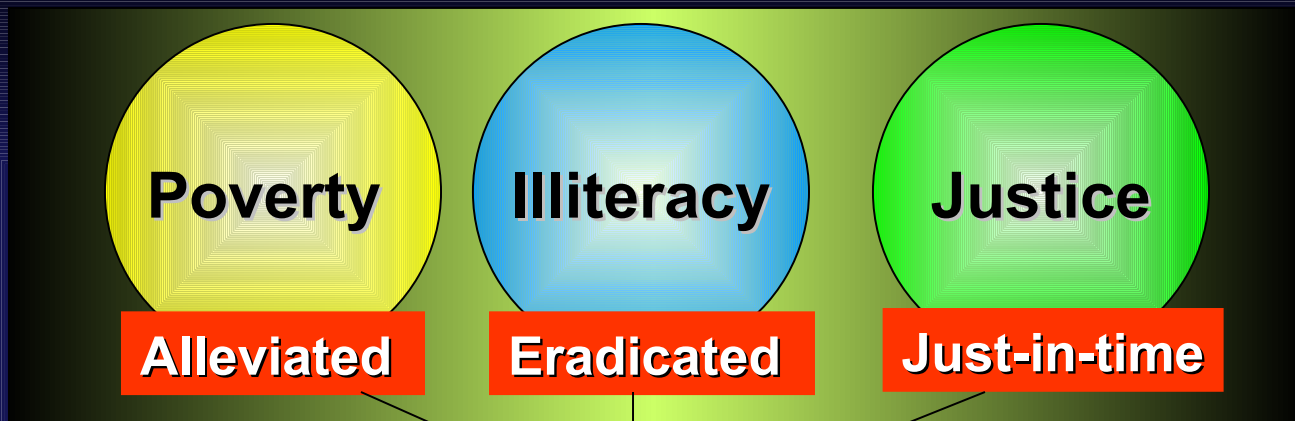


# Developed India in 2020

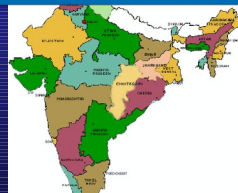
8



**Society is unalienated**

9

**A Nation that is prosperous, healthy,  
secure,  
peaceful and happy**



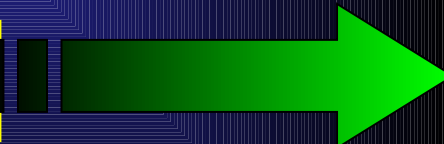
10

**A Nation that is one of the best places to live in, on the  
earth and brings smiles on a billion plus faces**

# **Developed India in 2020**

- 1. No Rural – Urban divide**
- 2. Equitable distribution of energy and quality water**
- 3. Sustained GDP growth rate and employment generation in three economic sectors**
- 4. Education for all**
- 5. Best destination for talented scholars and scientists**
- 6. Health care for all**
- 7. Transparent Governance**
- 8. Poverty and illiteracy eliminated and justice in time**
- 9. Prosperous, healthy, secure, peaceful and happy India**
- 10. Smiles on a billion faces**

**MISSION for young scientists**



# Progress in Biotechnology



Edible vaccine

- Gene Therapy
- Genetic Modifiers
- Drugs designed for individuals
- Nano medicine
- Develop a living cell
- DNA repair
- Stem Cells
- Drug delivery Nano robots
- Tissue culture (Liver, Kidney etc.)



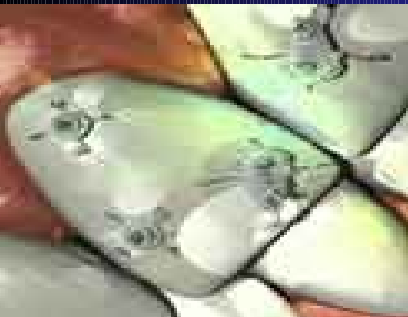
BIO-CHIP



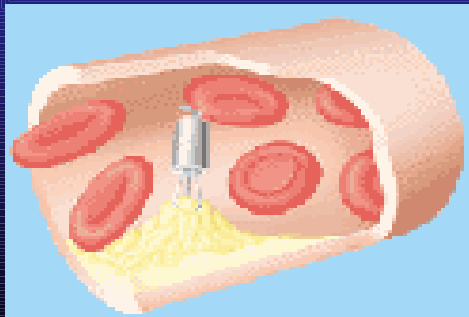
DNA Repair Machine



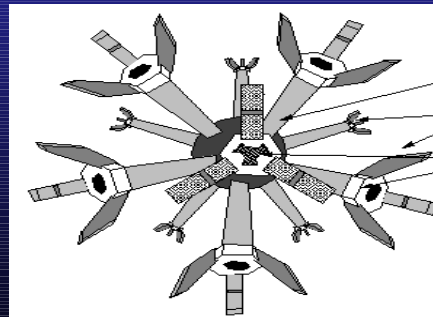
Nano injector



Medical Nano bots



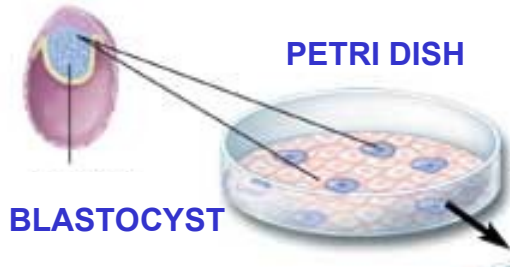
Artery cleaner



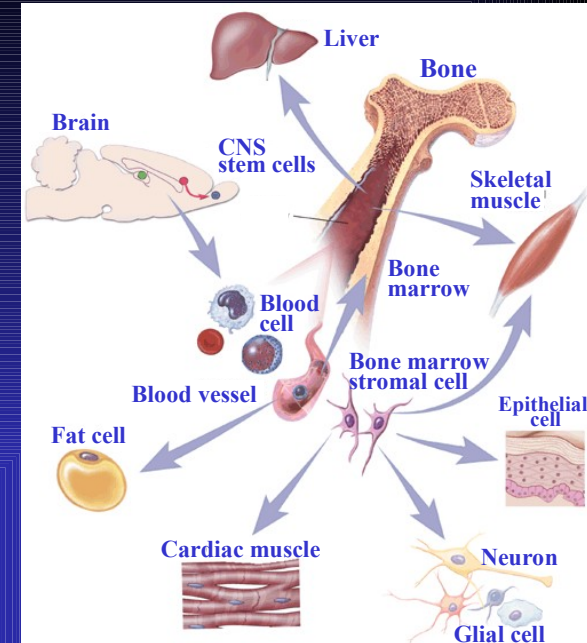
Drug delivery system - Nano Robots



# STEM CELLS



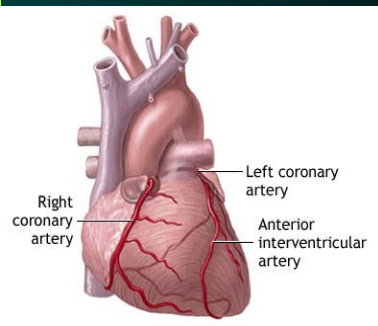
- UNSPECIALISED CELLS RENEW THEMSELVES THROUGH CELL DIVISIONS
- UNDER SPL. CONDITIONS, CELLS CAN BE INDUCED FOR SPECIAL FUNCTIONS



EMBRYONIC STEM CELLS

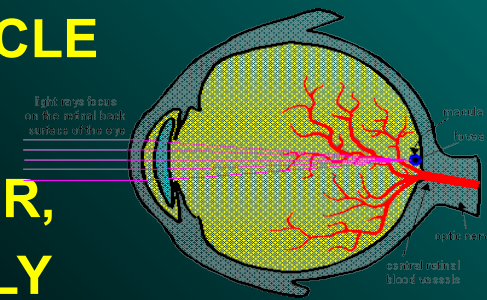
UMBILICAL CORD CELLS

ADULT STEM CELLS



**HARDENED HEART MUSCLE**

- REPAIR OF DAMAGED HEART MUSCLE
- RESTORATION OF VISION
- TREATMENT OF DIABETES, CANCER, PARKINSON'S DISEASE & MENTALLY CHALLENGED



**RETINAL DAMAGE, GLAUCOMA**

# Universal Tele-Education delivery System

## CONNETIVITY

**Satellite, Broadband, Wireless Communication**  
Provides a highway for reaching Quality Education to all

## Tele-Education Delivery System

- Universal Tele-education System
- Multi-Class Environment
- Seamless – two way connectivity
- Synchronized multi-media delivery
- Digital Library integration
- Content management
- Internet Resource availability
- Remote Virtual Classroom
- Cost effective Connectivity

**Collaborative environment**

**A remote teacher can become a teacher to all remote Virtual Classrooms**

**Unique, Innovative and Creative Content and assimilation through animation**

**Lectures**

**Laboratory**

**Library**

**Books**

**Internet**

**Quality Content Generation**

# Biodiesel - Jatropha



33 million hectares of wasteland have been allotted to tree plantation in India.



Multipurpose trees such as Jatropha can grow well on wastelands with little inputs, and reclaim it.



Yields of up to 5 t/ha oilseeds possible under optimum conditions



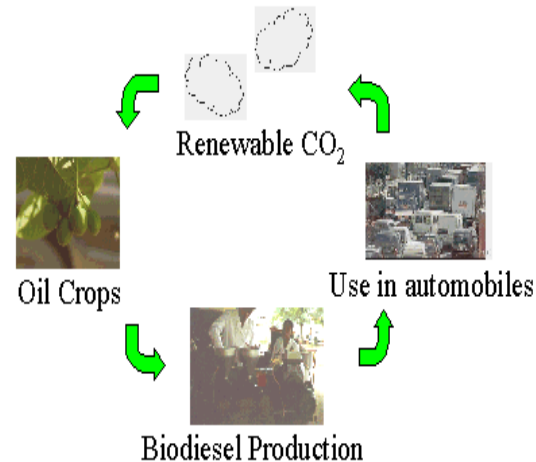
Produces 2 tonnes of biodiesel that could be used in automobiles, other agro-industrially useful by-products.

**States: Tamilnadu, Andhra Pradesh, Chattisgarh, Orissa, North Bengal**

- \* 11 million hectare will generate 11 million jobs Equivalent
- \* Research can lead to 30% increase in yield
- \* Up to 20% addition to diesel production modification is needed
- 2 - 5 year plant
- About 5 tonnes per hectare under optimum conditions
- 55-60% oil that can be extracted by transesterification
- 0.75 to 2 tonnes of biodiesel per hectare per year from

## Biodiesel CO<sub>2</sub> Cycle

No fossil CO<sub>2</sub> Released



Use of biodiesel is completely CO<sub>2</sub> emission free; the CO<sub>2</sub> fixed by the plantation could be used in emissions trading.



If the potential is fully realised India's current annual diesel requirement (40 million tonnes this year) could be fully met!

Source: George Francis and Klaus Becker, University of Hohenheim, Stuttgart, Germany