

AGNii & Technologies in the Plastics Ecosystem

February 13, 2020

3rd largest scientific and technical manpower in the world

1100 plus MNC R&D centres across India

7th largest R&D spender

About **7000** R&D institutions in India

OVERVIEW



50,000+

Startups in India

\$95 Bn

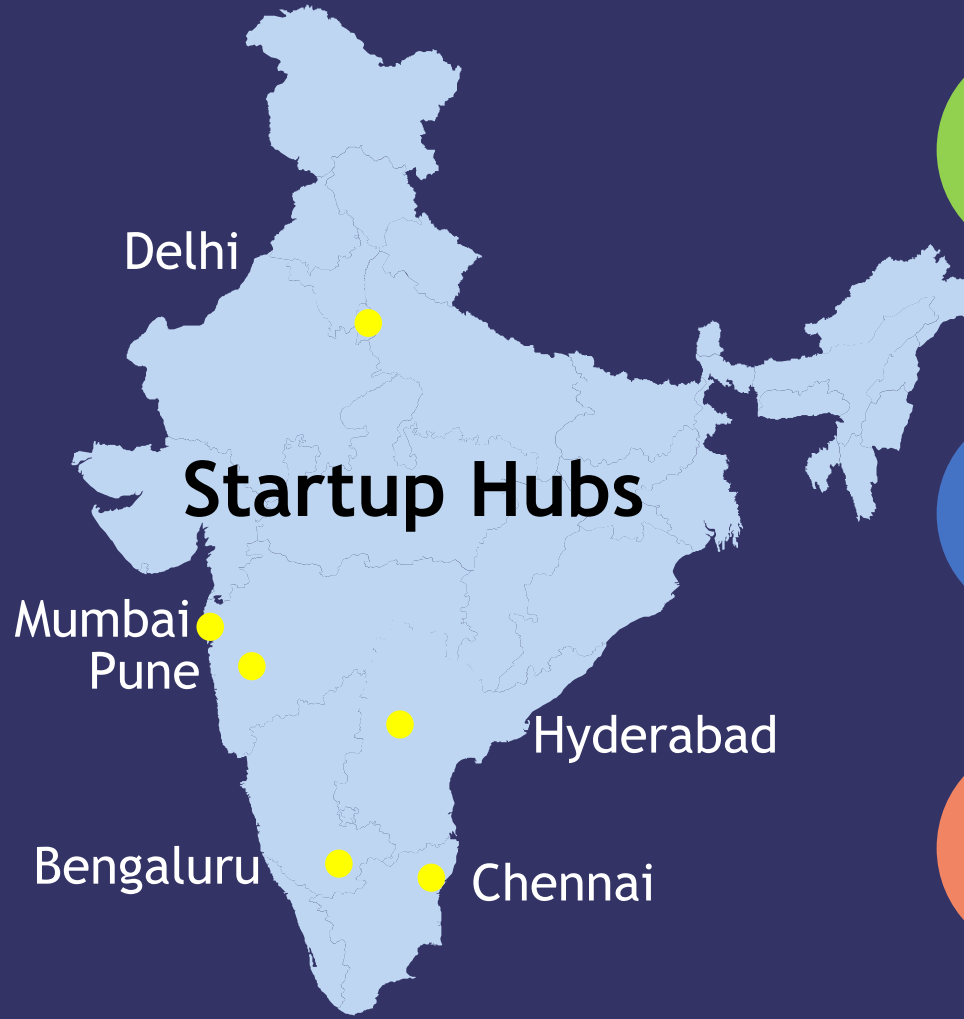
Unicorn Valuation

360+

Incubators/
Accelerator

\$31 Bn

VC funding since
Jan'16



28 Yrs.

Avg. age of
founders



#11

Bengaluru
on Global
Ranking



40%

Incubator
Annual
Growth



55%

Startups in
Metros



9%

Women
Entrepreneurs
(100% growth in
last 12 months)



700+

Startups
arising
from ex-
unicorns
employees

PM-STIAC

*Prime Minister's Science Technology and Innovation
Advisory Council*

Overarching body for India's science and innovation landscape reporting into the Prime Minister

Chaired by the Principal Scientific Adviser to the Government of India

National Missions:



Artificial Intelligence



Biodiversity



**Deep Ocean
Exploration**



Quantum Frontier



Electric Vehicles



Genomics



Waste to Wealth



**Indian Language
Translation**

AGNIi

Accelerating Growth of New India's Innovations

NATIONAL TECHNOLOGY COMMERCIALIZATION PROGRAM



AGNii's SERVICES



For the Innovator (Individuals and Institutions)

- ❖ Incremental Market Access
- ❖ Licensing/Technology Transfer
- ❖ Technology Showcase
(Physical/Digital)
- ❖ Listing on Digital Repository



For the Adopters

- ❖ Free Access to Digital Repository
- ❖ Open Innovation Challenges
- ❖ Visits to Research Institutions
- ❖ Collaborative Research with Academia
- ❖ Deal Flow for VC Funds & Accelerations Programs



SUCCESS STORIES

CORPORATE COLLABORATIONS

OPEN INNOVATION CHALLENGES



Focus Areas:

AI, Cyber Security, Automotive, Agri & Food, Mobility, Water, Pollution, Sanitation, Clean Tech, AI/ML, AR/VR, Health, Education, Defence etc.

Support Offered:

Open Innovation Challenge

Outcomes Achieved:

Every partner offered at least one of the below to 1-3 innovators in each open innovation focus area:

- ☐ Pilot
- ☐ Incubation
- ☐ Licensing
- ☐ A business order (market access)
- ☐ Funding
- ☐ Access to R&D facility

CORPORATE COLLABORATIONS



STARTUP SCOUTING FOR INCUBATION/ACCELERATION/FUNDING



Focus Areas:

AI, Cyber Security, Automotive, Agri & Food, Mobility, Water, Pollution, Sanitation, Clean Tech, AI/ML, AR/VR, Health, Education, Defence etc.

Support Offered:

Startup Scouting

Outcomes Achieved:

Every partner offered at least one of the below to 1-3 innovators in each open innovation focus area:

- ☐ Incubation
- ☐ Acceleration
- ☐ Funding

SECURE HIMALAYAS

OPEN INNOVATION CHALLENGE



FORMAT

24 innovators scouted and offered to UNDP team, which **selected 4 innovators for a final discussion**, out of which **one Startup - Aniders** was selected for installing their device in specified location

FOCUS AREAS

Innovations for securing **livelihoods, conservation, sustainable use and restoration of high range Himalayan ecosystems**

OUTCOME

20 devices will be installed in Sikkim & Uttarakhand as per pilot order provided to the startup.



DRDO: DEFENCE RESEARCH & DEVELOPMENT ORGANISATION



OPEN INNOVATION CHALLENGE



FORMAT

An Open Innovation Challenge in partnership with DRDO to strengthen the nation's innovation ecosystem in defence. **Garnered 3000+ applications from startups and innovators.**

FOCUS AREAS

Multi-legged mobility, cybersecurity, micro-UAVs, wearable communication technologies, surveillance robots etc.

OUTCOME

14 technologies were offered cash grants worth up to INR 10 lacs each; opportunity of further investments and development support from DRDO

SMART CITIES MISSION

TECHNOLOGY SHOWCASE



FORMAT

A Technology Showcase for the **CEOs of the Smart Cities** SPVs of Gujarat & Maharashtra. Technologies from various startups and labs showcased

FOCUS AREAS

water management; safety, security and surveillance; traffic management and social (health and citizen engagement) spaces.

OUTCOME

55 offers for pilot by 12 Smart City SPVs

TECHNOLOGIES IN THE PLASTICS ECOSYSTEM

MANAGEMENT OF PLASTIC WASTE

- **Reducing** the use of plastics through behavioural and lifestyle changes
- **Reusing** the existing plastics as it is, to the best possible extent in sustainable manner
- **Recycling & Recovering**, using plastics to make different products, petrochemical feedstock, fuel or other sustainable alternate uses
- **Disposal** of plastic waste in landfills (least favoured option)
- **Replacing** the plastics through development of new materials which can provide similar or better utility as plastics but have minimal environmental impact

PLASTIC WASTE TO FUEL

PolyCycl

- India's first patented fully continuous demonstration plant for conversion of municipal plastics to industrial diesel fuels
- Enables 50% lower CapEx & OpEx
- Technology accepts HDPE, LDPE, PP and PS

Innova

- All rubber, plastic and organic based materials
- Complete remote data monitoring available using IoT platform
- 50% less energy consumption



PLASTIC WASTE TO VALUE-ADDED PRODUCTS

Gruvala: Waste Material Kerbstone

- Kerbstones made of plastic, rubber and concrete.
- Recyclable and reusable
- Better durability, longevity and low maintenance



PotHoleRaja

- Cold asphalt-based road repair and maintenance grid mats (mix with plastic waste and crumb rubber)
- OpEx is 50% less than compared to current methods & models
- CapEx (infrastructure and setup): 30% cheaper than current methods & models



PLASTIC WASTE TO VALUE-ADDED PRODUCTS

Restyro Technologies

- Novel technology to directly recycle polystyrene waste into fabric for oil spills cleaning
- Fabrication of hydrophobic and oleophilic fabric of plastic waste using citrus fruit peel extracts
- Flexible insulator thus suitable to be used in construction material



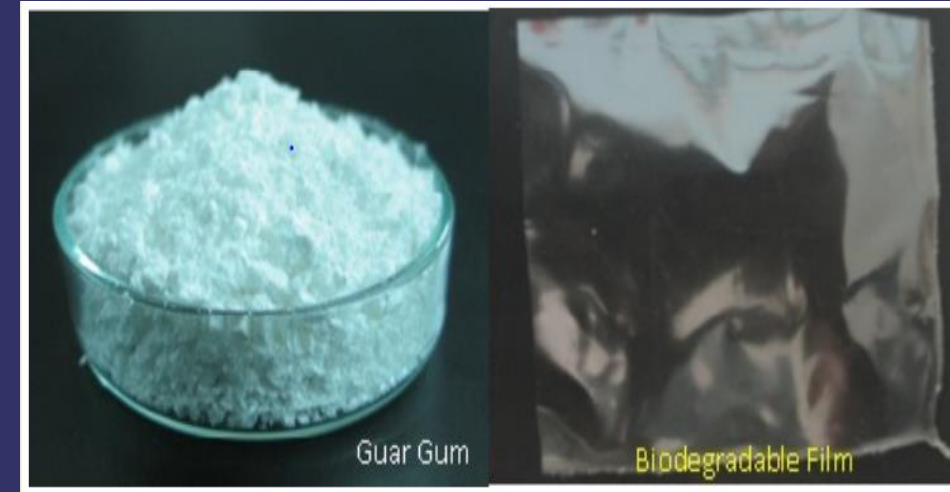
CSIR-National Physical Laboratory (CSIR-NPL)

- Simple and novel process of production of decorative coloured tiles from the waste plastic bags and bottles
- Different structure making applications like separation panels, interlock tiles and in showcase frame designing.



Biodegradable films - BARC

- Biodegradable films using guar gum
- Guar gum-based films with various additives have comparable barrier, mechanical and cling properties with commercially available stretch wrap films
- The cost of the developed films is comparable with commercial polymers



Bio based and biodegradable polymer - IIT Guwahati

- Plastic produced from biopolymers such as polylactic acid
- The polymer can be used in carry bags, food packaging, food containers, 3D printing filament, technical textiles, etc.
- Pilot plant being developed in collaboration with IIT Guwahati.

Thank You



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