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HP Misc. Topics

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ANALYSIS: SYLLABUS ANS PREVIOUS YEAR PAPERS

1. Modern and emerging technologies and initiatives in the State

- ❖ Biotechnology policy, research, vision, scope and applications
- ❖ Applications for developing horticulture, medicinal and aromatic plants resources of the State.

1. What are the main horticultural products of Kinnaur and Lahaul Spiti regions of Himachal Pradesh?(2016, 4 marks)
2. Describe various initiatives of Himachal Pradesh government for conservation and management of aromatic plants.(2017, 4 marks)
3. Describe the objectives and status of digitalization of land records in Himachal Pradesh.(2017, 4 marks)
4. Describe the Medicinal plant policy, 2006 of Himachal Pradesh(2020, 4 marks)
5. Describe the major Ethno-medicinal plants of the Chamba district of Himachal Pradesh.(2021, 4 marks)

2. IT policy of Himachal Pradesh and its role in governance

- ❖ Himachal State Wide Area Network (HIMSWAN)
- ❖ State plans of e-governance,
- ❖ LokMitra Kendra
- ❖ Aryabhatta Geo-Informatics Space Application Centre (AGISAC).

1. What services are being provided by the HIMSWAN to bring efficiency and transparency in HP in public administration of the state?(2016, 8 marks)
2. Describe the preamble of establishment of AGISAC (Aryabhatta Geo-Informatics Space application Centre) in Himachal Pradesh(2017, 4 marks)
3. Describe the key deliverables of HIMSWAN (Himachal State wide area network).(2017, 4 marks)
4. Explain the role of "Integrated Community Service Centres" for easing life of people in Himachal Pradesh. (2019, 4 marks)
5. What is concept of G-Governance? Describe its present status in Himachal Pradesh.(2019, 4 marks)
6. Describe the role of Common Service Centres (VLEs) for providing Government to Consumer(G2C) services in Himachal Pardesh(2020, 4 marks)
7. Describe the objective of the National Research and Technology Consortium of Himachal Pradesh.(2021, 4 marks)
8. Describe the objectives of Science,technology and Innovation policy in Himachal Pradesh (2022, 4 marks)
9. Describe location and objectives of various high tech habitats in Himachal Pradesh (2022, 4 marks)
10. Discuss domain of services of AGISAC (2022, 4 marks)

3. Environmental Policy and problems

- ❖ State Biodiversity strategy and Action Plan.
- ❖ Endangered and threatened species of Himachal Pradesh.
- ❖ Factors responsible for Bio diversity decline in Himachal Pradesh.

1. What factors are responsible for the decline of bio-diversity in H.P.?(2016, 8 marks)
2. Explain the schemes started in Himachal Pradesh for sustainable forests(2018, 8 marks)
3. Discuss salient characteristics of Himachal Pradesh Biological Diversity Act,2002 (2019, 8 marks)
4. Describe the factors responsible for decline of Biodiversity in Himachal Pradesh. Discuss the steps for its restoration. (2019, 8 marks)
5. Describe the criteria for identification of Biodiversity Heritage Sites in Himachal Pradesh.(2021, 4 marks)
6. Discuss the main features of Himalayan ecology in the State of Himachal Pradesh (2022, 8 marks)

4. Relevance and role of Intellectual Property Rights, Geographical Indications and Traditional wisdom and knowledge in sustainable development of the State.

1. Enumerate any five items which have been patented or for which attempts are being made to get patented in Himachal Pradesh under intellectual property Rights?(2017, 4 marks)
2. Describe any four registered geographical indications of Himachal Pradesh(2020, 4 marks)
3. Describe the objectives of Himachal Pradesh Patent Information Centre(2020, 4 marks)

5. Tourism Sector in Himachal

- ❖ Tourism policy, potential and initiative in Himachal Pradesh.
- ❖ Types of tourism: religious, adventure, heritage, Important tourist destinations in Himachal Pradesh.
- ❖ Social, Economic and Cultural implications of Tourism.
- ❖ Concept of Eco-Tourism and green tourism and their role in sustainable development of the State.
- ❖ Environmental concerns of tourism industry, both positive and negative effects including climate change with reference to Himachal Pradesh.

1. In what way does tourism contribute to economic development in Himachal Pradesh? (2016,4 marks)
2. Describe the concept and state framework of Ecotourism in Beas circuits of Himachal Pradesh.(2019, 4 marks)
3. Explain in detail about various promotional themes of tourism in Himachal Pradesh. Also discuss the concept of ecotourism in context to sustainable development of Himachal Pradesh(2019, 20 marks)
4. Enlist various promotional themes of tourism in Himachal Pradesh.(2022, 4 marks)
5. Explain the different initiatives undertaken by the Government of Himachal Pradesh for improvement of socio-cultural aspects of tourism .Do these steps have potential to strengthen the Eco-tourism in Himachal Pradesh? (2018,20 marks)
6. What is eco-tourism? Discuss the potential of eco-tourism in the sustainable development of the state of Himachal Pradesh. Also, enlist various initiatives taken by the Himachal Pradesh govt to promote eco-tourism in the state. (2021, 20 marks)
7. Explain the role of ecotourism im sustainable development of Himachal Pradesh(2022, 8 marks)
8. What are the positive and negative impact of promoting tourism in Himachal Pradesh?(2017, 4 marks)
9. What are the major environmental concerns in the tourism policy of Himachal Pradesh? How heritage tourism can play role in economic growth of tourism in Himachal Pradesh.(2020, 20 marks)

QUESTION BANK

1. What do you mean by Green Energy? What specific measures and initiatives has the government of Himachal Pradesh undertaken to transform the state into a "Green State"?
2. What is the Solar Power Generation Potential of the Himachal Pradesh? Also, right down the major provisions of the H.P. Solar Power Policy.
3. How can we use traditional wisdom and knowledge in the sustainable development of Himachal Pradesh?
4. Discussed about the threatened and endangered species in HP.
5. Critically evaluate the provisions of e-governance in HP.
6. Discuss the vision and scope of biotechnology policy in Himachal Pradesh. 14.Do you agree that Himachal Pradesh provide a fertile ground for the development of biotechnology-based industries? write your answer in the light of government policy and programme in this direction. 10.Discuss the factors responsible for biodiversity decline in Himachal Pradesh.
7. What are the factors responsible for biodiversity decline in Himachal Pradesh? Discuss about the strategy and action plan of government to deal with this problem.
8. Discuss the scope of medicinal and aromatic plants in HP. 26.Describe various initiatives of Himachal Pradesh government for conservation and management of aromatic plants.
9. What steps are being taken in H.P to ensure zero budget model of natural farming?
10. What do you know about Aryabhatta Geo-Informatic Space Application Centre (AGISAC) in Himachal Pradesh.
11. What steps has been taken by government of HP for conservation of endangered and threatened species?
12. "Geospatial technology is a powerful tool for natural resource mapping and management in Himachal Pradesh". Elaborate.
13. Assess the policies and programs of Himachal Pradesh government in boosting the production, productivity, and income of horticulture farms. How far has it succeeded in increasing the income of farmers?
14. Describe the preamble of establishment of AGISAC (Aryabhatta Geo-Informatics Space application Centre) in Himachal Pradesh.
15. Concept of HIMSWAN has strengthen e-governance in Himachal Pradesh. Comment.
16. Discuss the importance of Lok Mitra Kendra in Himachal Pradesh.
17. What are the objectives of biotechnology policy in Himachal Pradesh?
18. Discuss about HIMSWAN to bring efficiency and transparency in HP in public administration of the state?
19. Describe any four Geographical Indicators registered products from Himachal Pradesh. Outline the advantages associated with obtaining a GI tag for such products.
20. Write down a brief note on the flora and fauna of the Pong Wetland.
21. Discuss about the concept of Lok-Mitra Kendra (Common Service Centres).
22. Write about a brief note on the Himachal Pradesh State Wetland Authority.
23. Write the major objectives of the IT, ITeS (Information Technology Enabled Services) and ESDM (Electronics System Design and Manufacturing) policy, 2019 of the state.
24. Write about the key objectives of the H.P. Medicinal Plants Policy, 2006. How do medicinal plants from Himachal Pradesh contribute to the traditional healthcare systems and cultural practices of the region?
25. What is the role of emerging technologies in the economic development of the state?
26. What do you understand by Environment Impact Assessment and how it will help in the conservation of biodiversity in Himachal Pradesh.
27. Discuss the need for developing sustainable tourism in Himachal Pradesh and what steps has been taken by HP government in this direction? try to write your answer in the light of Himachal Pradesh Tourism Policy 2019.
28. What is Nai Raahein Nai Manzilein scheme of tourism development in HP? what could be the major hurdle to make this scheme a successful story of state tourism?
29. What are the prospects of rural tourism in Himachal Pradesh?
30. Examine the challenges faced by tourism industry of HP in Covid period.
31. Write a short note on adventurous touism in Himachal Pradesh?

32. Discuss the impact of climate change on tourism in Himachal Pradesh.
33. Define the concept of eco-tourism and examine the risks and benefits of eco-tourism for HP.
34. Critically evaluate cultural and economic implication of tourism in Himachal Pradesh.
35. Write a note on the H.P. Tourism Development Corporation.

ROLE OF EMERGING TECHNOLOGIES IN RURAL AND ECONOMIC DEVELOPMENT OF HIMACHAL PRADESH

Emerging technology refers to innovations and advancements in various fields that are in the early stages of development or adoption and have the potential to significantly impact industries, society, and the way we live and work.

- E.g., Artificial Intelligence (AI), Internet of Things (IoTs), Quantum Computing, Nanotechnology, Bio-Technology, etc.
- Himachal Pradesh, being a hilly and predominantly rural state in India, has faced challenges in terms of infrastructure, connectivity, and access to basic services.
- To address these challenges and promote rural development, various technological interventions have been employed.

These Interventions are:

- **Internet Connectivity and Digital Access -** Improving internet connectivity, particularly in rural areas, has been a major focus in Himachal Pradesh.
  - E.g., projects like BharatNet aim to provide broadband connectivity to all gram panchayats, enhancing digital access across the state.
- **E-Governance -** Technology has revolutionised governance and service delivery, making government services such as land records and public distribution systems more accessible and transparent.
  - E.g., HIMSWAN, Sugam, HP MyGoV, e-filling of Income Tax, Facial Recognition of Beneficiaries, etc.
  - Also, the state government signed MoUs with FICCI to promote the use of drones in governance.
- **Agriculture and Farming -** Emerging technologies like precision agriculture, IoT-based sensors, and drone technology can improve crop yields, reduce wastage, and enhance the overall productivity of the agriculture sector.
  - E.g., projects like AGRISNET aim to create a comprehensive agricultural data bank.
  - Further, the Himachal Pradesh government has launched the "Transformation in Agriculture Using Emerging Technologies" project with Rs 108 crore funding from the Central government.
- **E-Education and Skill Development -** The adoption of online education platforms, e-learning tools, and virtual classrooms can help bridge the gap in education and skill development, especially in remote areas of the state.
  - E.g., Har Ghar Patshala Campaign, e-Samwad etc.
- **Healthcare Services** – Telemedicine and remote healthcare technologies can help in providing healthcare services to remote and inaccessible areas of Himachal Pradesh.
  - E.g., e-Sanjivani Portal of Himachal Pradesh government.
  - Further, Apollo Tele-Health has been awarded a contract to provide remote healthcare to the district of Lahaul-Spiti.
- Financial Inclusion - Technology plays a vital role in improving financial services in rural areas, facilitating access to banking services, and government subsidies, and enabling digital transactions.
  - E.g., Direct Benefit Transfer under various schemes like MGNREGA, PM KISAN scheme, etc.
- **Tourism Promotion -** The state leverages digital platforms and emerging technologies like Virtual Reality and Augmented Reality to promote tourism, providing information about local attractions and facilitating online bookings.
  - E.g., Himachal Pradesh is all set to 'e-connect' temples to boost religious tourism.
  - Also, under the Union Budget 2023-24, a "challenge mode" target is adopted to create 50 tourist sites in India, including H.P., to provide physical and virtual connectivity of tourism at the international level. make it short

- **Renewable Energy -** Himachal Pradesh utilises technology to harness renewable energy, particularly hydropower, efficiently managing energy resources and contributing to both power supply and state revenue.
- **Disaster Management -** Technology is employed for early warning systems and disaster management, crucial for a state vulnerable to natural disasters like landslides and floods.
    - ❖ E.g., Landslide and flash flood sensors are installed statewide, monitored by the Integrated Command and Control Centre (ICCC) for prompt responses to potential incidents.
- **Environmental Conservation and Infrastructure Development -** Emerging technologies aid in environmental conservation, forest management, and sustainable urban planning and infrastructure development.
    - ❖ This includes the use of remote sensing and data analytics for forest management, wildlife conservation, and forest fire monitoring, to curb riverbed encroachment, track retreating of glaciers, etc.
- **Manufacturing and Industry -** Adopting Industry 4.0 technologies like automation, IoT, and data analytics can boost the state's manufacturing sectors' competitive edge.
- **Infrastructure Development** - Technologies like GIS (Geographic Information System) and AI can be used in urban planning and infrastructure development to ensure sustainable growth.
    - ❖ E.g., Shimla town will have a GIS-based development plan that will deal with several issues besides providing relief to the people of the town.

By harnessing the power of innovations like IoT, AI, and data analytics, Himachal Pradesh is steadily moving towards a more connected, efficient, and resilient future.

BIOTECHNOLOGY

Biotechnology involves harnessing biological processes, living entities, or their components to produce or innovate various products.

- Biotechnology involves the large-scale production of biopharmaceuticals and biologicals through the use of genetically altered microbes, fungi, plants, and animals.
- The applications of biotechnology include therapeutics, diagnostics, genetically modified crops for agriculture, processed food, bioremediation, waste treatment, and energy production.
- To utilize the full potential of the biotechnological advances, the state government came up with a comprehensive policy.

The objectives of the Biotechnology Policy of Himachal Pradesh of 2014 are:

- **Elevating Global Competitiveness -** Aiming to transform Himachal Pradesh into a top choice for the development and innovation of biotechnology products, services, and processes.
- **Strengthening Educational and R&D Infrastructure -** Committing to the enhancement of infrastructure and resources in research and educational institutions to cultivate a well-qualified biotechnology workforce.
- **Accelerating Research and Development -** Intensifying research efforts in key biotechnology sectors such as agriculture, animal husbandry, human health, the environment, and industry.
- **Sustainable Utilization of Bio-Resources -** Focusing on the conservation and commercial exploitation of the State's unique bio-resources for sustainable growth and development.
- **Fostering Biotechnology Investments -** Raising awareness and promoting investment opportunities in various biotechnology and related sectors to boost industrial growth in the State.

Himachal Pradesh presents an optimal location for investments in biotech-driven industries due to:

- **Rich Biological Diversity** - Himachal Pradesh boasts an abundant variety of plant, animal, and microbial species.
    - ❖ E.g., the state harbours more than 3,500 species of flowering plants, out of which about 800 species are estimated to be used for some or other medicinal purposes within and outside the State.

- **Diverse Ecological Conditions** - The State stands out with its wide range of ecological environments, leading to a predominance of specific flora and fauna in different regions based on the local eco-geographical conditions.
- **Clean Environment** - The low population density and extensive vegetation contribute to a pollution-free atmosphere in the State.
    - E.g., the air quality index (AQI) of Himachal has improved from 81 to 61 over the past four years, in the latest "Swachh Vayu Survekshan-2022".
- **Moderate Weather Patterns -** The climate in Himachal Pradesh remains relatively temperate throughout most of the year, providing a conducive environment for industries that require temperature control, particularly cooling during the warmer months.
- **Accessibility to Industrial Resources** - Himachal Pradesh offers the essential resources for establishing and maintaining biotechnology industrial operations, including ample unused land, consistent and affordable electricity, and abundant water supply from natural perennial sources fed by melting snow.
- **Government Support for Biotechnology** - The State Government actively supports biotechnology ventures, ensuring swift and efficient processes for initiating industrial units.

Scope of Bio-Technology in Himachal Pradesh:

- **Pharmaceutical -** This involves leveraging biotechnology to create pharmaceutical products.
- **Phytochemicals** - These are plant-produced chemical compounds that help in defence against pathogens and predators.
    - E.g., In Himachal, the extraction of phytochemicals from local plants for use in herbal medicines is a potential application.
- **Bioprospecting** - This entails the search for bioactive compounds and genetic material in nature, which can be commercialized in various industries.
- **Fermentation** - Utilizing microorganisms for biochemical transformations, which can be applied in the production of food additives and animal feed.
- **Post-harvest processing** - Biotechnology can address the short shelf-life and susceptibility to damage of fresh produce.
    - E.g., prevention of post-harvest losses of Tomatoes, apples, etc.
- **Genetically Engineered Micro-organisms (GEMs) -** These are microorganisms modified through modern biotechnology for specific functions.
    - E.g., waste to energy production, extraction of minerals from hazardous mine sites, etc.
- **Environmental Protection** - Applying biotechnological processes for environmental conservation and restoration.
    - E.g., in Himachal, the use of bioremediation to clean up contaminated water bodies.
- **Animal Husbandry** - Biotechnology can enhance animal breeding and reproduction.
    - E.g., three Cattle Farms located at Kothipura (Bilaspur), Palampur (Kangra) and Bagthan(Sirmaur) are being run by the department to produce genetically superior breeding bulls.
- **Agriculture** - Also known as agritech, this field applies scientific techniques including genetic engineering to genetically modified crops suited to the local climate and soil conditions.
    - E.g., the Rubber Research Institute has planted the world's first Genetically Modified (GM) rubber plant in Assam, specifically designed to thrive in the mountainous northeastern region's climate.

The Various Applications of Biotechnology in Horticulture Production of the State:

- **Crop Improvement through Genetic Engineering** - Genetic engineering techniques can be used to develop horticultural crops with improved characteristics, such as disease resistance, pest resistance, and increased yield.

- ❖ E.g., Scab disease in apples and Early Blight disease in tomato and potato.

- **Micropropagation** - Tissue culture techniques are widely used to multiply horticultural plants like apples, pears, and strawberries rapidly.
  - ❖ This ensures the production of disease-free and genetically uniform planting material, leading to higher yields.
- **Fruit Ripening and Shelf-Life Extension** - Biotechnology can be used to manipulate the ripening process of fruits and extend their shelf life, reducing post-harvest losses.
  - ❖ E.g., Ethylene management and controlled atmosphere storage are examples of such technologies.
- **Molecular Marker-Assisted Breeding** - Molecular markers can be used to identify and select desirable traits in horticultural crops, accelerating the breeding process and reducing the time required to develop new varieties.
  - ❖ E.g., High yield crops.
- **Climate-Resilient Varieties** - With the changing climate patterns, biotechnology can be used to develop horticultural varieties that are more resilient to extreme weather conditions.
  - ❖ E.g., flood, frost, high temperature, drought tolerant.
- **Organic Farming** - Biotechnology can support organic horticulture by developing organic-certified biotechnological inputs, such as organic biofertilizers and biopesticides.
- **Environment and Ecological Protection** – Biotechnology helps to produce bio-fertilizers and pesticides, which prevent soil, air or water pollution and ensure environmental and ecological conservation.

By continuing to invest in and promote biotechnology, Himachal Pradesh is poised to realize sustainable growth and development, contributing to the welfare of its citizens and the conservation of its unique bio-resources.

MEDICINAL PLANTS

The medicinal plant diversity in Himachal Pradesh is spread across more than 100 plant families with a few families being highly represented.

- This diversity highlights the state's potential to become a significant player in the national herbal scene, provided there is adequate conservation and utilization of these resources.
- In light of this, the state government took a proactive step by introducing the Medicinal Plants Policy in 2006.

The Major Objectives of this policy include:

- **Conserving Medicinal Plants** - The state aims to sustainably manage and promote its medicinal plants, balancing conservation with commercial and research applications.
- **Encouraging Organic Agriculture -** The policy promotes the use of organic farming techniques for traded species and supports the cultivation of commercially valuable species on privately owned lands
- **Establishing a Fair Pricing System** - The policy aims to create a pricing mechanism for wild harvested plants, balancing the need for conservation with the benefits provided to local communities.
- **Fostering Collaborative Efforts** - The state encourages partnerships between public bodies, private organizations, and local communities to strengthen capacity in cultivation, value addition, and processing of raw materials before they are exported.
- **Creating an Integrated Institutional Framework** - The policy seeks to establish a coordinated and responsive institutional structure to guide the development of the state's herbal sector, involving all relevant stakeholder groups in the management of medicinal plant resources.
- **Promoting Regional Cooperation** - The state aims to connect with other North-Western Himalayan states to promote community-focused reforms in the medicinal plant sector and to create alliances for better collaboration and coordination on policy, marketing, and value-addition operations.
- **Updating and Introducing Legislation** - The policy includes a commitment to reevaluate and modify existing

laws, or to introduce new legislation, to foster a supportive environment for the growth and development of the herbal sector within the state.

Status of the Medicinal Plants in H.P.:

- **Diverse Medicinal Plant Population** - Himachal Pradesh is home to over 3,500 types of flowering plants, **with approximately 800 species utilized for various medicinal purposes both within and outside the State.**
  - Of the medicinal plants identified, the majority are herbs (70%), followed by shrubs (15%), trees (10%), and climbers (5%).
- **Endangered Medicinal and Aromatic Plants** - The State Forest Department of Himachal Pradesh has listed 57 species of Medicinal and Aromatic Plants as being at risk due to non-sustainable harvesting practices.
- **Variety in Plant Families** - The medicinal flora in the state spans across more than 100 different plant families, highlighting its botanical diversity.
- **Medicinal Plant Trade** - Each year, approximately 2,500 tons of medicinal plants are officially transported out of the state's forests, with some also cultivated and sold by individuals.
  - The legal medicinal plant trade generates an estimated Rs. 10 crores, contributing around Rs. 40 lac annually to the state government through export permits.
- **Prominent Medicinal Plant Species** - Noteworthy medicinal plants in Himachal Pradesh include "Nag Chhatri" (Trillium govanianum), "Brahmi" (Bacopa monieri), "Dhoop or Dhoop-Lakkad" (Jurinea macrocephaly), and "Amlaka or Amla" (Phyllanthus emblica), among others.

The Geography of Himachal Pradesh Significantly Influences the Region's Medicinal Plants Diversity:

- **Variation in Altitude** - The state's landscape ranges from the low Shivalik foothills to the high Himalayan Mountains, creating diverse microclimates that accommodate various plant species.
- **Temperature Diversity** - The region's varied temperature zones support diverse medicinal and aromatic plants, with some thriving in cooler conditions for optimal growth and compound production.
  - E.g., plants like Picrorhiza kurroa (Kutki) and Woolly Pastureweed thrive in lower temperatures.
- **Differing Rainfall Patterns** - The western parts of Himachal Pradesh receive substantial rainfall due to monsoon winds, while the northern and eastern areas are relatively drier, providing varied habitats for plants adapted to these moisture levels.
- **Soil Types -** The classification of soil in the state is done in two categories: Brown Hill soil and Sub-Montane soil.
  - The brown soil is found in Shiwalik and the lesser Himalayan region covering 42.16% of the state's area.
  - The sub-montane soil characterizes the Middle and Greater Himalayan zone covering 46.07% of the state's area whereas eternal snow and glacial types of snow cover an area of 11.77%.
  - This variation in soil type promotes the diversity in the medicinal plants.

Prospects for Medicinal Plants in Himachal Pradesh:

- **Traditional Medicine -** Many communities in Himachal Pradesh rely on traditional medicine systems like Ayurveda, Siddha, and Unani, where medicinal plants play a crucial role.
  - E.g., Tulsi, Ashwagandha, Arjunachaal, Brahmi, etc.
- **Economic Opportunities -** Cultivation and trading of medicinal plants can provide livelihood opportunities for local communities, contributing to the state's economy.
  - E.g., Medicinal herbs like Dhoop (Jurinella □□□□□□□□□□□□), Karu (Picrorhiza kurrooa), Chora, Patish (Aconitum heterophyllum), Laljari (Arnebia benthamii), Kuth (Saussurea costus), etc.
- **Research and Development -** The diverse medicinal plant species in the state offer ample opportunities for research in pharmacology, botany, and medicine, leading to the development of new drugs and therapies.

- ❖ E.g., The Himalayan Forest Research Institute has created macro-proliferation methods for the large-scale propagation of Kutki and Mushakbala, significant medicinal plants from the temperate Himalayas.

- **Ecotourism -** The rich biodiversity, including medicinal plants, can attract tourists, particularly those interested in botany and natural medicine, fostering ecotourism.
- **Education and Awareness -** Medicinal plants can be used as tools for environmental education, raising awareness about biodiversity and conservation.
  - ❖ E.g., The Himalayan Forest Research Institute has set up Germplasm banks across various nurseries in Himachal Pradesh, preserving different species of temperate Himalayan medicinal plants for demonstration and stakeholder education.
- **Affordable Healthcare -** Medicinal plants play a significant role in the healthcare systems of rural areas, providing affordable and accessible remedies.

The cultivation and utilization of medicinal plants in Himachal Pradesh face several challenges and issues, including:

- **Addressing Data Evaluation and Authenticity in Herbal Medicine -** A critical challenge lies in impartially evaluating diverse data sets such as toxicological and epidemiological information, as well as ensuring the authenticity of the herbal materials utilized.
- **Over-Extraction** - Due to the high demand for medicinal plants in national and international markets, there is a tendency for over-harvesting, which threatens the sustainability of these species in their natural habitats.
  - ❖ E.g., out of the Himalayan region's medicinal plants, 112 species are at risk, with the highest number in Jammu and Kashmir (64), closely followed by Himachal Pradesh (60).
- **Lack of Standardization** - There is a need for standardization in the cultivation and processing of medicinal plants to ensure consistent quality and efficacy of the products.
- **Inadequate Research** - There is a lack of comprehensive research on the medicinal properties of various plants, as well as on the development of high-yielding and disease-resistant varieties.
- **Limited Market Access** - Many local growers and collectors of medicinal plants face challenges in accessing broader markets, leading to economic losses.
- **Climate Change Impacts** - Changing climatic conditions in the region may have unpredictable effects on the growth and availability of certain medicinal plants.
- **Dependence on Wild Collections** - A significant portion of the medicinal plants are collected from the wild, which makes them vulnerable to over-exploitation and habitat loss.
- **Lack of Awareness** - There is a need for greater awareness among local communities, cultivators, and other stakeholders about the value of medicinal plants and the importance of conserving them.

Way Forward:

- **Drug Interaction Analysis** - Understanding how herbal medicines interact with conventional drugs is a necessary step.
- **Ensuring Standardization and Safety** - Establishing standardized protocols to guarantee the safety and efficacy of herbal products.
- **Risk Management** - Implementing strategies to manage and mitigate potential risks associated with herbal medicine use.
- **Comprehensive Documentation** - Enhancing pharmacological, toxicological, and clinical documentation to support the safe use of medicinal plants.
- **Enhanced Research and Development** - Invest in comprehensive research to explore the medicinal properties of various plants and to develop high-yielding, disease-resistant varieties.
- **Market Development and Access** - Facilitate access to broader markets for local growers and collectors, and develop marketing strategies to promote the value of medicinal plants from Himachal Pradesh.

- **Promotion of Cultivation Over Wild Collection** - Encourage the cultivation of medicinal plants, especially those that are over-harvested from the wild, to reduce pressure on natural habitats.
- **Awareness and Capacity Building** - Conduct awareness programs and capacity-building workshops for local communities, cultivators, and other stakeholders to highlight the importance of medicinal plants and the need for their conservation.

By fostering collaboration, enacting informed policies, and engaging local communities, the state can balance economic growth with ecological stewardship, enhancing both human and environmental health.

AROMATIC PLANTS

Himachal Pradesh, rich in biodiversity, is home to over 1500 drug plants, including valuable aromatic and medicinal plants such as Atis, Patis, Karu, Kala Zeera, Singhi-Mingli, etc.

- The state government has initiated various programs and schemes to conserve and manage these aromatic plants.

The Various Initiatives are:

- **Mehak Scheme:**
  - **Objective** - Promotion of aromatic plant cultivation.
  - **Description** - The scheme provides assistance to farmers in cultivating aromatic plants like wild marigolds, lemon grass, basil, etc.
- **Establishment of Herbal Gardens:**
  - **Implemented by** - Department of Ayurveda.
  - **Location** - Four herbal gardens set up at Jogindernagar, Neri, Dhumera, and Jungal Jhalera.
  - **Purpose** - Development of agro techniques for medicinal plant cultivation to supplement farmers' income.
- **State Medicinal Plant Board:**
  - **Structure** - Established under the chairmanship of the chief minister.
  - **Function** - Promotion of medicinal plant-related activities in Himachal Pradesh.
- **Charak Vatikas Initiative:**
  - **Implemented by** - Ayush Department.
  - **Description** - Establishment of Charak Vatikas in 1167 Ayurvedic institutions, with approximately 11526 plants planted to generate awareness about plantation drives.
- **Regional cum Facilitation Centre:**
  - **Collaboration**: National Medicinal Plant Board, Ministry of Ayush.
  - **Location**: Research institute in the Indian System of Medicine at Jogindernagar.
  - **Coverage**: Promotes cultivation of medicinal plants across six northern states, including Himachal Pradesh.
- **Promotion of Specific Plants:**
  - Seabuckthorn:
  - **Implemented by**: Himachal Pradesh Krishi Vishvavidyalay Palampur.
  - **Location**: Lahaul Spiti.
  - **Community Involvement**: Women of Chandra Valley led the "Ek Kadam Hariyali Ki Aur" campaign, planting 6,588 forest nurseries of Seabuckthorn berries (locally known as Drilbu and Chharma).
  - Saffron:

Implemented by: Institute of Himalayan Bioresource Technology Palampur.

Location: Cultivation successful in Kinnaur district.

These initiatives reflect the Himachal Pradesh government's commitment to the conservation and sustainable management of aromatic plants, ensuring both economic development for local communities and preservation of the state's rich biodiversity.

IT, ITES (INFORMATION TECHNOLOGY ENABLED SERVICES) AND ESDM (ELECTRONICS SYSTEM DESIGN AND MANUFACTURING) POLICY OF H.P.

In today's digital world, the influence of Information Technology is unparalleled and it acts as a force multiplier to address the day-to-day needs and challenges of all industries.

- The Information Technology (IT) and Information technology-enabled services (ITeS) have enabled the State to dispense quicker and more efficient services in governance practices, health care, education, research, public service delivery etc.

Competitive Advantages of IT, ITeS and ESDM Sector in Himachal Pradesh:

- **Congenial Industry Relations -** The State has been recognized as the most consumer-friendly State in India by the Chamber of Commerce and never witnessed any major loss of productivity/work hours due to the State Government's constant emphasis on maintaining excellent industrial relations.
- **Reliable and Affordable Power -** The State is known as a Power Surplus State and provides round-the-clock power at reasonable rates to the industry.
- **Availability of Skilled Manpower** - The state is enriched with premier educational and technical institutes, including NIT Hamirpur, IIT Mandi, CIPET Baddi, IIIT Una, JUIT, and the forthcoming Mini Tool Room in Baddi.
    - These institutions, along with 238 ITIs across the state, ensure a continuous supply of highly skilled human capital, particularly benefiting the manufacturing sector.
    - Himachal Pradesh takes pride in having one of the highest numbers of technical personnel per lakh of the population.
- **Salubrious Environment** - Himachal Pradesh is committed to maintaining a clean and pollution-free environment, supported by a diverse range of natural flora and fauna and advantageous climatic conditions.
    - The state is celebrated for its tranquillity, law-abiding citizens, and efforts to ensure a peaceful living and working environment.

Hence to harness the full potential of IT and ITeS, the Department of Information Technology, Government of Himachal Pradesh, has launched the IT, ITeS and ESDM Policy in 2019.

- The policy enables a competitive environment for setting up IT, ITeS (Information Technology Enabled Services) and ESDM (Electronics System Design and Manufacturing) organisations and generates more employment through entrepreneurship in the state.

The primary goals of this policy include:

- **Establishing a Center of Excellence in IT, ITeS, and ESDM** - Transform Himachal Pradesh into a prominent hub for Information Technology, IT-enabled Services, and Electronics System Design and Manufacturing.
- **Building the Necessary Tech Infrastructure** - Develop all the essential infrastructure required for the growth and establishment of IT, ITeS, and ESDM companies within the state.
- **Enhancing the Skilled Labor Force** - Create a structure that boosts the availability of skilled professionals, ensuring that the state's workforce is adequately prepared for industries driven by technology.
- **Supporting Small and Medium-Sized Enterprises (SMEs)** - Promote and assist Micro, Small, and Medium Enterprises in the state to engage in the IT, ITeS, and ESDM sectors.
- **Implementing Automation** - Create a system that incorporates back-end automation to enhance business processes.

- **Ensuring Timely Service Delivery** - Create a supportive environment that ensures digital services are provided within a predetermined time frame.
- **Promoting Socio-Economic Development** - Drive holistic growth throughout the state while simultaneously enhancing the socio-economic landscape through the development of technology-driven industries.
- **Boosting Employment and Entrepreneurship** - Create additional employment opportunities and encourage entrepreneurial ventures within the state.

In conclusion, Himachal Pradesh is strategically positioning itself as a frontrunner in the IT, ITeS, and ESDM sectors, capitalizing on its unique strengths and the comprehensive policy framework.

HIMACHAL PRADESH PIONEERED IN THE ESTABLISHMENT OF A STATE WIDE AREA NETWORK (HIMSWAN)

Himachal Pradesh pioneered in establishment of a State Wide Area Network (HIMSWAN) to facilitate e-governance and enhance citizen-government interaction.

- Connecting over 2,000 sites including sub-divisions, tehsils, and panchayats through a high-speed line, the network ensures efficient and transparent governance by providing interactive information from various departments.
- This innovation in governance was recognized at the Infocomm India 2019 summit, where Himachal Pradesh was honoured with the Express Computer IT Excellence Award.

HIMSWAN as a Tool to Strengthen e-Governance:

- To bring government departments closer to the masses by offering efficacious and speedy online services.
- Better dissemination of information through a web portal and online status of applications submitted online or through post or by hand.
- Reduction in response time in addressing grievances by the concerned departments.
- Facilities to the farmers and villagers who make queries about the latest techniques, advice for their problems, new technologies etc. from a group of experts pertaining to fields of agriculture, horticulture, animal husbandry, health, fisheries etc.
- Updated the latest information regarding the public distribution system, list of beneficiaries under different programmes, and information regarding government grants given to PRIs and urban local bodies.
- To provide Internet/E-mail facilities and links to various departmental websites using SWAN.
- The network aims to streamline operations across various applications including email, file transfer, and data communication, as well as support intranets, EDI services, value-added networks, and government communication.

Lok Mitra Kendra and HIMSWAN:

Title	LOK MITRA KENDRA	HIMSWAN
Parent Idea	➢ National e-Governance Plan	➢ National e-Governance Plan
Establishment	➢ Started in 2001 with the help of NABARD in District Hamirpur.	➢ Started in 2008 and Himachal became the first state to implement it in the country. HIMSWAN is a Himachal variant of SWAN(State Wide Area Network)
Concept	➢ A step towards making people aware of the government schemes and a platform to interact with various government functionaries and contribute accordingly to the e-governance process ➢ The necessary software will be developed by the NIC state unit	➢ By setting HIMSWAN the state government **tries to create state-of-the-art communication infrastructure for G2C, G2E, G2B and G2G.** ➢ The Project is aimed at providing HIMSWAN link to government offices and integrated community service centres at state, districts, Subdivision, Tehsil and Block headquarters

	➢ Services of Lokmitra include Classified complaints, Download Govt forms, vacancies, tender, developmental work notice board village email etc.	➢ The first phase has been completed and is in the second phase
Relevance	➢ Better dissemination of service to the remotest corner of the state resulting in better awareness of people.	➢ In today's world of accuracy and speed there is an urgent need for fast communication among the departments.
	➢ Saving time and cost of people visiting district headquarters. ➢ Reduction in response time. ➢ Additional income source. ➢ Employment generation by opening up of citizen information Centre. ➢ Transparency in the system.	➢ Better dissemination of information through web portal and online status of application than by regular posts. ➢ Reduction in response time. ➢ Updated latest information. ➢ It provides internet /E-mail facilities to various departmental websites SWAN. ➢ Relevant in the areas where there is communication blocked due to weather.

The synergy of these two initiatives sets a commendable example for other states to follow, driving India towards a more inclusive and transparent future.

ARYABHATTA GEO-INFORMATICS AND SPACE APPLICATIONS CENTRE (AGISAC)

Aryabhatta Geo-Informatics and Space Applications Centre (AGiSAC) is an initiative by the Himachal Pradesh government to advance digital planning in the state.

- It operates under the Department of Science, Technology, and Environment, drawing inspiration from the Bhaskaracharya Institute of Space Applications and Geo-Informatics (BIGSAC).
- AGiSAC was established with technical assistance from BISAG, Gujarat, showcasing a successful model of inter-state technical collaboration.

Objectives of AGiSAC:

- Facilitate decentralized planning and decision-making.
- Monitor and evaluate government schemes and programs.
- Establish an integrated natural resources data management system.
- Provide services and consultancy in Remote Sensing and GIS based on specific user needs.
- Promote wider usage of geo-spatial applications and support systems/software.
- Utilize SATCOM networks for distant interactive training and education within the state.

Services Provided by AGiSAC:

- **Geo-Informatics** - Development of a multi-purpose digital database for decision support systems.
- **Remote Sensing** - Inventorization, mapping, developmental planning, and monitoring of resources.
- **Global Navigation Satellite System (GNSS)-** Location-based services, geo-referencing, engineering applications, and research.
- **Cartography** - Thematic mapping and creation of value-added maps.
- **Photogrammetry -** Development of Digital Elevation Models, terrain analysis, and resource planning.
- **Software Development** - Geospatial application development for decision support systems, both desktop and web-based.
- **Mapping Services** - Providing mapping services to government and non-government organizations for various purposes.

Benefits for Himachal Pradesh:

- Enhanced planning and implementation of developmental activities through the use of spatial information.
- Improved transparency and accessibility of government records via digitization and online availability.
- Strengthened decision-making at all levels of governance, facilitated by decentralized planning.
- Advanced monitoring and evaluation of government schemes and programs.
- Development of an integrated natural resources data management system.
- Direct engagement with various departments, including Revenue, Forest, Education, Health, Agriculture, Horticulture, Panchayati Raj, and Rural Development, particularly in the initial stages of the project.

In summary, AGiSAC is a significant initiative that leverages geo-informatics and space applications to enhance governance, transparency, and development in Himachal Pradesh, ultimately contributing to the state's sustainable development and benefiting its citizens.

STATE BIODIVERSITY STRATEGY AND ACTION PLAN

- Biodiversity Management Committee and People's Biodiversity Register:
  - **Establishment:** Initiated under the Biological Diversity Act of 2002.
  - Levels:

National: National Biodiversity Authority;
State: State Biodiversity Board;
Local: Biodiversity Management Committee at the Panchayat level`

  - **Functions:**

Prepare and maintain the People's Biodiversity Register with local biodiversity and ecological knowledge.
Provide advice and recommendations to the State Biodiversity Board for approval.

- **Measures Against Illegal Mining:**
  - **Check Posts**: Establishment of 10 check posts/weighbridges in border districts.
  - **Penalties:** Increase in fines from INR 25,000 to INR 50,000 for violations.
- **Sustainable Development Goals (SDGs) Actions:**
  - SDG 12 (Responsible Consumption and Production) by 2022:

Decrease CO2 emissions by 10% from 2012 levels.
Increase LPG usage by 10% from 2012 levels.
Boost Solar and Wind energy production and consumption by 10% from current levels.
Grow hydroelectric power capacity by 10% from current levels.
Establish soil testing labs at the district level to support organic farming.
Reduce pesticide usage in agriculture/horticulture by 10%.
Enhance covered storage for food grains by 10% at the micro level.
Construct model green roads spanning 10 kilometers.
Create training modules for green jobs and traditional knowledge preservation.

- **SDG 13 (Climate Action):**
  - Conduct Climate Change Vulnerability Assessments (CCVA) with hydrological modelling in six districts.
  - Implement climate-smart eco-village guidelines in five villages.
  - Restore 1000 water harvesting structures and 500 springs.
  - Cover 100,000 farmers under climate-resilient livelihood technology.

- ❖ Equip flood-prone villages in Kullu District with an early warning system.
- ❖ Integrate recommendations of SAPCC in state and central development schemes.
- ❖ Run gender-focused adaptation training programs in 78 camps.

➢ **SDG 15 (Life on Land):**

- ❖ Afforest over 48,000 hectares of land.
- ❖ Set up central and model nurseries in each circle.
- ❖ Reduce siltation in rivers and streams by increasing vegetation in catchment areas.
- ❖ Improve 1000 hectares of alpine pasture and grazing lands.
- ❖ Restore three wetlands and 10 traditional water bodies in 41 mountain areas.
- ❖ Develop two national parks and five wildlife sanctuaries to bolster species populations.
- ❖ Rehabilitate 16,000 hectares infested with invasive alien species.
- ❖ Aim for a 25% reduction in wildlife poaching and related offences.

➢ **Forest Fire Management Scheme:**

- ❖ **Activities:**

Maintain and establish new fire lines over 2,500 km.

Hire Fire Watchers and conduct controlled burns.

Procure firefighting equipment.

Implement soil and moisture conservation in high-risk areas.

➢ **Education Initiative:**

- ❖ **Vidyarthi Van Mittar Yojna –** Under the 'Vidyarthi Van Mitra Yojana', plots in forest areas will be allotted to schools for plantation.
- ❖ **Samudayik Van Samvardhan Yojana -** The 'Samudayik Van Samvardhan Yojana' has been launched to ensure the participation of youngsters and mahila mandals in forest conservation.

Overall, the State Biodiversity Strategy and Action Plan represents a robust framework for biodiversity conservation, with a clear focus on sustainability, community engagement, and resilience against climate change, setting a precedent for other regions to emulate.

BIODIVERSITY

Biodiversity can be defined as a community of all the living organisms on the earth and the diversity among them from all the ecosystems. Biodiversity is thus the variability between the species, within the species, and between the ecosystems.

Status of the Biodiversity in Himachal Pradesh:

Due to varied geological formations, topography, climatic conditions and altitudinal changes, Himachal Pradesh has a vast repository of floral and faunal species.

➢ The range of biodiversity in the state is extensive, as it ranges from Sub-tropical, temperate, and dry temperate to the alpine region, where 95 per cent of species are endemic and the rest 5% are exotic species.

➢ **Floral Diversity:**

- ❖ Floral biodiversity in the state consists of Medicinal and Aromatic Plants (MAPs), forest vegetation, agricultural crops as well as wild fruits and wild ornamental plants.
- ❖ As many as 3,256 floral species are found in Himachal Pradesh, consisting of ferns, higher plants, fungi, mosses and lichens (out of the total of 47,000 species found in India).

The vegetation consists of Moist Temperate Deciduous Forest, Ban Oak Forest, Rhododendron Scrub Forest and

Himalayan Alpine Pastures.

- The mid and high hills are dominated by coniferous forests with Sal and Chir Pine as predominant species in dry deciduous.
- The state is endowed with a variety of medicinal and aromatic plants (MAPs) which are used by local communities in many ways.
    - There are approximately 187 species of MAPs in Himachal Pradesh. According to the Himachal Pradesh Forest Department, 57 species of MAPs have gone threatened due to unscientific extraction.
- **Faunal Diversity:**
    - The state harbours rich and unique fauna with 5,721 species of fauna (out of a total of 89,451 species found in India). The state has the largest population of Chir pheasants in the world.
    - Mammals mostly include long-tailed Himalayan Marmots, Himalayan voles and squirrels whereas herbivores include blue sheep, ibex, serow, musk deer, tahr, the barking deer, and ghoral.
    - Carnivores are rare and include brown bear, black bear, yellow-throated martin, Himalayan weasel, wolf and stone martin whereas the snow leopard and common leopard are representative of larger cats in the state.

Threatened Species in the Himachal Pradesh:

- **Fauna:**
    - **Butterflies** – Freak, Scarce Siren, Golden Emperor, etc.
    - **Reptiles** – Common Indian Monitor, Yellow Monitor, Indian Rock Python.
    - **Birds** – Cheer Pheasants, Monal Pheasant, Moutain Quail, Snow Cock, etc.
    - **Animals** – Himalayan Brown Bear, Snow Leopard, Himalayan Lynx, Himalyan Ibex, etc.
- **Flora:**
    - Indian Gentian (Gentiana kurroo Royle), Spikenard (Nardostachys jatamansi (D. Don) DC, Costus/Kuth (Saussurea costus (Falc.) Lipsch), Indian Napellus/ Mori (Aconitum chasmanthum Stapf ex Holmes), White Himalayan lily (Lilium polyphyllum D.Don) are critically endangered species in Himachal Pradesh.

Reasons for the Biodiversity Loss in Himachal Pradesh:

- **Lack Of Knowledge** - In Himachal with the advancement of the state the traditional knowledge of and importance of the flora is not being transferred to the young generation therefore due to lack of knowledge these important plants get destroyed.
- **Division of Family** - With the division of family the resource pool gets divided into smaller parts in terms of knowledge and land.
- **Development -** For the economic prosperity of the Himachal dams, roads etc. are being built this is a major loss to biodiversity as these require the destruction of habitat.
- **Hunting** - Himachal is home to many vulnerable and endangered species. Hunting is banned, but there are many instances where illegal hunting takes place.
- **Climatic conditions:**
    - **Global warming** - The global increase in the temperature also plays a role in threatening wildlife it is evident in the death of many fish in Pong Dam.
    - **Prolonged winters** - The long winter season and increasing population create new demand for wood which is a threat to biodiversity.
    - Variation in the season: Due to the varying season there is a big threat to the life cycle of plants and animals.
    - **Industrialization -** Due to the development of new industrial belts in Himachal the surrounding biodiversity is threatened

- ❖ Pollution:

Air Pollution - As Himachal is a hilly terrain major dependence is on roads which causes air pollution and its threat to the bird species as well as plants it is even caused by industry set up at pockets of Himachal.

Water Pollution - Due discharge of industrial water into open streams causes the death of many species.

- ➢ **In Agriculture:**
  - ❖ **Use of Fertilizer** - With the use of extensive fertilizer without proper testing of the soil leads to the mixing of chemicals in the environment which causes a threat to the bio diversity.
  - ❖ **Soil erosion** - It happens due to ill practices of agriculture, mostly Himachal is a hilly terrain so tilling of soil has to be done traditionally as well as scientific measures but the absence of it leads to loss of soil and habitat.
- ➢ **Invasion of Exotic weeds** - Weeds like Lantana camera, Ageratum, Eupatorium and Parthenium are spreading rapidly in agricultural and govt lands.
- ➢ **Lack of documentation** - In Himachal, there is no documentation of traditional knowledge which plays an important role in the development and protection of biodiversity.
- ➢ **Loss of local animal genetic species -** Due to low productivity of local breeds leading to replacements of local strains.
- ➢ **Unregulated Tourism** - No doubt tourism plays an important role in the development of the Himachal economy but at the same time it takes its toll on the environment as the tourists do not care about loitering around tourist places.
- ➢ **Forest Fire -** It's a major cause of loss of habitat as it ends vegetation
- ➢ **Illegal activities -** Like mining at the river beds which cause a major erosion in the resources.
- ➢ **Monocultivation -** For the sake of profit generation people seek to develop fields with single crops like apples etc. for years. It the soil nutrients and causes loss to the environment.

Way forward:

To ensure the safety and management of the biodiversity of the state, along with the development of the state, various steps should be taken to ensure inclusive and sustainable development.

- ➢ **Wild Flora and Fauna:**
  - ❖ **Human-wildlife conflict -** Developing a comprehensive database for HWC along with the nature and extent of conflicts in the State is crucial. This will involve conducting a district-wise scientific investigation on the richness of wild animals in relation to habitat characteristics, land-use patterns and availability of prey species.
  - ❖ **Forest Fires -** There is a need to improve data on forest fires and assess the current capacity of forest fire management. This includes exploring a Fire Danger Rating System and providing training to local communities on early intervention during a forest fire.
  - ❖ **Preparation of PBRs -** Preparation of PBRs should be expedited as per the mandate of the Biological Diversity Act, 2002 and supplement PBRs with regular scientific surveys to timely update key threatened, critical, endangered, vulnerable and rare species.
  - ❖ **Invasive Alien Species -** There is a need to involve cottage industries and incentivize them to utilize invasive species. For example, Lantana Camara can be used as bioethanol fuel, and fresh roots of Ageratina Adenophora have antibacterial qualities.
- ➢ **Agriculture and Biodiversity:**
  - ❖ **Organic Farming -** There is a need to introduce a program to provide support to identified niche organic products such as peas, kala jeera, wild garlic, kuth, kutki in terms of branding, labelling and marketing.
  - ❖ **Fodder Management -** There is a need to revive degraded pasturelands on a regular basis with native species. It is recommended that the State establish fodder banks in alpine areas to help local communities in winter months and reduce pressure on grazing lands.
  - ❖ **Agro-forestry -** The State can explore rehabilitation of degraded land via an agro-forestry system in line with

existing crops and livestock needs. For this, the State will need to set up high-tech nurseries in higher altitude regions to provide viable varieties of planting material for agro-forestry.

- **Adaptation towards climate change -** The State should explore the option of mapping fragile ecosystems and demarcating them as "No-go zones".

Provisions should also be made for ensuring availability of drought-resilient seeds, public health measures for heatwaves, cold waves, vector-borne diseases, disaster risk reduction, water management as well as climate-smart agriculture.

- **Tourism:**
  - **Ecotourism -** The State should undertake capacity building programme for local communities for "high-value-low impact" tourism. There is also a need to converge the "Ecotourism Policy" of the Forest Department.
  - **Payment for ecosystem services -** The state can also explore the PES model of tourism which provides a fair and equitable mechanism to incentivize communities for biodiversity conservation.
  - **Impact Assessment -** There should be a study regarding the impact of activities like trekking and camping on habitat disturbances, solid waste accumulation, water pollution and air pollution.
- **Education, Awareness and Training:**
  - **Environmental Education -** The State should mainstream environmental studies in education to increase awareness about biodiversity conservation.
  - **Awareness through communication media -** The State should promote awareness regarding topics related to biodiversity using short films, documentaries, besides stories in print media.
  - **Community-Based Natural Resource Management -** There is a need to promote collaboration between institutions such as self-governing bodies such as Panchayat, State Forest Department, local administration, research institutes and NGOs to ensure efficient biodiversity conservation.
- **Policies, Laws and Institutions:**
  - **Procurement of green products -** The State should develop sustainable public procurement manuals for line departments to encourage procurement of green products based upon life-cycle costing.
  - **Community Participation:** The State should explore the suitability of the Adaptation Coalition Framework (ACF) to create community institutions with the mandate of increasing resilience to climate change over the long term.

This can be done by facilitating coalitions/alliances of local communities and mobilising local assets including human, social and financial.

  - **Investment in Agricultural Research -** There is a need to increase investment in agricultural research, infrastructure and technology development as well as plant gene banks.
  - **Regional Cooperation -** There is a need to promote regional cooperation between Himalayan States by strengthening existing mechanisms and exploring the possibility of new agreements.

The preservation of Himachal Pradesh's biodiversity is not only a local or national concern but a global necessity, reinforcing the interconnectedness of our planet's ecosystems and the shared responsibility we have in safeguarding them for future generations.

GEOGRAPHICAL INDICATIONS (GI) TAG

A Geographical Indication (GI) tag is a signifier used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.

- It serves as a certification that the product possesses certain unique qualities, is made according to traditional methods, and enjoys a certain reputation due to its geographical origin.

Regulation of GI Tags:

In India, GI tags are governed by the Geographical Indications of Goods (Registration & Protection) Act, 1999, and are issued by the Geographical Indications Registry based in Chennai.

- Himachal Pradesh (HP) became the first Indian state to establish a policy for the registration and protection of Geographical Indications under this act.

Geographical Indications of Himachal Pradesh:

- **Handicrafts:**
  - **Chamba Rumal** - A unique handkerchief distinguished by embroidered work on hand-spun 'khaddar' or fine muslin cloth, often featuring deity figures, particularly Vishnu.
  - **Kangra Painting** - Emerged from the Kangra Valley, these paintings are deeply influenced by the Bhakti cult and often depict the stories of Radha and Krishna with a naturalistic style using cool, fresh colours.
  - **Kinnauri Shawl** - Known locally as 'Chhali', these shawls display intricate Buddhist symbols and geometric patterns and come in a variety of pleasing pastel shades. Registered on December 4, 2008.
  - **Kullu Shawl** - Originating from the Kullu Valley, these shawls are famous for their unique texture and traditional design patterns, often featuring horizontal stripes with vibrant patterns. Registered on December 10, 2004.
- **Agricultural Products:**
  - **Kangra Tea**: Noted for its blend of flavour and health benefits, it contains high levels of catechins and antioxidants.

It is produced in the southern slopes of the Dhauladhar ranges in the western Himalayas.

  - **Basmati Rice** - Recognized for its unique aroma and flavour, basmati rice from Himachal Pradesh is included in the GI tag granted for basmati grown in several Indian states along the Indo-Gangetic Plains.
  - **Himachali Kala Zeera** - A small perennial plant used both as a spice and for its medicinal properties, grown especially in the Kinnaur district, it is known for its distinct aroma and taste.
- **Manufactured Product:**
  - **Himachali Chulli Oil** - Made from the wild apricot (Chulli) grown in various parts of Himachal Pradesh, it's used in local liquors and handcrafted products.
  - **Products Proposed for GI Tag:**

Karsog Kulth - A legume known for being rich in amino acids.

Pangi ki Thangi - A unique type of hazelnut known for its flavour and sweetness.

Chamba Metal Crafts - Includes metal idols and brass utensils traditionally crafted in Chamba.

Chamba Chukh - A chutney made from local chillies, noted for its traditional preparation methods.

Bharmouri Rajmah - A protein-rich bean with a distinctive flavour, grown near the Kugti Pass in the Bharmour region.

Role and Relevance of GI Tag:

- **Market Protection** - A GI tag protects the reputation of regional products, prevents unauthorized use of a registered name, and ensures that only producers from the geographic area are allowed to use the product name.
- **Trademark for Region** - Unlike trademarks for businesses, a GI is a sign used for products that have a specific geographical origin and possess the given quality or reputation of that place.
- **Cultural Preservation** - GI tags aid in preserving the cultural heritage and traditional knowledge of a region.
- **Economic Benefits** - They help generate employment and potentially lead to better incomes for artisans and farmers due to increased demand for authentic products.
- **Quality Assurance** - GI tags help consumers to receive quality products that are assured of their authenticity, and are made in traditional ways that contribute to their uniqueness.
- **Cultural and Biological Diversity** - They encapsulate the climatic, biological, and socio-cultural attributes of a product's place of origin, thereby contributing to the preservation of biodiversity and cultural diversity.

By conferring a GI tag, a region not only asserts its identity on the global map but also ensures that its traditional practices and the livelihood of its people are protected and promoted.

UTILIZING TRADITIONAL WISDOM FOR SUSTAINABLE DEVELOPMENT IN HIMACHAL PRADESH

Traditional knowledge encompasses the wisdom, innovations, and practices handed down through generations within indigenous and local communities, often conveyed orally via songs, stories, proverbs, rituals, and laws.

- This knowledge is crucial in practical domains such as agriculture, horticulture, and cultural practices.

Strategies for Leveraging Traditional Knowledge:

- **Establishing a People Diversity Register** - To address the lack of documentation, a comprehensive register recording traditional knowledge can be created.
- **Integrating Traditional Practices with Modern Industries** - Himachal Pradesh, rich in medicinal plants, can bridge traditional herbal remedies with the pharmaceutical industry.
- **Promoting Traditionally-Made Products** - Through campaigns, products incorporating traditional wisdom can gain popularity and support among consumers.
- **Incentivizing Youth Engagement** - By providing financial incentives for innovations in traditional practices, the youth can be motivated to preserve and enhance ancestral knowledge.
- **Supporting Traditional Crafts** - Initiatives like the National Bamboo Mission can revive declining crafts, such as bamboo basketry, by providing sustainable livelihoods for artisans.
- **Leveraging Social Media** - Utilizing social media platforms can help in popularizing traditional knowledge and increase revenue for knowledge bearers.
- **Sharing Agricultural Wisdom** - Traditional Himachal agricultural practices, such as the Kuhl irrigation system, can be shared and adapted in regions with similar terrains.
- **Securing More GI Tags** - Acquiring GI tags for traditional products can affirm their uniqueness and enhance economic returns.

Himachal Pradesh Government Initiatives for Traditional Knowledge Conservation:

- **GI Registration** - Products such as Chamba Rumal, Kangra Painting, Kinnauri Shawl, and Chulli Oil have been recognized with GI tags, highlighting Himachal Pradesh's rich traditional heritage.
- **Establishment of the Department of Ayurveda** - Separating from the Department of Health & Family Welfare on November 7, 1984, this department underscores the importance of Ayurveda in the state, reflecting a commitment to ancient wisdom.
- **Himachal Pradesh Patent Information Centre (HPPIC)** - As a nodal agency under HIMCOSTE, HPPIC works to identify and register GIs in the state, protecting the interests of local manufacturers, producers, and artisans.

- **Traditional Agricultural Techniques** - Practices like osmo conditioning of pea seeds, animal-aided crop threshing, crop rotation, double cropping, and organic manuring are being preserved and promoted.
- **Prakritik Kheti Khushal Kisan Yojna** - This initiative advocates for Zero Budget Natural Farming, encouraging farmers to embrace traditional farming methods.
- **Bio-diversity Protection** - Policies and programs have been implemented to safeguard the state's rich biodiversity, which serves as a repository of traditional knowledge.

By these means, the Himachal Pradesh government is actively conserving and nurturing the traditional knowledge and wisdom that form the foundation of the state's cultural and environmental legacy.

HIMACHAL PRADESH TOURISM POLICY, 2019

Himachal Pradesh is a hill state adorned with the majestic Himalayan range, forests, wildlife, rivers and traditional communities. All these assets of the state provide a variety of tourism opportunities.

Status of Tourism:

- **Contribution to State GDP** - Tourism contributes approximately 7% to the Gross Domestic Product (GDP) of Himachal Pradesh, indicating its significant role in the state's economy.
- **Employment Contribution** - The tourism sector accounts for around 14.42% of direct and indirect employment in the state, demonstrating its importance in providing jobs and livelihoods to the local population.
- **Tourists Arrival** - As per a Times of India report, the state welcomed a total of 1.6 crore visitors as of June, comprising 99,78,504 domestic tourists and 28,239 foreign tourists.

To harness the potential of these opportunities, the state government came up with the Himachal Pradesh State Tourism Policy of 2019.

- **Vision of the Policy:**
  - "Positioning Himachal Pradesh as a leading global sustainable tourism destination for inclusive economic growth".
- **Objectives of the Policy:**
  - To promote Tourism Diversification through theme-based development.
  - To safeguard the state's tourist destinations through sustainable interventions.
  - To ensure that sustainable tourism primarily benefits host communities.
  - To build capacity and develop quality human resources for the tourism industry.
  - To provide safe, secure and unique "Tourism for all".
  - To create an enabling environment for investments in sustainable tourism.

Tourism Themes to be promoted in Himachal Pradesh under Tourism Policy:

- **Ecotourism** - All nature-based forms of tourism in which the main motivation of the tourists is the observation and appreciation of nature, as well as the traditional cultures prevailing in the natural areas (UNWTO), having minimized negative impacts, come under eco-tourism.
  - The advantages of promoting ecotourism include benefits to local communities, generation of revenue, support to the local economy and preservation of ecosystem and biodiversity.
- **Agro/Organic tourism** - Agro/Organic tourism involves any agriculturally based operation or activity that brings visitors to a farm, orchard or ranch.
  - Agro Tourism is undertaken to experience real rural life, taste authentic local food and get familiar with the various farming tasks.
  - The State has many organic farms, stone fruit orchards, etc. to offer under Agro Tourism.

- ❖ **Snow Tourism** - Himachal Pradesh experiences extreme winters. Despite the harsh dip in temperatures, winter and snow tourism in the region is extremely magnetic, attracting tourists in huge numbers.

➢ Activities like snow trekking and camping, skiing, gondola rides, heli-skiing or simply playing in the snow are popular during this time.

- ❖ **Lake Tourism** - Himachal Pradesh houses several natural and man-made lakes like Prashar Lake, Chandra Tal, Deepak Tal, Mani Mahesh
- ❖ Lake, Maharana Pratap Sagar, and Gobind Sagar Lake which offer numerous opportunities.

➢ The state is also looking forward to providing access to man-made reservoirs for conducting water sports adventure activities.

- ❖ **Adventure tourism** - It is a type of niche tourism, involving exploration or travel with a certain degree of risk (real or perceived), or physical danger which may require special skills and physical exertion.
- ❖ **Pilgrimage Tourism –** Pilgrimage tourism can be described as travel undertaken to visit a place, building or shrine that is sacred. This travel can take place either for observing or participating in religious aspects in accordance with an individual's trust and faith.
- ❖ E.g., Bijli Mahadev, Hidimba Temple, Trilokinath, Kullu Dashehra, Mandi's Shivartri fair etc.

➢ **Health and Wellness tourism -** Wellness tourism is travel associated with the pursuit of managing or enhancing one's personal wellbeing through physical, psychological, or spiritual activities. Wellness tourists are proactive in seeking to improve or maintain health and quality of life, often focusing on prevention.

- ❖ E.g., Hot springs of Vashisht and Manikaran, various herbal plants, yoga, etc.

➢ **Cultural and Heritage Tourism -** Cultural tourism involves travellers exploring the customs, history, art, architecture, and religion that shape local ways of life in different places.

- ❖ The advantages of promoting cultural/eco products are: that it helps uplift backward communities, is less demanding in terms of technological innovations, and finally, acts as a lifeline for dying art forms.

➢ **Film Tourism -** Film tourism helps promote travel destinations and can lead to new business and local development.

- ❖ The movie industry's creativity and excitement can boost tourism and service industries quickly.

➢ **MICE Tourism -** The MICE market refers to a specialized niche of group tourism dedicated to planning, booking, and facilitating conferences, seminars, and other events; which is a big money-maker in the travel industry

Impact of Tourism in Himachal Pradesh

➢ **Positive Impacts:**

- ❖ **Livelihood Generation** - Tourism is a significant source of income for Himachal Pradesh. It boosts the local economy by creating jobs, enhancing local businesses, etc.
- ❖ E.g., the tourism sector provides around 14% employment opportunity to the state's workforce.
- ❖ **Infrastructure Improvement** - The demand for better facilities for tourists leads to the development of infrastructure like roads, airports, and hotels.
- ❖ E.g., construction of new helipads, KiratpurManali Highway, etc.

➢ **Cultural Exchange** - Tourism fosters cultural exchange and understanding. Visitors learn about the local culture, traditions, and history, while locals gain exposure to diverse perspectives and ideas.

➢ **Revenue Generation** – Tourism contributes to a significant level of revenue generation for the state government.

- ❖ E.g., the tourism economy in Himachal amounts to ₹11,000 crore and contributes to
- ❖ 7.3% of the state's gross domestic product (GDP).
- ❖ **Conservation Efforts** - Tourism can be a motivation for the conservation of natural environments and cultural heritage, as these are primary attractions for tourists.

- ❖ E.g., promotion of Eco-tourist villages, support for natural farming, etc.
- ❖ **Development of Isolated Regions** – Promotion of tourism facilitates the development of the other neglected regions or sites of the state.
- ❖ E.g., Nayein Rahein Nai Manjile Scheme.

➢ **Negative Impacts:**

- ❖ **Environmental Degradation** - Tourism, especially in ecologically sensitive areas, can lead to environmental issues like pollution, deforestation, and wildlife disturbance. The Himalayan region is particularly vulnerable to these impacts.
- ❖ E.g., in the years between 2001 and 2021, Himachal Pradesh has lost 4.82 kilos hectares of its forest and tree cover. More than 80,000 trees have been cut in order to build highways, hotels and power plants.
- ❖ **Overcrowding and Resource Strain** - Popular tourist destinations in Himachal Pradesh often face issues like overcrowding, which can strain local resources like water and energy, and impact the quality of life for residents.

➢ E.g., Himdhara reported that over 70% of springs in Himachal Pradesh, crucial for local water supply, have dried up or become seasonal, causing acute water shortages in villages.

- ❖ **Cultural Dilution** - The influx of tourists can sometimes lead to diluting local cultures and traditions.

➢ The commercialisation of cultural practices to cater to tourist tastes is a concern.

- ❖ **Economic Dependency** - Over-reliance on tourism can make the local economy vulnerable to fluctuations in the industry, which can be influenced by various factors like disasters, pandemics, etc.
- ❖ E.g., the tourism sector in Himachal Pradesh has suffered losses of approximately Rs 2,000 crore due to heavy rains and low footfall in July and August.

➢ **Enhance Vulnerability to Disasters** – To cater for the need for mass tourism and to enhance revenue from tourism, mindless and unscientific construction in the state made the state more prone to natural disasters.

- ❖ E.g., an estimated 950 roads, including the Chandigarh-Manali National Highway, had been blocked by landslides, disrupted state transport buses on approximately 2,100 routes and leaving locals stranded.
- ❖ **Inequality** - The benefits of tourism are not always evenly distributed, leading to inequality. Some areas or communities may benefit more than others, creating disparities.
- ❖ E.g., the development of traditional sites like Shimla, Dharamshala, Kullu-Manali, etc.

To overcome the challenges of mass tourism, the consequences of mindless construction, and to ensure sustainable tourism in the state, the H.P. govt has taken many initiatives.

These initiatives are:

➢ **Eco-Tourism Initiatives** - Himachal Pradesh has been actively promoting eco-tourism by developing eco-friendly tourist destinations. This includes creating nature trails, promoting bird watching, and encouraging tourists to appreciate and conserve the natural beauty of the region.

- ❖ E.g., to fully unlock the potential of ecotourism, the H.P. govt developed a master plan. Under the plan, eco-tourism will be promoted in 93 sites in various areas of the state.

➢ **Diversification of Tourism** – Under the H.P. Tourism Policy, govt has come up with a diverse form of tourism to maintain the ecological balance along with sustainable income and development of the state.

- ❖ E.g., Agro-Tourism, Film Tourism, Pilgrim Tourism, Lake Tourism, etc.

➢ **Establishment of new tourist sites** – Under the "Nai Raahein, Nai Manzile Scheme", the state government is establishing new tourist sites to lower the burden on traditional sites and provide income opportunities to the local people, along with environment-friendly tourism.

➢ **Community-Based Tourism** - Himachal Pradesh has encouraged community-based tourism initiatives, which involve local communities in tourism activities. This not only provides employment opportunities to locals but also

helps in preserving traditional culture and heritage.

- ❖ E.g., Naggar community tourism is a successful example of community tourism promoted by an NGO named Anand, to ensure sustainable tourism in the area.

- ➢ **Biodiversity Conservation** - Conservation of biodiversity is a priority, and various protected areas and wildlife sanctuaries have been established. These areas are actively conserved to protect the unique flora and fauna of Himachal Pradesh.
  - ❖ E.g., Daranghati WLS (Shimla), Khirhanga NP (Kullu), Kalatop WLS (Chamba), etc.
  - ❖ **Promotion of Renewable Energy** - Himachal Pradesh has been working to promote the use of renewable energy sources, like solar power and hydroelectric power, to reduce the carbon footprint associated with tourism infrastructure.
- ➢ E.g., H.P. Solar Power Policy 2016.
  - ❖ **Heritage Conservation** - Efforts have been made to conserve and promote the rich cultural and architectural heritage of the state. Historical sites and heritage buildings are being preserved and showcased to tourists.
  - ❖ E.g., The Government of Himachal Pradesh (GoHP) has taken several measures to appreciate and preserve Shimla's heritage:
  - ❖ Heritage conservation responsibilities are shared between the TCPO and Shimla
- ➢ Municipal Corporation.
  - ❖ A 50m area around the Mall Road has been designated as a Heritage Zone under the Town and Country Planning Act 1977.
  - ❖ An inventory of 97 colonial-era buildings and cemeteries both inside and outside the Heritage Zone has been prepared for preservation efforts.
- ➢ **Tourism Education and Training** - Training programs for tourism professionals and guides have been initiated to educate them about responsible and sustainable tourism practices.
- ➢ **Public Awareness Campaigns** - The government has launched awareness campaigns to educate both tourists and locals about the importance of sustainable tourism and environmental conservation.
  - ❖ E.g., the "Horn Not Ok" campaign.
  - ❖ **Collaboration with NGOs and Environmental Organizations** - The government collaborates with non-governmental organizations (NGOs) and environmental groups to implement sustainable tourism practices and conservation efforts effectively.
- ➢ E.g., The Healing Himalayas is an organisation that conducts 'clean up treks' along the most popular trek routes in Himachal Pradesh. Tourists and sometimes local community members join these treks, cleaning up trash as they go along.

In conclusion, the journey of Himachal Pradesh towards sustainable tourism serves as a model for other regions facing similar challenges. It underscores the importance of responsible tourism practices that respect and preserve the natural environment while contributing to the economic and social development of the local community.

Environmental Concerns of Tourism Industry

Tourism's impact on the environment includes both negative and positive aspects.

- ➢ **Negative Impacts:**
  - ❖ **Land Use Alteration** - The construction of houses, hotels, and restaurants to accommodate tourists leads to significant changes in land use.
  - ❖ E.g., the Shimla town, which was built for a population of just 25,000 in the early 20th century, today houses close to 3,00,000 people.

- **Deforestation and Agricultural Land Replacement** - Forests are cleared, and agricultural lands are often replaced with buildings, roads, and waste disposal areas.
  - E.g., from 2001 to 2022, Himachal Pradesh lost 5.02 kha of tree cover and 2.48 MT of CO emissions.
- **Soil Erosion in Mountainous Regions** - The construction of roads on slopes causes soil erosion, leading to ecological imbalances and loss of biodiversity.
  - E.g., Owing to over-extraction, Paris polyphylla (locally known as "Haimavati") has been listed as endangered in HP and other Himalayan regions.
- **Water Run-off and Erosion** - Reduced water seepage due to development increases run-off, causing more erosion and potentially leading to floods and infertile lands.
  - E.g., Shimla consumes 42 MLD (million litres a day) of water but only 15% of it reaches the tank.
  - **Waste Management Challenges** - Managing solid waste and sewage treatment in tourist areas is often difficult.
  - E.g., in the state, 91.95 MLD of sewage is produced, exceeding the treatment capacity of 114 MLD by 22.15 MLD across 32 urban areas.
- **Positive Impacts:**
- **Environmental Awareness** - The influx of tourists and the income they generate leads to increased environmental consciousness.
- **Promotion of Sustainable Tourism** - Tourists, especially from abroad, often bring ideas that help minimize environmental stress and promote sustainable practices.
  - E.g., Japan International Cooperation Agency (JICA) assisted "Project for Improvement of Himachal Pradesh Forest Ecosystems Management and Livelihoods".
- **Adoption of Protective Measures** - Destinations tend to adopt more environmental protective measures.
  - E.g., H.P. Solar Power Policy 2016, the "Horn Not Ok" campaign, etc.
  - **Research and Development** - Governments, like that of Himachal Pradesh, initiate research projects to study tourism's side effects on the environment.

In conclusion, while tourism presents significant environmental challenges, it also drives innovation and awareness towards more sustainable and environmentally conscious practices. The key lies in finding a balance that allows for the economic benefits of tourism while minimizing its ecological impact.

ECO-TOURISM

All nature-based forms of tourism in which the main motivation of the tourists is the observation and appreciation of nature as well as the traditional cultures prevailing in the natural areas (UNWTO), having minimized negative impacts come under ecotourism.

- It is marketed as "responsible" travel to natural areas, conserving the environment, and improving the well-being of the local people.

  Himachal Pradesh is graced with a variety of mountains, lakes, rivers, glaciers, forests, etc. which attract a large number of tourists annually. To manage and conserve the natural and cultural resources of the state along with tourism, eco-tourism can play a significant role.

How eco-tourism promotes sustainable development:

- **Promote ecological conservation and management –** Ecological tourism promotes responsible tourism and residents of the area act as conservators and managers of natural resources which leads to minimal damage to nature.
- **Livelihood generation & economic prosperity of local people –** It provides an additional income source to the local people through homestays, tent houses, restaurants, organic-agro products, handlooms products, etc.

- ❖ E.g. mud houses, igloo houses, and huts are some new eco-tourism-based initiatives which are started by the youth of H.P.

- ➢ **Inclusive tourism -** Eco-tourism promotes support for inclusive tourism by integrating the disadvantaged group so that they can participate and take benefits of tourism activities.
- ➢ **Minimal Impact on the Environment –** Eco-tourism is generally rural-based tourism with local development objectives. It requires limited infrastructure development, hence ensuring minimal impact on the environment.
  - ❖ Further traditional knowledge will be used to assist in the conservation of the ecology of the areas.
- ➢ **Culture and value exchange –** Because eco-tourism is generally rural-based tourism, visiting core areas of Himachal Pradesh by people of various states, allows the exchange of ideas, culture, and values.
  - ❖ This creates a sense of respect and harmony and it further advertises sensible tourism in the state.
  - ❖ **Development of isolated regions –** The creation of new tourist sites in far-flung areas of the state leads to the developmental activities in that region.
- ➢ E.g. construction of highways, tunnels, ropeways, electricity connections, water supply etc.
- ➢ With the creation of new sites will also ease the burden on conventional sites of tourism. E.g. Shimla, Kullu-Manali etc.
  - ❖ **Generate revenue for state govt –** It will increase revenue sources for govt through toll taxes, income tax, property tax, expenditure tax (GST), etc.
  - ❖ Recently, the H.P. govt drew a master plan for eco-tourism activities in 93 sites.
- ➢ **Assist other tourism –** Eco-tourism will also support cultural and heritage tourism, sectors that are highly compatible with ecotourism.

To nurture the potential of eco-tourism for the overall development of the state, the H.P. govt has started many initiatives:

- ➢ **H.P. Tourism Policy, 2019 -** Positioning Himachal Pradesh as a leading global sustainable tourism destination for inclusive economic growth, HP govt come up with the Tourism Policy. The objective of the policy is:
- ➢ Protection of the state's natural and cultural heritage.
- ➢ Improved quality of life and better employment opportunities.
- ➢ Enhanced tourist experience.
- ➢ Innovation through private sector participation.
- ➢ **Nai Raahein Nai Manzil scheme -** Under this scheme, the state govt. of HP will identify unexplored and untapped tourist destinations.
- ➢ "Nai Raahein Nai Manzilein" scheme will promote tourism in these tourist places located across the countryside, particularly focusing on rural areas.
- ➢ The total budgetary allocation of the "Nai Rahen Nai Manzil" Scheme is Rs. 50 crore.
- ➢ **Master Plan for Eco-Tourism –** To fully unlock the potential of eco-tourism H.P. govt come up with a master plan. Under the plan, eco-tourism will be promoted in 93 sites in various areas of the state.
- ➢ Further on 1st June 2023, The Himachal Pradesh government sent a Rs 500 crore budget to the union govt. for approval to boost eco-tourism activities in Lahaul-Spiti.
- ➢ **Eco-Tourism society –** It was formulated under the Eco-Tourism Policy, 2001. The society is chaired by the Chief Minister of the state.
- ➢ The objective of the society is to decongest and disperse overflowing city tourist destinations and bring the tourists closer to nature and ensure adequate economic return to the State and livelihood opportunities to the local communities.
- ➢ **Model Eco Village Scheme –** Under the scheme, ecologically sustainable villages with minimal ecological footprints will be developed by using environmentally friendly lifestyles.
- ➢ The scheme will be implemented in 11 districts of the state (except Lahaul-Spiti). It will promote the conservation of natural resources and also help to boost eco-tourism in these areas.

Until now, 15 villages have been identified under the schemes to develop as model ecovillages.

In conclusion, eco-tourism in Himachal Pradesh holds immense potential for promoting sustainable development and preserving the state's natural and cultural heritage. Through responsible tourism practices, it fosters ecological conservation, provides livelihood opportunities for local communities, encourages inclusive tourism, and minimizes environmental impact.

MODEL ANSWER

1. What do you mean by Green Energy? What specific measures and initiatives has the government of Himachal Pradesh undertaken to transform the state into a "Green State"?

Green energy, often referred to as renewable energy, describes energy sources that are environmentally friendly and have minimal negative impacts compared to traditional fossil fuels. These sources are replenishable and do not significantly contribute to greenhouse gas emissions or air pollution. Examples include:

- **Solar Energy:** Power derived from the sun.
- **Wind Energy:** Energy captured from wind currents.
- **Hydropower:** Energy from flowing water, such as rivers and dams.
- **Biomass:** Energy from organic materials.

Measures and Initiatives by Himachal Pradesh

1. Goal to Become a Green Energy State by 2030:

- **100% Renewable Energy Target:** Himachal Pradesh aims to become a 'Green State' by meeting 100 percent of its energy needs through renewable and green energy sources by 2030. Currently, the state meets more than 80 percent of its energy demands from hydropower.

2. Solar Energy Initiatives:

- **Pekhubela Solar Power Project:** Inauguration of a 32 MW Pekhubela solar power project in Una district, built on 49 hectares at a cost of Rs 220 crore. The state government has set a target for Himachal Pradesh Power Corporation Limited (HPPCL) to install 500 MW of solar power capacity in the area.
- **Solar Growth Target (2023-24):** The state aims to start new solar energy projects with a combined capacity of 500 MW. Additionally, two Panchayats in each district will be developed as Green Panchayats on a pilot basis.
- **MoU with Oil India Limited:** An agreement to explore floating solar power plants in state reservoirs and establish ground-mounted solar projects.

3. Promotion of Youth Participation:

- **Subsidy for Youth Projects:** Youth will receive a 40% subsidy to set up solar power projects with capacities ranging from 250 KW to 2 MW on their own or leased land. The State Electricity Board will purchase electricity from these projects.

4. Electric Vehicle (EV) Initiatives:

- **Model State for EVs:** Himachal Pradesh is developing as a 'Model State for Electric Vehicles,' with plans to create green corridors on national and state highways.
- **Incentives for EV Adoption:** Private bus and truck operators will receive a 50% subsidy, up to Rs 50 lakh, for purchasing e-buses. There is also a 50% subsidy available for setting up EV charging points.
- **E-Bus Transformation:** The state will focus on replacing diesel buses with e-buses in the Himachal Road Transport Corporation fleet. An investment of Rs 1,000 crore is allocated to replace 1,500 diesel buses with e-buses in phases. New e-bus depots will be established in Nadaun, and the Shimla local depot will be converted into an e-bus depot.

5. Promotion of Green Hydrogen:

- **Green Hydrogen Pilot Project:** SJVN Limited launched India's first Green Hydrogen Pilot Project at the Nathpa Jhakri Hydro Power Station (NJHPS) in Jhakri. This project, utilizing a 20 Nm^3/hr capacity alkaline electrolyzer powered by renewable energy from SJVN's 1.31 MW solar power plant, can produce 14 kg of green hydrogen in eight hours daily. The hydrogen is stored under 30 bar pressure in six storage tanks with a total capacity of 12 m^3.

6. **Hydropower Projects:**
   - **Completion Targets (2023-24):** Key hydropower projects such as Parvati-II, Tidong-I, Shelty Masrang, and Lambada, with a combined capacity of 1,000 MW, are scheduled for completion. Work on other projects like Renukaji Dam, Chanju III, Deothal Chanju, Suni Dam, and Dugar will begin.
7. **Rajiv Gandhi Swarozgar Yojana and Start-Up Support:**
   - **Rajiv Gandhi Swarozgar Yojana:** This scheme provides financial support for self-employment and entrepreneurship, which aligns with the state's green energy goals by supporting sustainable business practices.
8. **EV Promotion and Start-Up Support:**
   - **Support for Start-Ups:** The state is promoting start-ups that focus on green technologies and sustainable practices, including electric vehicles and renewable energy solutions.

Challenges

1. **Infrastructure Development:**
   - **Capacity and Connectivity:** Expanding grid infrastructure and EV charging networks.
   - **Financial Investment:** High capital costs for large-scale projects.
2. **Funding and Investment:**
   - **Capital Intensive Projects:** Securing funds for extensive renewable energy initiatives.
   - **Financial Viability:** Attracting private investment and maintaining project sustainability.
3. **Technological and Operational Issues:**
   - **Integration:** Incorporating new technologies like green hydrogen and advanced storage systems.
   - **Maintenance:** Ensuring efficiency and upkeep of renewable energy systems.
4. **Environmental and Social Impact:**
   - **Land Use:** Managing impacts on land use and ecosystems.
   - **Community Engagement:** Addressing local concerns and ensuring project benefits.
5. **Regulatory and Policy Challenges:**
   - **Policy Alignment:** Aligning state policies with national goals.
   - **Permitting:** Navigating regulatory approvals and permits.

Way Forward

1. **Enhancing Infrastructure:**
   - **Grid Modernization:** Upgrade grid systems and expand EV charging networks.
2. **Securing Funding and Investment:**
   - **Partnerships:** Use public-private partnerships and green financing options.
3. **Leveraging Technology:**
   - **Adoption:** Integrate advanced technologies and support R&D.
4. **Addressing Environmental and Social Concerns:**
   - **Sustainable Practices:** Implement eco-friendly practices and engage communities.
5. **Strengthening Regulatory Framework:**
   - **Streamlined Approvals:** Simplify regulatory processes and align policies with national objectives.

2. What is the Solar Power Generation Potential of the Himachal Pradesh? Also, right down the major provisions of the H.P. Solar Power Policy.

Solar energy, encompassing radiant light and heat from the Sun harnessed through technologies like solar power generation, solar thermal energy, and solar architecture, presents a substantial opportunity for Himachal Pradesh.

- According to the National Institute of Solar Energy (NISE), the state has a potential of 34 GW by utilizing 3% of the total wasteland and rooftop surface areas.
- The Indian Renewable Energy Development Agency (IREDA) provides an even higher estimate of about 53 GW, considering 5% of the wasteland. This indicates that Himachal Pradesh holds significant potential for solar power generation.

Merits of Solar Power in Himachal Pradesh

Solar power offers several advantages for Himachal Pradesh:

- **Unlimited Source:** Unlike hydropower, which has limited capacity, solar energy is virtually limitless.
- **More Perennial:** Solar energy is more consistently available across the state compared to the seasonal nature of hydropower.
- **Easy to Install:** Solar installations are more feasible and efficient in hilly and remote areas where grid reliability is a challenge.
- **Perpetual Power Generation:** Solar power complements hydropower, aiding in load management by allowing water impoundment during sunny periods.
- **Environmentally Friendly:** Solar power has minimal environmental impact during both construction and operation.
- **Cost Reduction:** Solar power projects have a low gestation period and decreasing costs, leading to tariff parity with hydropower.

Major Provisions of the Himachal Pradesh Solar Power Policy (2016)

The Himachal Pradesh Solar Power Policy, implemented in 2016, includes several key provisions:

- **Energy Security:** Advance solar energy generation to ensure a stable and secure energy supply, aligning with the state's development goals.
- **Renewable Energy Growth:** Support the national goal of increasing renewable energy use while addressing climate, environmental, and economic factors.
- **Clean Energy Transition:** Promote 100% clean electricity consumption by providing alternatives to coal and gas-based power and supporting hydropower projects for peaking power.
- **Empowering Remote Communities:** Provide 24x7 power to remote and rural areas through decentralized solar solutions, improving access to essential services and technology.
- **Supporting Climate Goals:** Engage in climate change, environmental protection, and sustainable development efforts.
- **Private Investment:** Encourage private sector investment in solar energy to boost job creation, generate income, and stimulate economic growth.
- **RPPO Compliance:** Enhance renewable energy generation to meet Renewable Portfolio Standards (RPPO) targets.
- **Raising Awareness:** Educate the public about the benefits of solar energy, aiming to integrate it into daily life, including for cooking and transportation needs.

By implementing these provisions, Himachal Pradesh is aiming to enhance its energy security, support sustainable development, and contribute to both national and global environmental goals, while fostering economic growth and job creation.

3. How can we use traditional wisdom and knowledge in the sustainable development of Himachal Pradesh?

Answer: Traditional Knowledge Overview: Traditional knowledge encompasses the innovations, practices, and cultural heritage of indigenous and local communities. Passed down orally through songs, stories, proverbs, rituals, and laws, this knowledge has practical applications in fields such as agriculture, horticulture, and culture.

Ways to Use Traditional Wisdom in Sustainable Development:

1. Creating a People Diversity Register:

- ❖ Traditional knowledge is often not systematically documented.
- ❖ Establish a comprehensive register to document and preserve traditional knowledge, making it accessible for future generations and practical applications.

2. Integrating Traditional Knowledge into Modern Industry:

- ❖ Traditional knowledge may remain disconnected from modern industrial processes.
- ❖ Utilize Himachal Pradesh's rich tradition of medicinal plants by incorporating traditional knowledge into the pharmaceutical industry. This could involve using local medicinal plants to develop new pharmaceutical products.

3. Promoting Products Incorporating Traditional Wisdom:

- ❖ Products based on traditional knowledge might not be widely recognized.
- ❖ Promote and campaign for products that use traditional wisdom in their manufacturing processes, increasing their market presence and acceptance.

4. Encouraging Youth Innovation:

- ❖ Younger generations may not engage with traditional practices.
- ❖ Inspire youth to innovate based on traditional knowledge, creating new opportunities and income streams while preserving cultural heritage.

5. Supporting Traditional Crafts and Workers:

- ❖ Traditional crafts and industries are at risk of decline.
- ❖ Support traditional industries through programs like the National Bamboo Mission, which revitalizes crafts such as bamboo work and helps sustain traditional livelihoods.

6. Using Social Media for Awareness:

- ❖ Traditional knowledge may lack visibility.
- ❖ Leverage social media platforms to raise awareness about traditional knowledge, increasing its recognition and the revenue for its practitioners.

Examples of Traditional Wisdom Applications:

- ➢ **Khuls:** Traditional irrigation channels, or Khuls, are an ancient method used to divert water from mountain springs to agricultural fields. Built using locally available materials and designed to suit the mountainous terrain, Khuls manage water distribution effectively, ensuring efficient water use and contributing to sustainable agricultural practices and water conservation.
- ➢ **Kath Kuni Architecture:** Kath Kuni is a traditional architectural style prevalent in Himachal Pradesh. Houses built using Kath Kuni architecture utilize locally sourced wood and stone. The design features wooden frames and stone walls, with sloped roofs that are well-suited to the region's seismic activity and heavy snowfall. This architecture provides natural insulation and thermal efficiency, reducing the need for artificial heating and cooling. Kath Kuni homes are an excellent example of sustainable building practices that are adapted to the local environment and climatic conditions.
- ➢ **Organic Farming:** Traditional farming practices in Himachal Pradesh often involve organic methods such as natural composting and crop rotation. These methods enhance soil fertility and reduce dependence on synthetic chemicals. Emphasizing organic farming aligns with sustainable development goals by promoting soil health,

reducing environmental impact, and preserving traditional agricultural practices.

- **Millets as Superfoods:** Millets like Kodo, a traditional crop in Himachal Pradesh, are recognized as superfoods due to their high nutritional value and resilience. Kodo millet is rich in essential nutrients, including proteins, fibers, and minerals, making it a valuable addition to the diet. Promoting the cultivation and consumption of such millets supports sustainable agriculture and enhances food security.
- **Geographical Indication (GI) Tags:** Securing GI tags for traditional products protects and promotes them, enhancing their recognition and value in both national and international markets.

To effectively leverage traditional wisdom for sustainable development in Himachal Pradesh, key steps include documenting and preserving traditional knowledge, integrating it with modern industries, and promoting traditional products. Encouraging youth innovation and supporting traditional crafts through targeted programs are essential. Additionally, using social media for increased visibility and advocating for traditional agricultural practices, such as organic farming and millet cultivation, will support sustainability and cultural preservation. These measures will help blend cultural heritage with modern practices, fostering economic and environmental benefits.

4. Do you agree that Himachal Pradesh provide a fertile ground for the development of biotechnology-based industries? Also Discuss the factors responsible for biodiversity decline in Himachal Pradesh.

Biotechnology has significant impacts on food processing, environmental protection, human health, and quality of life. Himachal Pradesh is well-suited for biotechnology-based industries due to:

1. **Biodiversity:** Rich plant, animal, and microbial diversity, with rare Himalayan plants offering potential for pharmaceuticals.
2. **Eco-diversity:** Varied ecological conditions support diverse flora and fauna, beneficial for biotechnological applications.
3. **Pollution-Free Environment:** Low population density and dense vegetation contribute to a clean environment ideal for biotech processes.
4. **Mild Climate:** Favorable climate conditions facilitate industries requiring controlled environments.
5. **Resource Availability:** Adequate wasteland, abundant electricity, and plentiful water resources support industrial activities.
6. **Law and Order:** Stable law and order situation provides a conducive environment for business.
7. **Government Support:** Proactive state government facilitates biotechnology enterprise development and enhances global competitiveness.

The Biotechnology Policy of Himachal Pradesh (2014) aims to:

1. **Infrastructure Development:** Improve R&D facilities and educational institutions to build a skilled workforce.
2. **R&D Intensification:** Advance research in agriculture, animal husbandry, human health, environment, and industry.
3. **Conservation and Exploitation:** Conserve and utilize bio-resources sustainably.

Himachal Pradesh aspires to be a leading biobusiness hub, leveraging biotechnology for growth and innovation.

Factors Contributing to Biodiversity Decline in Himachal Pradesh

Himachal Pradesh faces several challenges affecting its biodiversity:

1. **Mono-cultivation Practice:** Extensive single-crop plantations, like apple orchards, replace diverse forests, leading to deforestation.
2. **Forest Fires:** Intentional and accidental fires, often from human activities or specific tree species, destroy forest vegetation.
3. **Development Activities:** Infrastructure projects such as roads and buildings result in significant deforestation.
4. **Tourism Expansion:** Increased tourism in forest areas causes environmental degradation and habitat destruction.
5. **Climate Change:** Altered weather patterns, temperature rises, and glacier melting affect biodiversity and ecosystems.

6. **Wetlands Damage:** Temperature increases and environmental changes lead to wetland loss, impacting biodiversity.
7. **Illicit Exploitation:** Illegal logging and overgrazing contribute to deforestation and ecosystem degradation.
8. **Harmful Fishery Practices:** Destructive fishing methods disrupt aquatic ecosystems and threaten species.
9. **Chemical Fertilizers:** Use of chemical fertilizers impacts soil health and biodiversity, particularly earthworms.
10. **Commercial Crops:** Large-scale monocultures reduce soil fertility and lead to biodiversity loss.
11. **Shifting Cultivation:** Replaces traditional crops with less diverse cultivation practices, leading to loss of crop varieties.
12. **Shrimp Culture:** Coastal shrimp farming introduces pollutants, harming marine biodiversity.
13. **Hunting:** Unsustainable hunting practices lead to the extinction of species and disrupt food webs.

Way Forward

To address biodiversity decline, the following strategies are essential:

- **Enforce Conservation Laws:** Strengthen protection laws for forests and wildlife, and regulate activities causing biodiversity loss.
- **Promote Sustainable Practices:** Encourage organic farming, mixed cropping, and sustainable forestry.
- **Engage Communities:** Involve local communities in conservation efforts, integrating traditional and modern practices.
- **Support Restoration Projects:** Implement ecological restoration to rehabilitate degraded areas and enhance biodiversity.
- **Climate Action:** Mitigate climate change impacts through emission reductions and adaptive conservation strategies.

These measures will help preserve Himachal Pradesh's biodiversity and ensure a sustainable environment for future generations.

5. Discuss the scope of medicinal and aromatic plants in HP. Describe various initiatives of Himachal Pradesh government for conservation and management of aromatic plants.

Himachal Pradesh is renowned for its diverse range of medicinal and aromatic plants, benefiting from its varied agro-climatic conditions. The state's potential in this field can be categorized into distinct zones:

1. **Sub-Mountain and Low Hill Tropical Zone (Zone I):**
   - **Districts:** Una, Hamirpur, Kangra, Solan, Sirmour
   - **Key Plants:** Bahera, Amla, Khair, Kasmal
2. **Mid-Hill Sub-Humid Zone (Zone II):**
   - **Districts:** Chamba, Mandi, Kullu, Kangra
   - **Key Plants:** Singli-Mingli, Banafsha, Brahmi, Kashmal, Bach
3. **High Hill Temperate Wet Zone (Zone III):**
   - **Districts:** Chamba, Pangi, Kullu, Kinnaur, Shimla
   - **Key Plants:** Gucchi, Mushabala, Belladona, Chora, Bichhu Buti, Wide variety of wild aromatic species
4. **High Hill Temperate Dry Zone (Zone IV):**
   - **Districts:** Kullu, Kinnaur, Kangra, Lahaul and Spiti, Shimla
   - **Key Plants:** Dhoop, Patish, Kuth, Seski, Thuth, Rewandchini, Salampanja

Himachal Pradesh is a major supplier of medicinal plants such as Atish, Salampanja, Dhoop, Kutki, Bankakri, Daruhaldi, Talispatra, Revandchini, Vach, and Somlata. The state has over 1,500 known drug plants, including valuable species like Atis, Patis, Karu, Kala Zeera, and Singhi-Mingli. There is significant potential for economic benefits through scientific documentation, commercial cultivation, and value addition.

Government Initiatives for Conservation and Management of Aromatic Plants

1. **Mehak Scheme:**
   - ❖ Promotes the cultivation of aromatic plants such as wild marigold, lemongrass, and basil.
   - ❖ Provides financial assistance to farmers for growing these plants.
2. **Herbal Gardens:**
   - ❖ The Department of Ayurveda has established four herbal gardens at Jogindernagar, Neri, Dhumera, and Jungal Jhalera.
   - ❖ These gardens focus on developing agro-techniques for cultivating medicinal plants and supplementing farmers' incomes.
3. **State Medicinal Plant Board:**
   - ❖ Established under the chairmanship of the Chief Minister.
   - ❖ Promotes activities related to medicinal plants and their sustainable management.
4. **Charak Vatikas:**
   - ❖ Launched by the Ayush Department to raise awareness and support plantation drives.
   - ❖ Phase 1 involved establishing Charak Vatikas in 1,167 Ayurvedic institutions, planting about 11,526 plants.
5. **Regional Cum Facilitation Centre:**
   - ❖ Set up by the National Medicinal Plant Board at the Research Institute in Indian System of Medicine, Jogindernagar.
   - ❖ Promotes medicinal plant cultivation in six northern states, including Himachal Pradesh.
6. **Cultivation of Seabuckthorn and Saffron:**
   - ❖ **Seabuckthorn:** Promoted by Himachal Pradesh Krishi Vishvavidyalay Palampur. Women in Chandra Valley led the "Ek Kadam Hariyali Ki Aur" campaign, planting 6,588 seabuckthorn nurseries.
   - ❖ **Saffron:** Cultivated successfully in Kinnaur district by the Institute of Himalayan Bio-Resource Technology, Palampur.

These initiatives aim to enhance the cultivation, conservation, and commercial viability of aromatic and medicinal plants in Himachal Pradesh, supporting local economies and preserving biodiversity.

6. "Geospatial technology is a powerful tool for natural resource mapping and management in Himachal Pradesh". Elaborate.

Geospatial technology, which includes Geographic Information Systems (GIS), remote sensing, and Global Positioning Systems (GPS), plays a pivotal role in natural resource mapping and management, especially in diverse and challenging terrains like Himachal Pradesh. It could be discussed in following headings:

1. **Land Use and Land Cover Mapping:**
   - ❖ GIS and remote sensing provide detailed maps of land use and land cover, crucial for identifying natural resources such as forests, water bodies, and agricultural lands.
   - ❖ Detailed land use maps help in understanding the spatial distribution of resources across various zones of the state, from semi-tropical to alpine regions, and guide effective management.
2. **Forest Inventory:**
   - ❖ Remote sensing offers valuable data on forest cover, types, and changes over time, aiding in monitoring deforestation, forest degradation, and overall forest health.
   - ❖ The Forest Department uses satellite imagery to track forest cover and implement conservation strategies in the state's varied forest zones.

3. Water Resources Management:

- ❖ GIS and remote sensing are used to map and monitor water bodies, including rivers, lakes, and glaciers, and track changes in water availability and watershed health.
- ❖ Technologies help in monitoring glacier retreat and water scarcity, crucial for managing water resources and mitigating flood risks in the state.

4. Soil Erosion and Landslide Risk Assessment:

- ❖ Geospatial technology analyzes soil erosion patterns and landslide risks by integrating topographic, geological, and climatic data.
- ❖ The "Landslide Hazard Zonation Atlas" developed by the state uses GIS to predict landslide-prone areas, aiding in disaster preparedness and risk management.

5. Disaster Management

- ❖ GIS creates risk maps for natural disasters like floods and landslides, which helps in developing disaster response plans and identifying vulnerable areas.
- ❖ The State Disaster Management Authority uses GIS to plan and coordinate emergency responses effectively during disasters.

6. Precision Agriculture:

- ❖ Remote sensing provides data on crop health, soil conditions, and pest infestations, supporting precision agriculture by optimizing resource use.
- ❖ The "Himachal Pradesh Krishi Vishvavidyalaya" employs GIS and remote sensing to improve agricultural productivity and sustainability.

7. Biodiversity Conservation

- ❖ GIS and remote sensing help map and monitor habitats, crucial for biodiversity conservation efforts.
- ❖ GIS tools are used in the "Biodiversity Conservation and Sustainable Livelihoods" project to support habitat management and species protection.

8. Tourism and Infrastructure Development

- ❖ Geospatial technology assists in planning and managing tourism and infrastructure development in a sustainable manner, minimizing environmental impact.
- ❖ The "Himachal Pradesh Tourism Development Corporation" uses GIS to guide development activities and assess tourism impacts on natural resources.

9. Data Integration and Decision Support

- ❖ GIS integrates various data sources, such as satellite imagery and field surveys, providing a comprehensive view of natural resources.
- ❖ The "State Geospatial Data Infrastructure" initiative integrates data to support informed decision-making and resource management in the state.

7. Assess the policies and programs of Himachal Pradesh government in boosting the production, productivity, and income of horticulture farms. How far has it succeeded in increasing the income of farmers?

Himachal Pradesh, with its diverse agro-climatic conditions and fertile soils, is well-suited for horticulture. The state government has implemented various policies and programs aimed at enhancing production, productivity, and income from horticulture. Here's an overview of these initiatives and their impact:

Key Policies and Programs

1. Rashtriya Krishi Vikas Yojna (RKVY):

- ❖ Focuses on developmental activities in the horticulture sector, including mechanization.

- ❖ Distribution of power sprayers and power tillers with subsidies during 2020-21 to improve farming efficiency.

2. Restructured-Weather Based Crop Insurance Scheme (RWBCIS):

- ❖ Provides insurance coverage for apple, mango, citrus, plum, and peach against weather-related risks.
- ❖ Protects farmers from crop loss due to adverse weather, reducing financial risk.

3. Zero-Budget Natural Farming:

- ❖ Reduces dependency on external inputs, promoting sustainable and cost-effective farming practices.
- ❖ Lowers production costs and enhances self-reliance among farmers.

4. Free Advisory Services:

- ❖ Offers leaf sample analysis and nutritional advice to fruit growers.
- ❖ Helps in optimizing orchard management and improving fruit quality.

5. World Bank Aided Himachal Pradesh Horticulture Development Project:

- ❖ A ₹1134 crore project aimed at increasing productivity and market access.
- ❖ Supports advanced horticulture practices and infrastructure development.

6. Training and Capacity Building:

- ❖ Conducts training camps, seminars, and international training to enhance horticultural skills.
- ❖ Improves the knowledge and skills of horticulturists, leading to better farm management.

7. m-Kisan Program:

- ❖ **Objective:** Provides mobile-based advisory services for solving farming problems.
- ❖ **Impact:** Facilitates timely information and support to farmers, enhancing productivity.

8. Asian Development Bank Aided Project (SHIA):

- ❖ Proposes a ₹1688 crore project for developing subtropical fruits.
- ❖ Boosts the production and marketing of subtropical fruits, improving farmer income.

9. Integrated Horticulture Mission:

- ❖ Offers 50% subsidies for various horticultural activities including fruit cultivation, mushroom production, and greenhouse establishment.
- ❖ Supports diverse horticultural practices and infrastructure, enhancing productivity.

10. Marketing Intervention Scheme:

- ❖ Ensures better prices for fruits by fixing procurement prices.
- ❖ Helps in securing fair prices for fruits, improving farmer income.

11. Cold Storage and Packing Houses:

- ❖ Establishes and upgrades cold storage facilities and packing houses.
- ❖ Reduces post-harvest losses and enhances fruit quality and marketability.

12. Tissue Culture Laboratories:

- ❖ Supports the cultivation of high-value flowers and plants.
- ❖ Promotes advanced cultivation techniques and diversifies horticultural production.

13. New Schemes:

- ❖ Includes schemes like Pushp Kranti Yojna and Mukhya Mantri Green House Renovation Scheme.
- ❖ Enhances floriculture and protected cultivation practices.

14. Fruit Processing Plant (FPP):

- ❖ Enhances fruit processing capabilities.
- ❖ Increases value addition and income from fruit crops.

15. Poly Houses:

- ❖ Promotes protected cultivation with enhanced subsidies.
- ❖ Expands the area under greenhouse cultivation, improving crop yield and quality.

Impact on Farmers' Income

1. Increased Per Capita Income:

- ❖ Per capita income increased to ₹1,90,407 in 2019-20, reflecting overall economic improvement including horticulture.

2. Income Doubling Target:

- ❖ The government aims to double farmers' income by 2022 through various schemes and initiatives.

3. Economic Contribution:

- ❖ Contributes significantly to the state's economy, providing employment to 62% of the population and contributing to the state's GDP.

4. Successful Initiatives:

- ❖ The introduction of advanced techniques and infrastructure has led to improved production efficiency and market access. The success of schemes like the World Bank project and ADB project highlights the positive impact on farmer incomes.

5. Challenges:

- ❖ Despite the positive trends, challenges such as fluctuating market prices and environmental factors continue to affect farmers' income.

In summary, the Himachal Pradesh government's policies and programs have made substantial contributions to boosting horticultural production and productivity. Initiatives such as subsidies, insurance schemes, and infrastructure development have enhanced the economic conditions of farmers. However, continued focus on addressing challenges and expanding successful programs is essential for sustained income growth in the horticulture sector.

8. Discuss the need for developing sustainable tourism in Himachal Pradesh and what steps has been taken by HP government in this direction? try to write your answer in the light of Himachal Pradesh Tourism Policy 2019.

Sustainable tourism is vital for preserving the cultural, environmental, and economic integrity of tourism destinations. Himachal Pradesh, with its stunning Himalayan landscapes, rich biodiversity, and unique cultural heritage, requires a strategic approach to tourism that balances economic benefits with environmental and social stewardship. The Himachal Pradesh Tourism Policy 2019 outlines a comprehensive strategy for developing sustainable tourism in the state.

Need for Developing Sustainable Tourism in Himachal Pradesh

1. Economic Viability:

- ❖ To ensure that tourism destinations remain competitive and profitable over the long term.
- ❖ Sustainable tourism supports the local economy by providing stable, long-term benefits and avoiding the pitfalls of overexploitation.

2. Local Prosperity:

- ❖ To maximize the economic benefits of tourism for local communities.

- ❖ Ensures that a significant portion of tourist spending benefits local businesses and residents, thereby supporting community development.

3. Employment Quality and Social Equity:

- ❖ To create high-quality local jobs and promote fairness in employment practices.
- ❖ Encourages skill development, equitable pay, and inclusive opportunities for all community members.

4. Visitor Fulfillment:

- ❖ To provide satisfying and enriching experiences for tourists.
- ❖ Enhances the attractiveness of the destination and ensures that tourism remains enjoyable and safe for visitors.

5. Community Wellbeing:

- ❖ To maintain and improve the quality of life for local residents.
- ❖ Prevents social degradation and ensures that tourism contributes positively to community welfare.

6. Cultural Richness and Integration:

- ❖ To respect and enhance the cultural heritage of host communities.
- ❖ Preserves local traditions and cultural integrity, fostering mutual understanding and respect between tourists and locals.

7. Physical Integrity:

- ❖ To avoid physical and visual degradation of the environment.
- ❖ Ensures that tourism development does not harm the natural landscape or ecological balance.

8. Mountain Biological Diversity:

- ❖ To protect the ecological integrity of mountain environments.
- ❖ Maintains biodiversity and aesthetic value, crucial for preserving the region's natural heritage.

9. Resource Efficiency:

- ❖ To minimize the use of scarce resources in tourism operations.
- ❖ Promotes sustainable practices that reduce environmental impact.

10. Environmental Purity:

- ❖ To reduce pollution and waste generated by tourism.
- ❖ Ensures clean and healthy environments for both locals and tourists.

11. Standards and Monitoring:

- ❖ To implement eco-labeling standards and monitor tourism impacts.
- ❖ Ensures adherence to sustainable practices and allows for timely corrective actions.

Steps Taken by Himachal Pradesh Government

1. Infrastructure Development:

- ❖ **Civil Aviation:** Expansion of airstrips in Kullu, Kangra, and Shimla; development of heliports under UDAN-2.
- ❖ **Greenfield Airport:** Proposal for a new airport at Nagchala, Mandi.

2. Tourism Diversification:

- ❖ **"Nai Raahein Nai Manzilein" Scheme:** ₹50 crore initiative to develop unexplored tourism areas.
- ❖ **Development of Paragliding and Skiing Destinations:** Projects in Bir Billing (Kangra) and Chanshal (Shimla).

1. **Adventure and Water Sports:**
   - ❖ **Water Sports Centers:** Establishment in Larji, Pong Dam, and Kol Dam.
   - ❖ **Ropeways:** New projects in Dharamshala, Kangra, Palchan-Rohtang, and Bhunter-Bijli Mahadev.
2. **Sustainable Tourism Policies:**
   - ❖ **Tourism Policy 2019:** Focuses on economic development, minimizing social inequality, and conserving heritage.
   - ❖ **Eco-Tourism Policy 2017:** Emphasizes conservation of natural resources and community involvement.
3. **Support for Sustainable Development Goals (SDGs):**
   - ❖ **SDGs 8 and 12:** Policies align with goals to promote economic growth and sustainable consumption.
4. **Tourism Infrastructure Development:**
   - ❖ **Himachal Pradesh Tourism Development Corporation (HPTDC):** Pioneers in developing tourism infrastructure and services.
5. **Capacity Building and Community Engagement:**
   - ❖ **Training Programs:** Skill development for local communities and tourism professionals.
6. **Community Involvement:** Encouraging local participation in tourism activities and conservation efforts.
7. **Investment in Conservation and Business:**
   - ❖ **Creating Enabling Conditions:** Facilitating investments in conservation and sustainable tourism businesses.
8. **Climate Change Mitigation:**
   - ❖ **Integration in Policies:** Ensuring that climate adaptation and mitigation measures are reflected in tourism policies.
9. **Monitoring and Evaluation:**
   - ❖ **Standards and Performance:** Implementation of eco-labeling and regular monitoring to ensure adherence to sustainable practices.

The Himachal Pradesh Tourism Policy 2019 represents a forward-thinking approach to developing sustainable tourism in the state. By integrating infrastructure development, policy reforms, and community engagement, the government aims to enhance the tourism sector's economic, social, and environmental sustainability. These measures not only aim to boost tourism but also ensure that the benefits are equitably distributed and the natural and cultural heritage is preserved for future generations.

9. Write a short note on adventurous tourism in Himachal Pradesh?

Himachal Pradesh, with its breathtaking landscapes and diverse terrains, stands as a premier destination for adventurous tourism in India. The state's dramatic topography, including towering mountains, lush valleys, and flowing rivers, makes it an ideal playground for a range of outdoor activities. Here's a comprehensive overview of adventurous tourism in Himachal Pradesh:

Popular Adventure Activities

1. **Trekking and Mountaineering:**
   - ❖ **Notable Treks:** Himachal Pradesh offers a variety of trekking routes suited to different skill levels. Popular treks include the **Indrahar Pass Trek**, **Beas Kund Trek**, and the **Chandratal–Baralacha Trek**. These treks provide spectacular views and an immersive experience in the Himalayan wilderness.
   - ❖ **Mountaineering:** The state's rugged terrain is perfect for mountaineering enthusiasts. Peaks like **Stok Kangri** and **Hanuman Tibba** challenge climbers with their technical ascents and stunning vistas.

2. **Paragliding:**

   - **Bir Billing:** Known as the 'Paragliding Capital of India,' the towns of **Bir** and **Billing** in Kangra district offer some of the best paragliding experiences. The region is famous for its excellent flying conditions and scenic aerial views of the Himalayas.

3. **Skiing and Winter Sports:**

   - **Solang Nala and Manali: Solang Nala** near Manali and **Narkanda** are well-known for skiing. The state also offers **Heli-Skiing** in Manali and **Chanshal Pass** in Shimla for those seeking more extreme winter sports.
   - **Chanshal Pass:** Located in Shimla, Chanshal Pass provides opportunities for skiing and snowboarding amidst pristine snow-covered landscapes.

4. **River Rafting and Water Sports:**

   - **Major Sites: River Rafting** is a popular activity in Himachal Pradesh, with prime locations including the **Beas River** in Bhuntar, **Satluj River** in Jeori, and the **Ravi River** in Chamba. These rivers offer thrilling rapids and scenic beauty.
   - **Fishing:** The state is also known for fishing, particularly **trout fishing**, in its clear, fast-flowing rivers.

5. **Jeep Safari and Motorcycling:**

   - **Road Adventures:** The extensive and varied road network of Himachal Pradesh provides a perfect setting for **Jeep Safaris** and **motorcycling**. A popular route is the tribal circuit starting from **Shimla**, passing through **Kinnaur**, and ending in **Manali**. These journeys offer a thrilling way to explore the region's remote and rugged terrains.

6. **Camping:**

   - **Popular Spots:** The natural beauty of Himachal Pradesh makes it an ideal location for **camping**. Sites like **Kasol**, **Tirthan Valley**, and **Manali** offer serene settings and opportunities to connect with nature.

Challenges and Considerations

- **Climate Change Impact:** The changing climate poses risks to adventure sports, affecting weather patterns and conditions. It is crucial for the state to develop mechanisms for alerting adventure seekers about potential hazards and to implement support systems for emergency situations.
- **Safety Measures:** Ensuring the safety of tourists involves proper training, equipment maintenance, and infrastructure development to handle unforeseen conditions and emergencies effectively.

Government Initiatives

1. **Infrastructure Development:**

   - **Expansion Projects:** The Himachal Pradesh government is focused on enhancing infrastructure to support adventure tourism, including the development of new airstrips and heliports under the UDAN-2 scheme and proposals for greenfield airports.

2. **Promotion and Policy:**

   - **Sustainable Tourism Policy:** The Himachal Pradesh Tourism Policy 2019 aims to promote adventure tourism while ensuring sustainability and minimizing environmental impact.
   - **Marketing and Support:** The state actively promotes its adventure tourism offerings through various campaigns and partnerships, focusing on safety and environmental conservation.

Himachal Pradesh offers a rich array of adventure tourism activities, from trekking and mountaineering to paragliding and river rafting. The state's stunning landscapes provide unparalleled opportunities for thrill-seekers and outdoor enthusiasts. With ongoing efforts to develop infrastructure, promote sustainable tourism, and address climate-related challenges, Himachal Pradesh continues to enhance its reputation as a premier destination for adventure tourism in India.