

7.2.6. Biotechnology Policy in MP

7.2.6.1. Agriculture, Animal Husbandry & Fisheries

- Madhya Pradesh has been the largest user of bio-fertilizers amongst all the states. Research and development of bio-fertilizers, which are ecologically friendly, shall continue to receive emphasis. In a similar manner the development of new varieties of bio-pesticides shall be encouraged.
- The concerted program for eco-friendly agriculture involving a package of practices based on locally available biodegradable waste, bio-fertilizers and bio-pesticides shall be steadily expanded to cover the entire state.
- Facilities to provide the benefits of tissue culture technology to the farmers and its large-scale adoption will have to be established to cover all agro-climatic regions including wastelands and degraded forests. Plant tissue culture programs for large-scale production of breeder planting material including for forest tree species shall receive priority.
- Gene banking is a practical and effective method to ensure the availability of species diversity. Establishment of gene banks for this purpose will be encouraged.
- The state is rich in genetically diverse livestock resources. Due to poor quality of feed material, harsh environmental conditions and poor socio-economic conditions of the farmers this wealth is underutilized. Research programmes based on solving such issues shall continue to receive emphasis.
- Biotechnology application for improving genetic quality of fish stock, obtaining better yields and improve disease resistance shall be encouraged.
- Development of recombinant diagnostics and vaccines for major diseases in livestock/fish and development and formulation of improvised animal/fish feed shall be encouraged.

Source:10

7.2.6.2. Forests

- The application of biotechnology in the forestry sector has been more on control and elimination of pests and fungi that are a threat to commercially important tree species. Genetic improvement of forest crops with simple Mendel and hybridization could have bridged the gap between the demand and supply of forest produce. An endeavor shall be made to identify traits in the commercially important species and take up a comprehensive hybridization programmed.
- Faunal biodiversity is crucial for ensuring ecosystem health. Endemism looms as a threat to wildlife. Genetic examination of isolation could help in devising strategies to ensure genetic exchange.
- Non-timber forest produce forms an important component of the forest economy. Rural populace especially tribals, largely, depend on collection and sale of such produce. Use of biotechnology at the community level and in the industrial sector to add value to such a collection shall be encouraged. Identification of such crucial species, their genetic fingerprinting and chemical assaying of their active ingredients needs to be taken up.

Source:10

7.2.6.3. Medicinal & Aromatic Plants

- The state government has initiated a concerted effort to promote the cultivation of medicinal and aromatic plants. Adding value to such produce through traditional and modern techniques of biotechnology shall be encouraged.¹⁰

7.2.6.4. Health and Medical Biotechnology

- Medical Biotechnology, like in other areas of biotechnology, involves heavy outlays for research. Whereas the private sector industry and the Indian Council for Medical Research lead the field the state government shall in conjunction with all concerned promote efforts on newer vaccines, especially for malaria, tuberculosis, cholera, HIV, rabies, snakebites and Japanese Encephalitis among other diseases.
- The state government shall participate in the development of strategies for prevention and cure of diseases induced by malnutrition, faulty diet and lifestyles. It shall also promote research in reproductive health and contraception.
- Epidemiological studies covering research on air borne microbes (Bio Allergens) through various media like air, water and food shall be promoted.

Source:10

7.2.6.5. Environment Protection and Bio-energy

- Flow of industrial effluents and urban waste into public water bodies and the seepage of chemical residues into aquifers adversely impact the health of human beings as well as of livestock. Bio-remediation provides an alternative to chemical treatment. This shall be encouraged. Root zone technology shall be similarly promoted.
- Bio-fuels shall be promoted as new and alternative source of energy. To help achieve this bio-fuel plantation shall be promoted and pilots established for generation of bio-energy.
- Development of microbial and other biological methods for treatment of solid and liquid waste and for mitigating any other hazardous industrial impact shall be promoted.
- Construction of bio-monitors and bio-indicators for environmental safety shall be promoted.

Source:10

7.2.6.6. Traditional Knowledge and Wisdom & Awareness Generation

- Madhya Pradesh is rich in its biotic resources. Rural and tribal communities have, over time, through proper selection, elimination and locally evolved techniques developed a vast range of applications and practices which add value to agricultural and forest produce. Steps to help protect the rights of the community over this traditional knowledge base shall be initiated.
- Partnerships between rural and tribal communities and research institutions shall be established to improve and expand the applications environment for traditional knowledge and practices.
- A strategy to derive advantage for these communities under the various statutory provisions of enactments like the Environmental Protection Act, the Wildlife

Protection Act, the Plant Varieties & Farmer's Rights Protection Act, the Biological Diversity Act, the Indian Patents Act etc. shall be prepared.

- To spread awareness among stakeholders about the manner in which the provisions of Biological Diversity Act, Plant Varieties & Farmer's Rights Protection Act and various protocols on Bio-safety can positively impact their livelihood status.

Source:10

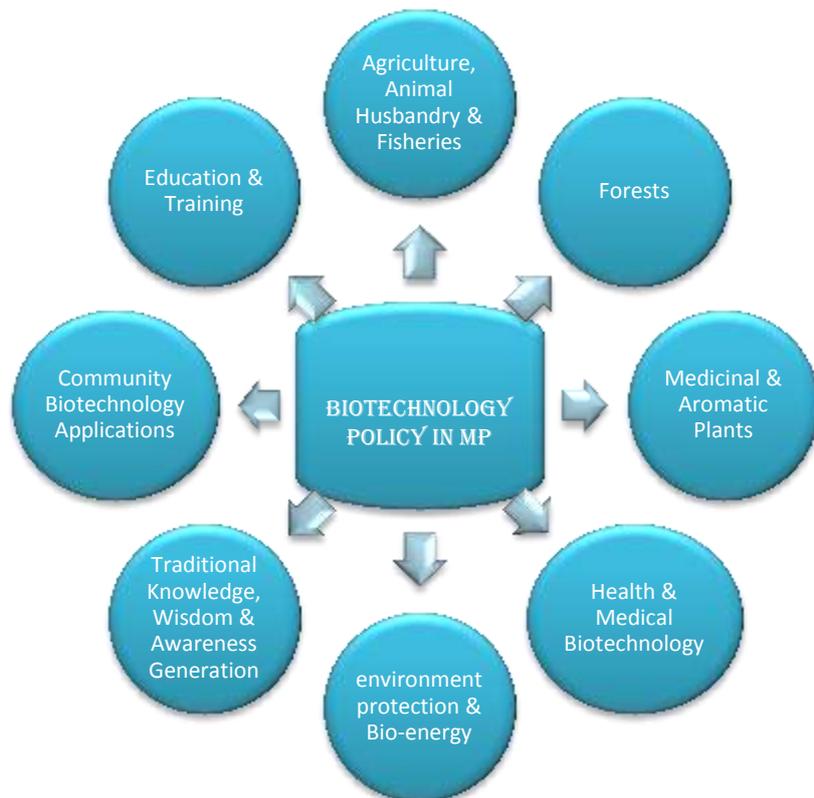
7.2.6.7. Community Biotechnology Applications

- Modern tools of biotechnology can help enhance the potential of traditional knowledge and practices. This will help in improved production, value addition and promoting the sustainable use of natural resources. Programmes for community level biotechnology especially in the field of agriculture, horticulture, medicinal and aromatic plants, forestry and the livestock sectors shall be designed and implemented.
- IEC programs for promoting household and community level biotechnology applications like fermentation technology, waste treatment and utilization shall be implemented through farmer's groups, milk cooperatives, minor forest produce cooperatives, JFM committees, women's and other self-help groups.

Source:10

7.2.6.8. Education and Training

- The existing educational facilities shall be expanded by encouraging universities and colleges to set up facilities for under-graduate and post-graduate level programs in biotechnology.
- Technical institutions including agriculture and veterinary colleges, engineering colleges and polytechnics shall be encouraged to introduce degree and diploma level programs for molecular biology biotechnology, bio-informatics, bio-ethics and related fields.
- Technician level courses shall be introduced at ITIs and para medical schools.
- A human resource plan for the biotechnology sector shall be prepared.



10. Source: Madhya Pradesh Biotechnology Policy (PDF from Google Search)