised the alarm, filing, complaints and urging authorities to take concrete measures. Community representatives like Thakur Hoshiar Singh have stood with the people in amplifying these concerns, but their calls often meet with bureaucratic silence or half-hearted assurances. What Jammu needs is not stopgap solutions but a comprehensive road infrastructure overhaul. Experts have long argued that the city requires scientifically designed, weather-resistant road surfacing that can withstand both the heavy monsoon rains and the increasing vehicular load. Alongside, a modernized drainage system must be put in place to prevent waterlogging from eroding the road surface repeatedly. Traffic management, too, needs a rethinking, with smoother diversions and better monitoring to prevent endless jams. Street lighting and proper signage are essential safety measures that cannot be overlooked if accidents are to be reduced.

The residents of Jammu are growing restless, and their patience is wearing thin. Their frustration is not misplaced, as daily commutes have become ordeals and their hard-earned money is being drained on avoidable vehicle repairs. Many feel betrayed by the hollow promises of development and smart city projects, which continue to be announced in the media but remain invisible on the ground. For the elderly trying to reach temples or hospitals, for schoolchildren commuting daily, for traders ferrying goods, and for ordinary citizens trying to live a life of dignity, the road crisis of Jammu is not just about infrastructure but about basic rights and civic neglect. It is high time the administration realizes that good roads are not luxuries but necessities. They are the foundations of mobility, safety, and economic vitality. Ignoring them means putting lives at risk, stifling trade, and breeding public anger. Jammu deserves better than crumbling streets and endless jams. The time has come for the authorities to abandon temporary fixes and launch a serious, accountable, and time-bound plan to restore the city's roads. Anything less would not just be negligence but a betrayal of the people's trust. Let me conclude this write up with an Urdu couplet which is as, "Hukumat Nam Hai Sabsae Beheas Hoona Ka".

