Asta-Ja Education and Training for Ecological and Environmental Sustainability and Sustainable Economic Development in Nepal Part II

Durga D. Poudel

The Founder of the Asta-Ja Framework, University of Louisiana at Lafayette, Lafayette, Louisiana, USA
E-mail: durga.poudel@louisiana.edu

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Abstract

Nepal's educational system has evolved from the ancient education of the Vedic and Buddhist system to the modern education system of global standard. In its structured educational system, basic (1–8th grade), lower secondary (9–10th grade), higher secondary (11–12th grade), and higher education (colleges and universities), Nepal has introduced a wide range of modern educational measures and pedagogical approaches such as a letter grading system, semester system in higher education, student-centered learning, experiential learning, project-based learning, e-learning, and hands-on education, among others. Nepal has also focused on building educational infrastructures including school buildings, laboratories, e-learning facilities, and training teachers for practical education. However, Nepal is facing the challenges of delivering practical education, developing skilled manpower, employment generation, checking massive outmigration of students

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for higher education abroad, poverty alleviation, climate resiliency, and ecological and environmental sustainability. There is a serious mismatch between the Nepalese education system and the country's geography, history, culture, tradition, ecology, environment, economic development, and other facets of Nepalese lives. Therefore, there is an urgent need to restructure the Nepalese education system to align with the country's natural, cultural, and human resources. For this, a theoretically grounded educational transformation framework is necessary. The Asta-Ja Framework, meaning eight "*Ja*" in the Nepali language, *Jal* (water), *Jamin* (land), *Jungle* (forest), *Jadibuti* (medicinal and aromatic plants), *Janashakti* (human resource), *Janawar* (animals), *Jarajuri* (crop plants), and *Jalabayu* (climate) serves as a robust framework for aligning natural and human resources to educational system for practical education in Nepal. The Asta-Ja Framework represents the four sub-systems of the Planet Earth, hydrosphere (*Jal*), lithosphere (*Jamin*), biosphere (*Jungle, Jadibuti, Janashakti, Janawar*, and *Jarajuri*), and atmosphere (*Jalabayu*). Five themes of the Asta-Ja Framework, the theory and principles, Asta-Ja assessment, security challenges, industries and businesses, and governance, serve as critical elements in developing a practical, problem-solving, and holistic educational system for sustainable economic development in Nepal. This article demonstrates how the five themes of the Asta-Ja Framework can be well integrated into higher education and high-school curricula and formal and informal training programs in Nepal. By integrating Asta-Ja in education and training programs, Nepal can transform its educational system into a practical, problem-solving, innovative, and community-oriented educational system enhancing ecological and environmental sustainability, accelerated economic growth, employment generation, and fast-paced socio-economic transformation in Nepal.

Keywords: Asta-Ja, education, training, practical curricula, Nepal Vision 2040.

1 Introduction

The Government of Nepal has recognized Technical and Vocational Education and Training (TVET) as an important means of supporting economic growth and promoting educational quality and equity in Nepal. Accordingly, Nepal established Council for Technical Education and Vocational Training (CTEVT) as an apex body of TVET in Nepal in 1989 AD. The CTEVT plays a key role in developing skilled human resources in many

sectors and supports the economic development of the country (Poudel et al., 2023). Some of the CTEVT programs include diploma in technical education (grades 11th and 12th, often known as +2 in Nepal, and an additional one year) in various disciplines including Agriculture, Forestry, Health Sciences, Engineering, Tourism and Hospitality, Information Technology, and Electrical Engineering. Currently, CTEVT offers diplomas in over 500 community schools in Nepal. Similarly, INGOs, NGOs, governmental agencies, community-based organizations, bilateral agencies, and several developmental programs and initiatives run formal training for skills development to their employees, community members, and other stakeholders. Such a training may include workshop, in-person classroom instruction, online training programs, eLearning courses, webinar, and remote lab instruction. Nepal's technical and vocational training and other formal training programs are quite fragmented, uncoordinated, substandard, and lacking funds, facilities, and qualified instructors (Poudel et al., 2023). Incorporation of Asta-Ja training in CTEVT and other training programs would be an important milestone in enhancing the effectiveness of formal training programs, alignment of training activities with the job market, and raising community awareness in natural resource conservation and sustainable education development.

According to Upraity (2003), education must support a country's sustainable economic development ensuring that developmental undertakings are feasible and the ecological and environmental sustainability is enhanced. The educational system should provide opportunities for people to dialogue, engage, define their vision, and determine appropriate pathways for sustainable development and environmental sustainability (Tilbury, 2003). It is critical to have an appropriate educational structure and curriculum to enhance environmental sustainability and ecological conservation (Thapa, 2003). Educational systems including research and innovation institutions should produce state-of-the-art knowledge, skills, technologies, and capabilities for protecting the environment and natural resources (Alam, 2023).

Based on the Asta-Ja (*Jal* (water), *Jamin* (land), *Jungle* (forest), *Jadibuti* (medicinal and aromatic plants), *Janashakti* (human resources), *Janawar* (animals), *Jarajuri* (crop plants), and *Jalabayu* (climate)) Framework (Poudel, 2008) and Nepal's current socio-economic, agricultural, and environmental challenges such as poverty, food insecurity, unemployment, increasing public debt, foreign aid dependency, massive outmigration of the youths, frequent natural disasters, environmental degradation, climate insecurity, and negative trade balance, Poudel (2018) developed Nepal Vision 2040 which aims to elevate Nepal at the par of developed nation by 2040 AD.

Nepal Vision 2040 identifies nine strategies for developing Nepal to a developed nation level by 2040 AD. These nine strategies are, (1) Food self-sufficiency, (2) Reliance on renewable energy resources, (3) Thirty million tourists annually, (4) Export of organic foods, medicinal and aromatic plants, and other products, (5) Corruption control, (6) Infrastructure development, (7) Community resiliency, (8) Social services, and (9) Asta-Ja conservation, development, and utilization (Poudel, 2024). The subsequent sections present practical curricula for quality higher education, high schools, and formal training focusing on the Asta-Ja resources, emphasizing ecological and environmental sustainability, employment generation, and sustainable economic development, and discuss the critical role of Asta-Ja education and training in Nepal Vision 2040.

2 Practical Curricula for Asta-Ja Education and Training

Practical curricula for Asta-Ja education and training should be fully aligned with the five themes of the Asta-Ja Framework: (1) Asta-Ja Theory and Principles, (2) Assessment of Asta-Ja, (3) Security Challenges, (4) Industries and Businesses, and (5) Governance (Poudel, 2008, 2021a, 2021b, 2021c, 2022, 2024). The theory of Asta-Ja reveals that the eight elements (*Jal, Jamin, Jungle, Jadibuti, Janashakti, Janawar, Jarajuri*, and *Jalabayu*) of the Asta-Ja system are intricately interlinked and the utilization of one resource requires sustainable conservation and development of all other resources. The eight principles of Asta-Ja (community awareness, capacity-building, policy decision-making, comprehensive assessment, interrelationships and linkages, sustainable technology and practices; institutions, trade and governance, and sustainable socio-economic development of the community) suggest that the Asta-Ja Framework is a very comprehensive, community-focussed, and a practical and peaceful approach to sustainable economic development. A thorough assessment of the Asta-Ja resources is necessary for their development and sustainable utilization. Similarly, food, water, energy, environmental, and climate security challenges must be the core of Asta-Ja education and training. Creating competitive advantages for businesses and industries for national development (Porter, 1998) is another theme of the Asta-Ja Framework which should be well-considered while developing practical curricula. Good governance and full engagement of local communities for conservation, development, and utilization of natural and human resources and achieving community resiliency and accelerated economic growth constitute another critical theme of the Asta-Ja Framework.

By fully aligning with these five themes of the Asta-Ja Framework, the Asta-Ja higher education should be rooted in liberal arts and the curricula built with interdisciplinary courses including behavioral science, humanities, arts, literature, natural science, physical science, information technologies, biological science, agriculture, forestry, engineering, and climate. The high school and the Asta-Ja training curricula should stem directly from the five themes of the Asta-Ja Framework.

2.1 Asta-Ja Higher Education

Learning outcomes of Asta-Ja higher education include that students develop a comprehensive understanding of the Asta-Ja system, learn state-of-the-art technologies and methods for Asta-Ja assessment, gain knowledge on policy-decision making, community capacity-building, and good governance, and implement the best management practices for conservation, development, and utilization of Asta-Ja resources and sustainable economic development of Nepal. The Asta-Ja higher education builds on the foundation of liberal arts education and interdisciplinarity with the curricula covering various disciplines including physical science, biological science, humanities, behavioral science, information technology, engineering, and others. The Asta-Ja teaching pedagogy involves interdisciplinary, interactive, inclusive, experiential, participatory, discussion-oriented, observational, practical, learner-centered, and systems-based instruction. The presence of appropriate educational infrastructures and facilities and sufficient investment in teacher training are critical for an effective Asta-Ja higher education. Through field studies, study abroad programs, and internships, college students effectively learn the complexities of the problems, acquire skills, and gain valuable field experience (Corwin et al., 2019). Table 1 below presents examples of courses for Bachelor of Science and Bachelor of Art 4-year Asta-Ja degrees, and respective majors, and minors.

2.2 Asta-Ja High School Education

Despite several educational development initiatives, high school education in Nepal is still largely teacher-centered in which students lack opportunities to express their ideas fully and work collaboratively in their group projects (Poudel, et al., 2023). There is a disconnect between teachers and students. Students are disengaged in learning; they are not challenged. Education is imparted predominantly through a theoretical approach, severely lacking

Table 1 Curriculum catalog of Asta-Ja degrees, Asta-Ja concentrations, and Asta-Ja Minors in Bachelor of Science and Bachelor of Arts in a 4-year (8 semester) program

	Bachelor of Science (B.Sc.)	Bachelor of Arts (BA)
Asta-Ja Major (120 credit hours)		
Freshman year	ENGLISH (6 cr hr) MATHEMATICS (3 cr hr) BIOLOGY (8 cr hr) ARTS (3 cr hr) XYZ 100 Environmental Science (3 cr hr) XYZ 150 Poultry Science (3 cr hr) XYZ 180 Plant Science (3 cr hr) XYZ 190 Medicinal and Aromatic Plants (3 cr hr)	ENGLISH (6 cr hr) MATHEMATICS (3 cr hr) BIOLOGY (8 cr hr) ARTS (3 cr hr) XYZ 100 Environmental Science (3 cr hr) ABC 150 Tourism (3 cr hr) ABC 180 Agri-business (3 cr hr) ABC 190 Environmental Ethics (3 cr hr)
Sophomore year	HUMANITIES (9 cr hr) CHEMISTRY (4 cr hr) MATHEMATICS (3 cr hr) PHYSICS (4 cr hr) XYZ 250 Soil Science (4 cr hr) XYZ 280 GIS (3 cr hr) XYZ 290 Wildlife (3 cr hr) XYZ 295 Asta-Ja System (3 cr hr)	HUMANITIES (9 cr hr) CHEMISTRY (4 cr hr) MATHEMATICS (3 cr hr) PHYSICS (4 cr hr) ABC 250 Geography of the Environment (3 cr hr) XYZ 280 GIS (3 cr hr) ABC 290 Land Management (3 cr hr) XYZ 295 Asta-Ja System (3 cr hr)
Junior year	BEHAVIORAL SCIENCE (6 cr hr) STATISTICS (3 cr hr) XYZ 300 Remote Sensing (3 cr hr) XYZ 330 Minerals and Mines (3 cr hr) XYZ 350 Sustainable Agriculture (3 cr hr) XYZ 360 Sustainable Livestock Production (3 cr hr) XYZ 390 Soil and Water Conservation (3 cr hr) XYZ 395 Air Quality (3 cr hr) XYZ 398 Field Techniques (1 cr hr)	BEHAVIORAL SCIENCE (6 cr hr) STATISTICS (3 cr hr) XYZ 300 Remote Sensing (3 cr hr) ABC 330 Policy Formulation, Implementation and Evaluation (3 cr hr) XYZ 350 Sustainable Agriculture (3 cr hr) XYZ 360 Sustainable Livestock Production (3 cr hr) ABC 390 Environmental Law and Governance (3 cr hr) ABC 395 Community Capacity-building (3 cr hr) ABC 398 Field Techniques (2 cr hr)
Senior year	XYZ 400 Water Quality (3 cr hr) XYZ 410 Watershed Science (3 cr hr) XYZ 440 Environmental Remediation (3 cr hr) XYZ 450 Climate and Weather (3 cr hr) XYZ 460 Groundwater (3 cr hr) XYZ 470 Environmental Pedology (3 cr hr) XYZ 480 Oceanography (3 cr hr) XYZ 490 Advanced Silviculture (3 cr hr) XYZ 498 Internships (3 cr hr)	ABC 400 Natural Resource Economics (3 cr hr) ABC 410 National Parks and Protected Areas (3 cr hr) ABC 440 Environmental Impact Assessment (3 cr hr) XYZ 450 Climate and Weather (3 cr hr) ABC Anthropology of Development (3 cr hr) ABC 470 Sociology of Natural Disasters (3 cr hr) ABC 480 Conservation and Society (3 cr hr) ABC 490 GHG Accounting (3 cr hr) ABC 498 Internships (3 cr hr)

(*Continued*)

Table 1 Continued

	Bachelor of Science (B.Sc.)	Bachelor of Arts (BA)
Asta-Ja Concentration (21 credit hours)	XYZ 330 Minerals and Mines (3 cr hr) XYZ 350 Sustainable Agriculture (3 cr hr) XYZ 360 Sustainable Livestock Production (3 cr hr) XYZ 400 Water Quality (3 cr hr) XYZ 450 Climate and Weather (3 cr hr) XYZ 470 Environmental Pedology (3 cr hr) XYZ 490 Advanced Silviculture (3 cr hr)	ABC 290 Land Management (3 cr hr) ABC 330 Policy Formulation, Implementation and Evaluation (3 cr hr) ABC 390 Environmental Law and Governance (3 cr hr) ABC 395 Community Capacity-building (3 cr hr) ABC 400 Natural Resource Economics (3 cr hr) ABC 440 Environmental Impact Assessment (3 cr hr) ABC 490 GHG Accounting (3 cr hr)
Asta-Ja Minor (18 credit hours)	XYZ 100 Environmental Science (3 cr hr) XYZ 180 Plant Science (3 cr hr) XYZ 295 Asta-Ja System (3 cr hr) XYZ 350 Sustainable Agriculture (3 cr hr) XYZ 400 Water Quality (3 cr hr) XYZ 450 Climate and Weather (3 cr hr)	ABC 190 Environmental Ethics (3 cr hr) ABC 290 Land Management (3 cr hr) ABC 330 Policy Formulation, Implementation and Evaluation (3 cr hr) ABC 395 Community Capacity-building (3 cr hr) ABC 470 Sociology of Natural Disasters (3 cr hr) ABC 480 Conservation and Society (3 cr hr)

practical education even in service-oriented fields. Learners' passion for learning is not addressed by the curriculum. The politicization of school administration is perhaps the single reason for the degradation of education in Nepal. It is urgent to transform Nepal's high school education into a practical, holistic, inclusive, problem-solving, and critical thinking-enhancing educational system to develop a workforce to contribute to ecological and environmental sustainability and sustainable economic development of the country. The educational system should cultivate interdisciplinary thinking and working styles among the students so that they can turn into team players in tackling complex problems. The Asta-Ja high school education should teach students about the availability of the country's vast amount of natural and human resources, the complexities and linkages of the natural systems, environment, trade and businesses, and socio-politico-economy. It should develop students' abilities for critical thinking, problem-solving skills, and motivation for ecological and environmental sustainability. It should prepare students for career jobs, environmental advocacy, community work, natural resources conservation, and leadership. The Asta-Ja education empowers and cultivates patriotism among the learners. An example of the Asta-Ja high school education course syllabus which is based on the five themes of the Asta-Ja Framework discussed above is presented in Table 2 below.

Table 2 An example of Asta-Ja course for 10th grade in Nepal

Units	Lectures	Firsthand Knowledge
Asta-Ja Theory and Principles	Part 1. Planet Earth	Creating gardens, native plant species plots, flower beds, wetlands, and wildlife habitats, and establishing weather monitoring stations in schools. Understanding the ecology and the environment through Asta-Ja's lenses.
	Part 2. Geography, History, and Culture of Nepal	
	Part 3. Asta-Ja Theory	
	Part 4. Principles of Asta-Ja	
	Part 5. The Asta-Ja Framework	
	Part 6. Ecological and Environmental Sustainability	
	Part 7. Sustainable Economic Development	
Assessment of Asta-Ja	Part 1. Asta-Ja Assessment Parameters	Filling out Asta-Ja Log Frame, synthesizing the information, and establishing a computer database for Asta-Ja. Learning about data recorders for real-time monitoring. Collecting soils and geomorphology data.
	Part 2. Spatial and Temporal Distribution of Asta-Ja Resources	
	Part 3. Status of Asta-Ja Resources	
	Part 4. Asta-Ja Surveys	
	Part 5. Asta-Ja Log Frame	
	Part 6. Asta-Ja National Resource Inventory (Asta-JaNRI)	
Security Challenges	Part 1. Food Security	Field measurements of water quality (DO, turbidity, conductivity, pH, temperature, chlorophyll a), soil health (soil pH, bulk density, soil moisture, compaction, soil profiles, soil EC, soil water potential), weather parameters (air temperature, wind speed/direction, RH, solar radiation, rainfall) and air quality assessment (visibility, air deposits), air-quality monitoring stations, chlorophyll content of the plants, livestock forages and feed.

(*Continued*)

Table 2 Continued

Units	Lectures	Firsthand Knowledge
	Part 2. Water Security	
	Part 3. Energy Security	
	Part 4. Climate Security	
	Part 5. Environmental Security	
Industries and Businesses	Part 1. Agro-industries and Businesses	Using computers in business management such as marketing, accounting, record keeping, input-output analyses, human resources management, and quick searches. Green business activities on campus such as carbon farming, payment for ecosystem/environmental services, food processing and sustainable packaging, and making handicrafts from local materials include additional hands-on activities.
	Part 2. *Jadibuti*-industries and Businesses	
	Part 3. Forest Industries and Businesses	
	Part 4. Renewable Energy Industries and Businesses	
	Part 5. Water Industries	
	Part 6. Tourism	
	Part 7. Mines and Minerals	
	Part 8. Handicraft Industries and Businesses	
	Part 9. Carpets and Manufacturing Industries and Businesses	
	Part 10. IT Industries and Businesses	
	Part 11. Other Industries and Businesses	
Governance	Part 1. Federal, Provincial, and Local Governments	Sustainable community development planning and management exercises – A case of a nearby community. Students will be provided with the available Asta-Ja datasets for a community. They will work in different groups for data synthesis, tabulation, analyses, and follow unified planning and management approach for developing sustainable community development plan for the community.

(*Continued*)

Table 2 Continued

Units	Lectures	Firsthand Knowledge
	Part 2. Resource Ownership and Tenure Rights	
	Part 3. Policies, Rules, Regulations, and Laws	
	Part 4. Community Engagement and Capacity-building	
	Part 5. Incentives and Revenue Sharing	
	Part 6. Investment in Asta-Ja Infrastructure	
	Part 7. Sustainable Community Development	
	Part 8. Monitoring, Evaluation, and Reporting	

2.3 Asta-Ja Training

To promote formal training, the Government of Nepal established the Council for Technical Education and Vocational Training (CTEVT) in 1989 AD. Under CTEVT, there are 66 constituted technical schools and polytechnics, 57 technical schools through partnership modality, 639 community schools, 407 affiliated private technical institutes, and 7 provincial offices. Similarly, more than 1621 institutions run short-term training under CTEVT in the country. In addition to CTEVT, several INGOs, NGOs, academic institutions, governmental agencies, community organizations, and other stakeholders organize informal training that covers almost all disciplines and developmental sectors primarily for knowledge and technology transfer, community outreach, and as a means for achieving project goals. However, most training programs lack a long-term and holistic perspective on natural and human resources development and utilization and fail to address the pressing challenges of employment creation, income generation, and community capacity-building. They are often limited to a few technologies and practices that seldom fit into the local system with available resources. Most training is conducted without fully considering its logical structure and content, pedagogy, and learning outcomes and often lacks appropriate monitoring and follow-ups. Integrating Asta-Ja in Nepal's formal and informal training programs will benefit these programs with effective community capacity-building, imparting comprehensive knowledge on natural and human resources to the learners, expediting income and employment generation, and enhancing sustainable economic development in Nepal. Aligning

with the five themes discussed above, the Asta-Ja training curriculum can cover a wide range of topics including water quality, green infrastructures, land resources, soil health, soil and water conservation, forest management, forest products, use of medicinal and aromatic plants, sustainable agriculture, livestock and poultry production, post-harvest technologies, climate change adaptation, agro-industrialization, minerals and mines, tourism development, trade, sustainable community development, and good governance. Such a training curriculum should effectively impart practical knowledge and produce a skilled workforce. Table 3 below shows an example of the five-day Asta-Ja training program.

3 Asta-Ja Education and Nepal Vision 2040

Figure 1 below demonstrates the critical role of Asta-Ja education, training, and community awareness in sustainable conservation, development, and utilization of Asta-Ja resources, accelerated economic growth, fast-paced socio-economic transformation, and the realization of Nepal Vision 2040. The innermost circle of the framework includes Asta-Ja education, training, and community awareness as the core of the Asta-Ja Nepal Vision 2040 (Poudel, 2018). Through Asta-Ja education, training, and public outreach, community awareness can be raised and community capacity-building can be achieved for sustainable conservation, development, and utilization of Asta-Ja resources and the fast-paced socio-economic transformation of Nepal.

The circle outside the inner core in Figure 1 presents strategies/guidelines for Nepal Vision 2040, while the further outer circle presents key action domains for these strategies/guidelines. The outermost circle includes six Cs, communication, connection, cooperation, coordination, collaboration, and completion, of the Asta-Ja Nepal Vision 2024. The six Cs guide the Asta-Ja Nepal Vision 2040 stakeholders in their critical undertakings of the essential processes including planning, implementation, monitoring and evaluation, and reporting of the Asta-Ja Nepal Vision 2040 programs, initiatives, and project activities. Asta-Ja education, training, and community awareness are critical for the successful execution of all elements presented in the diagram (Figure 1). As interdisciplinarity and practical approach in education is suggested for ecological and environmental sustainability and sustainable development (Annan-Diab and Molinari, 2017), the Asta-Ja Education and Training and Community Awareness and Nepal Vision 2040 framework

Table 3 A five-day Asta-Ja training program

	Lecture Sessions		Practical Sessions	
	Hours	Topics	Hours	Activities
Day-1 Asta-Ja Theory and Principles	8 am – 9 am 9 am – 10 am 10 am – 11 am 11 am – 12 noon	Planet Earth Geography of Nepal Asta-Ja Theory Principles of Asta-Ja	1 pm – 4 pm Field Visit 4 pm – 5 pm Field Workshop	Participants will understand the status of the Asta-Ja and their interrelationships, linkages, opportunities, and challenges in income generation, entrepreneurship development, and agro-industrialization. They will have information discussions with stakeholders about sustainable conservation, development, and utilization of Asta-Ja resources. Participants will collate, synthesize, and share their observations and learning with the local communities.
Day-2 Asta-Ja Assessment	8 am – 10 am 10 am – 12 noon	Asta-Ja Data Collection Techniques, Asta-Ja Log Frame Interpretation of Asta-Ja Data	1 pm – 5 pm Asta-Ja Database	Participants will develop a database for natural resources such as soil, land, plants, animals, crop production, water resources, forests, climate, and biodiversity. They will learn database management system (DBMS) software and Asta-Ja Log Frame.
Day-3 Security Challenges	8 am – 9 am 9 am – 10 am 10 am – 11 am 11 am – 12 noon	Food Security Water Security Energy Security Climate and Environmental Security	1 pm – 3 pm Field Water Quality 3 pm – 5 pm Climate Resiliency Urban Tour	Field measurements of DO, turbidity, conductivity, pH, temperature, chlorophyll a, and discharge. Investigating public health issues and environmental pollution. Visiting urban places to observe green infrastructures, flood protection systems, roof-top gardens, sustainable building design, and drinking water source protection, and discussing local climate change challenges with the communities. Conservation planning by following nine steps: problem identification, determining objectives, inventorying of the resources, analyzing resource data, formulating alternative plans, evaluating alternative solutions, decision making, implementing plan, and evaluation of results.

(*Continued*)

Table 3 Continued

	Lecture Sessions			Practical Sessions
	Hours	Topics	Hours	Activities
Day-4 Industries and Businesses	8 am – 9 am 9 am – 11 am 11 am – 12 noon	National Competitive Advantage Agro-*Jadibuti* Industrialization Cooperatives and Corporates	1 pm – 5 pm Businesses, Cooperatives, and Industries Tour	Visiting businesses, cooperatives, and industries to understand their strategies and structures, operations, supply of raw materials, investments, supporting infrastructures, competition, challenges, and opportunities.
Day-5 Governance	8 am – 10 am 9 am – 10 am 11 am – 12 noon	Resource Ownerships and Tenancy Rights Incentives and Revenue Sharing Investment in Asta-Ja	1 pm – 5 pm Sustainable Community Development Workshop	Participants will be assigned to one local community with available information on the status of Asta-Ja resources, challenges associated with income and employment generation, market scenarios, governmental policy restrictions, climate change impacts, and other pertinent information about the locality. Participants will divide themselves into four different groups: biophysical, socio-economic, institutional, and information systems. Each group will work separately first and then all four groups will work together and develop the Asta-Ja resource conservation, development, and utilization plan for sustainable community development of the locality.

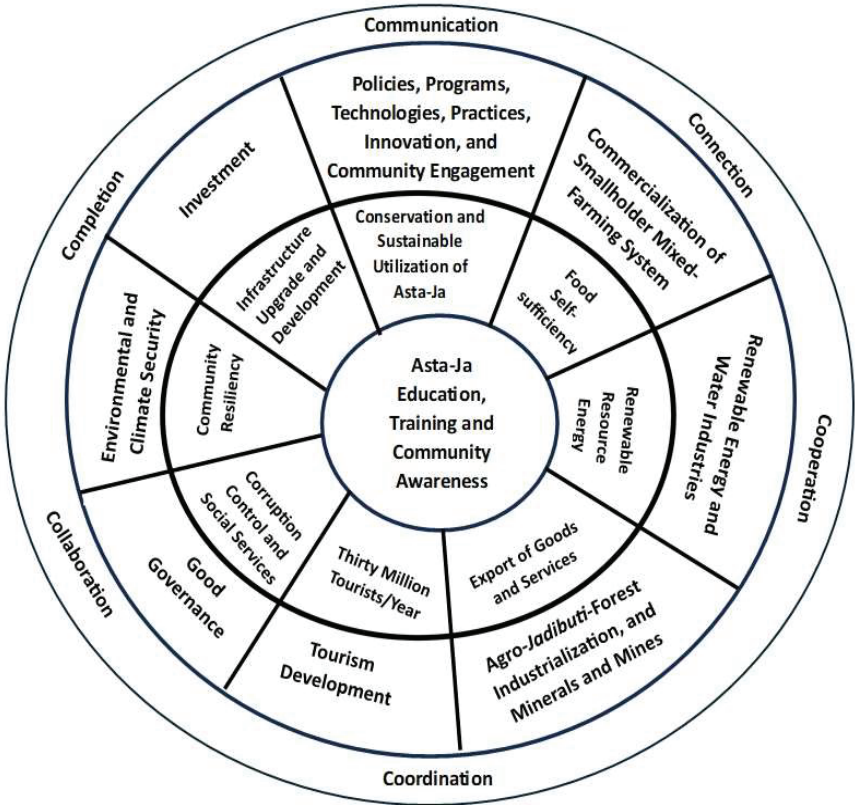

Figure 1 Asta-Ja education, training and community awareness and Nepal Vision 2040.

offers powerful guidance for promoting interdisciplinary and practical education, enhancing sustainable economic development, and the success of the Nepal Vision 2040.

4 Conclusions

The Asta-Ja education and training curricula revolve around the five themes of the Asta-Ja Framework, (1) The theory and principles of Asta-Ja, (2) Asta-Ja assessment, (3) Security challenges, (4) Industries and businesses, and (5) Governance. The Asta-Ja education and training can easily be integrated into higher education, high school education, and Nepal's formal and informal training programs. The integration of Asta-Ja education and training

in existing higher education and high schools across the country, CTEVT programs, and informal training will benefit Nepalese society remarkably as it will produce citizens who are knowledgeable about their natural and human resources, have problem-solving skills, and are capable of working in interdisciplinary teams for sustainable conservation, development, and utilization of natural and human resources. Asta-Ja education and training are critical for accelerated economic growth and the fast-paced socio-economic transformation of Nepal. It is suggested that the Government of Nepal, universities and colleges, private academic institutions, formal training institutions, and other stakeholders integrate Asta-Ja education and training in schools, colleges, and higher education as well as in all formal and nonformal training activities and outreach programs in Nepal.

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