भारत सरकार
GOVERNMENT OF INDIA

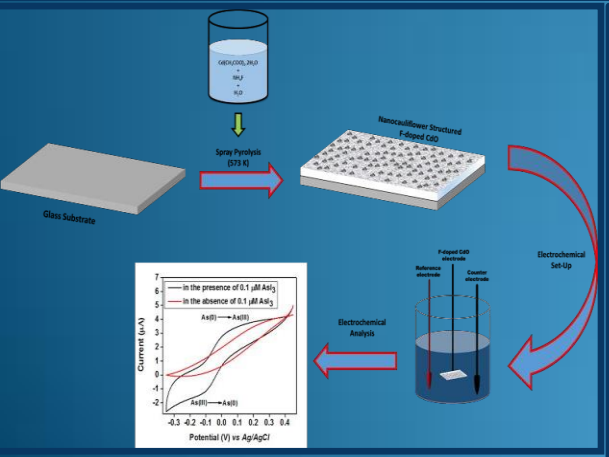
DEPARTMENT OF SCIENCE & TECHNOLOGY

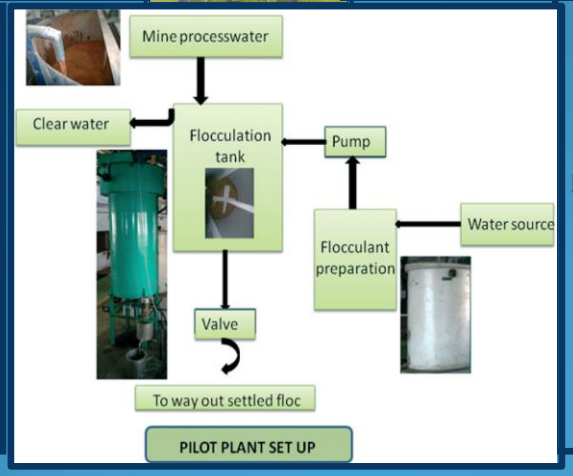
सत्यमेव जयते

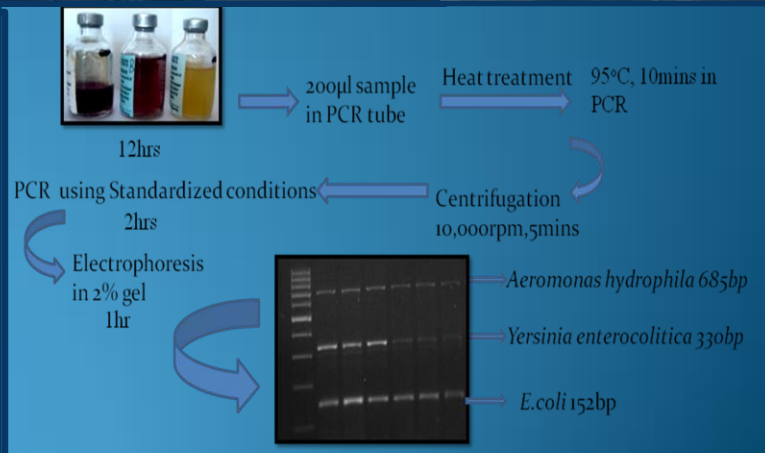
विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Platinum Jubilee 1942-2016
75 Years of
CSIR Touching Lives

Key findings from DST project on water contamination scenario and technology solution







Project title

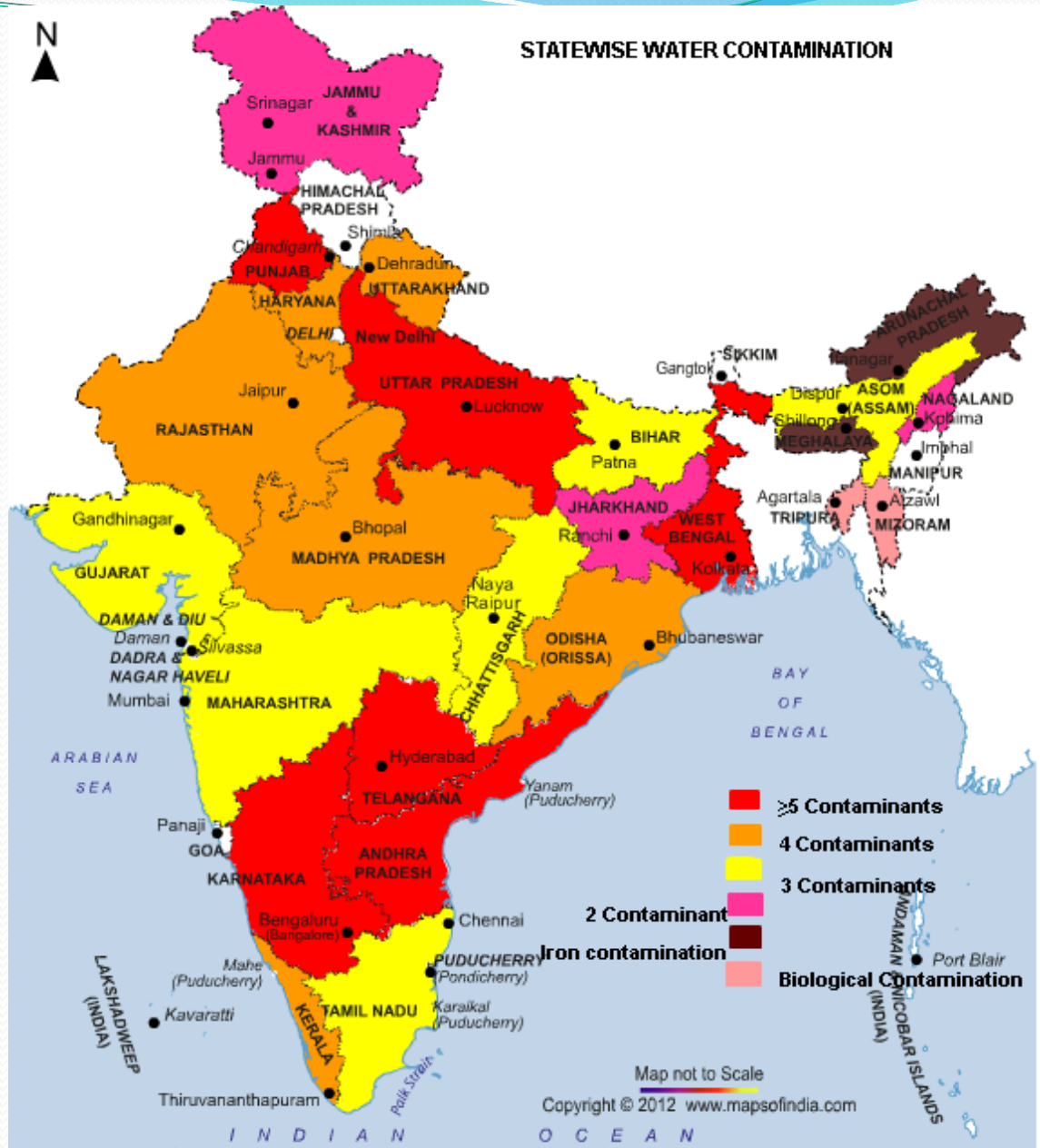
Scientometric approach to study Arsenic, Fluoride, Nitrate and other heavy metals in drinking water during the 1995-2015 period: An outlook to treatment alternatives for removal of contamination"

The objective of Project to identify research trend since the year 1995to 2015 in and technology developed .

- To understand knowledge structure both quantitatively and visually by integrating keyword analysis and social network analysis of scientific papers.
- Identify contribution and citation impact of most productive countries
- Catalogue the international and national collaboration of countries undertaken for study and Identify linkage of research interest
- Study the authorship pattern, degree of collaboration, highly productive authors in the field of study
- Identify the important stakeholder in public and private sector.
- Analysis the Risk Regulatory environment in individual sectors
- Measure innovativeness of nanotechnology in mentioned sectors through patent analysis as well as other databases.

Water contamination scenario

- 17-19 million people lack access to safe water
- 3.4 million people die every year from water, sanitation and hygiene related problems out of which 99% death occur in developing countries (UNICEF 2010)



Source: Parliament Question & NRDWP Report

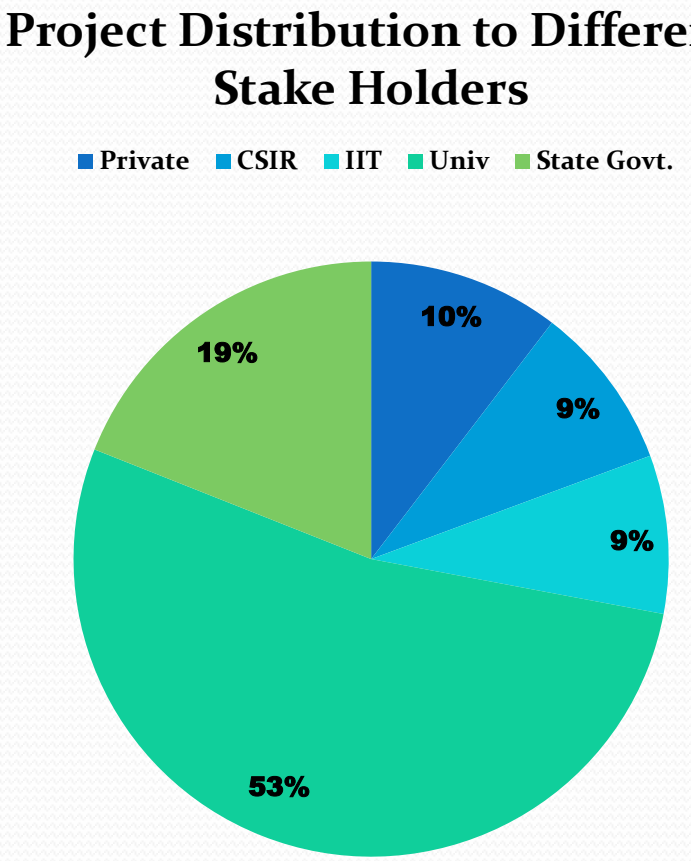
Map created using mapsofindia.com

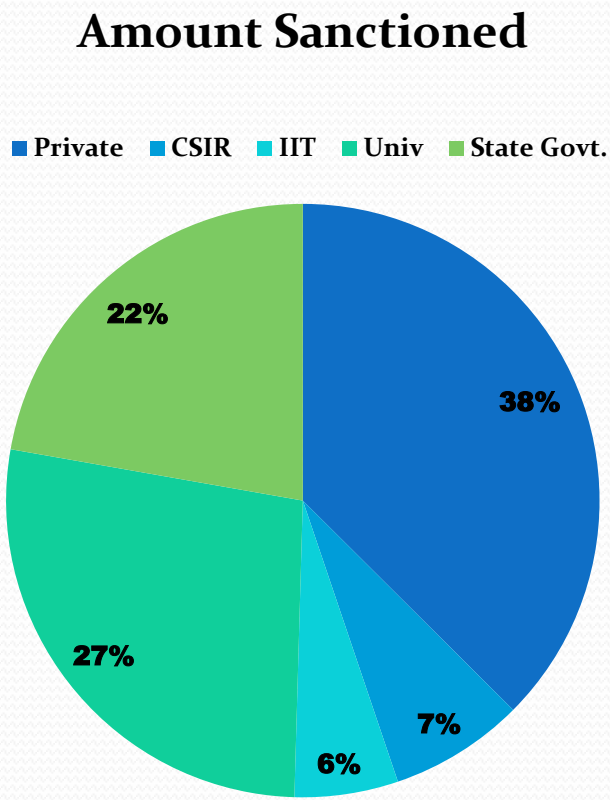
Water Initiative Call

- To promote R&D activities WTI was initiated in August 2007
- Developing synergies with national and global R&D institutions, state governments, central ministries and other stakeholders.
- The activities of WAR for Water are now integrated with Water Technology Initiative.

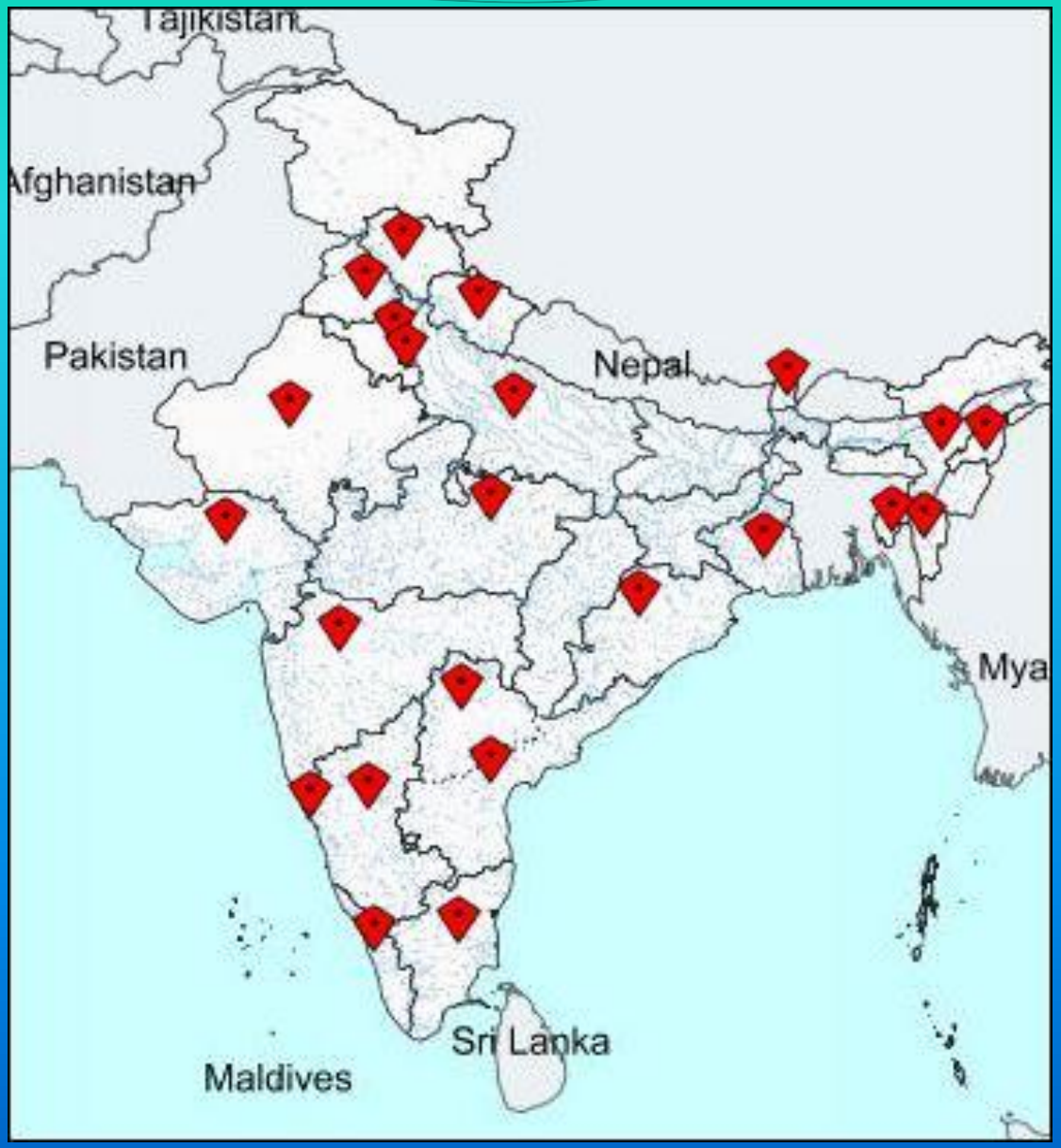
The implementation approach is a mix of the Mission implemented by DST and initiative mounted by DST.

WTI contribution

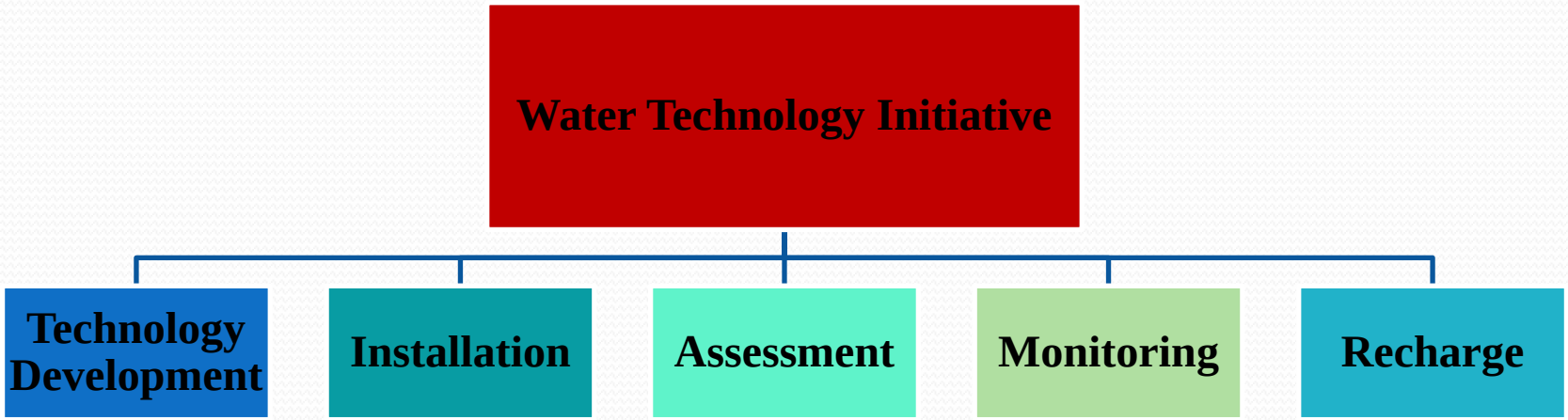




Technologies development projects sanctioned to these states



Map created using Bhuvan ; Indian Geo-Platform of ISRO


Water Technology Initiative
Technology Development
Installation
Assessment
Monitoring
Recharge

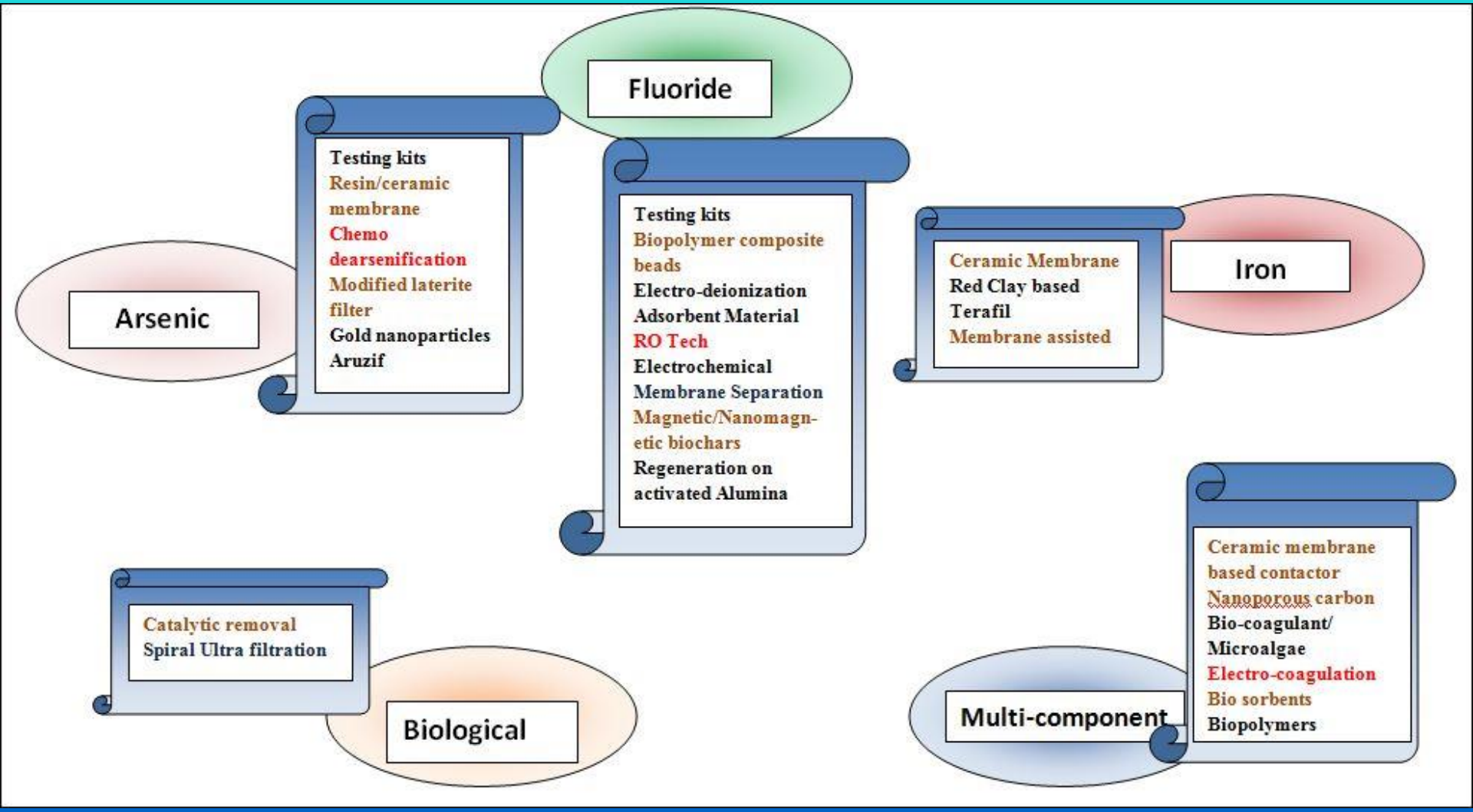
Categorization in Treatment

Categories	Number of Projects	Studies	Technologies
Arsenic	24	3	21
Chromium	4	0	4
Heavy metals	9	0	9
Recharge	20	0	20
Iron	3	1	2
Fluoride	24	1	23
Nitrate	2	0	2
Multi-component	8	0	8
Monitoring	35	3	32
Water Plant	14	2	12
Biological	11	2	9
Desalination	2	0	2
Herb/etc	7	0	7
Miscellaneous	69	10	59
	232	22	210

Problem based approach:

Problem	Definition
Arsenic	Technologies developed for the sensing the level of contamination/treatment of arsenic
Fluoride	Technologies developed for the sensing the level of contamination/treatment of fluoride
Iron	Technologies developed for the sensing the level of contamination/treatment of Iron
Biological	Technologies developed for the sensing the level of contamination/treatment of biological sources like pathogenic bacteria, viruses etc
Multi-component	Technologies developed for the sensing the level of contamination/treatment of more than one contaminant like Iron and arsenic, arsenic and heavy metals etc

WTI Technologies Brief

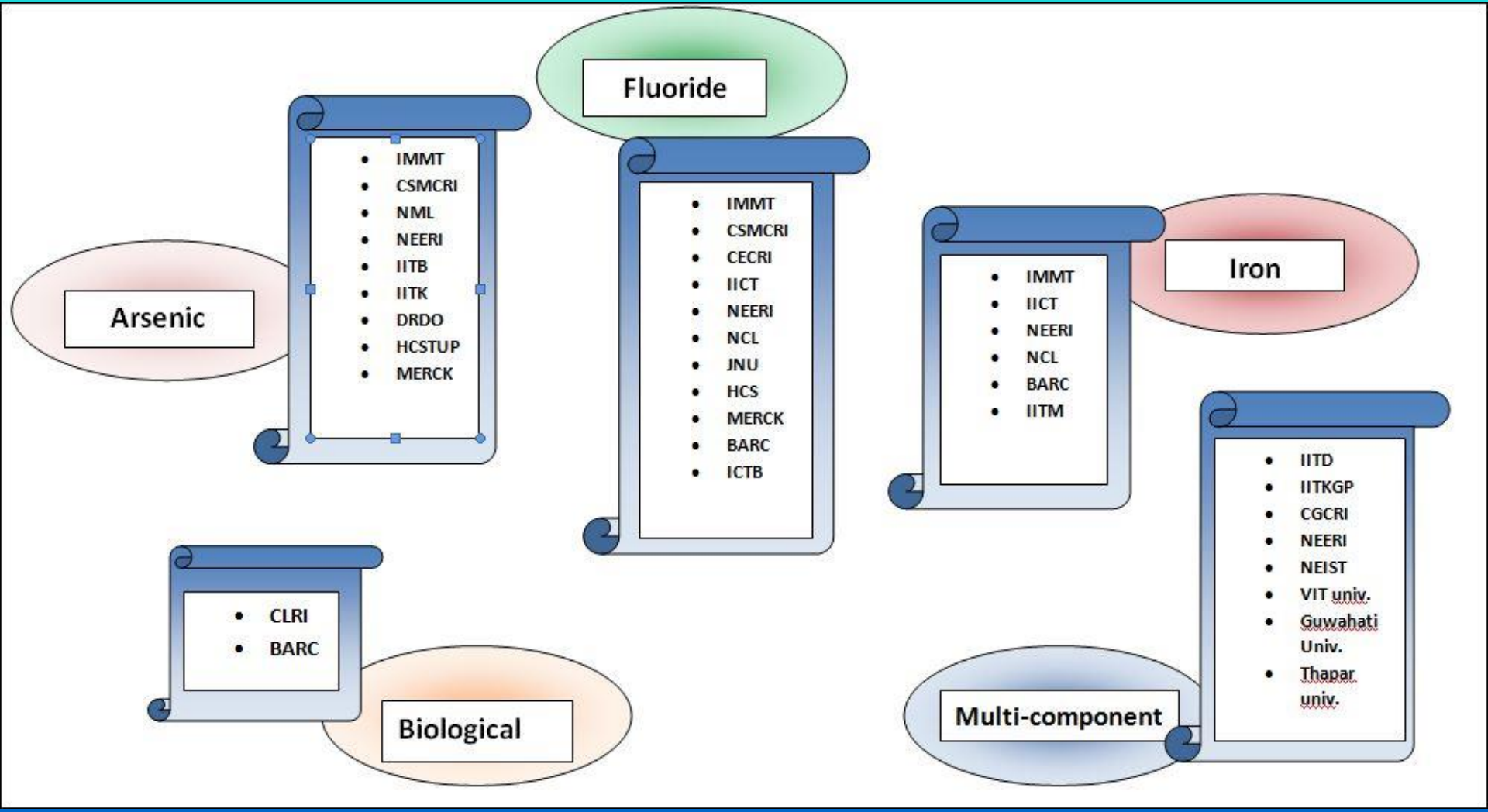


Consortia

As mentioned above Academic and R&D Institutions, Enterprises, State Government bodies such as S&T Councils, Autonomous bodies all work for advancement in drinking water technology. Keeping that in mind we have divided projects into these holding bodies:

- CSIR
- IIT
- State Government
- Private Stakeholders
- University

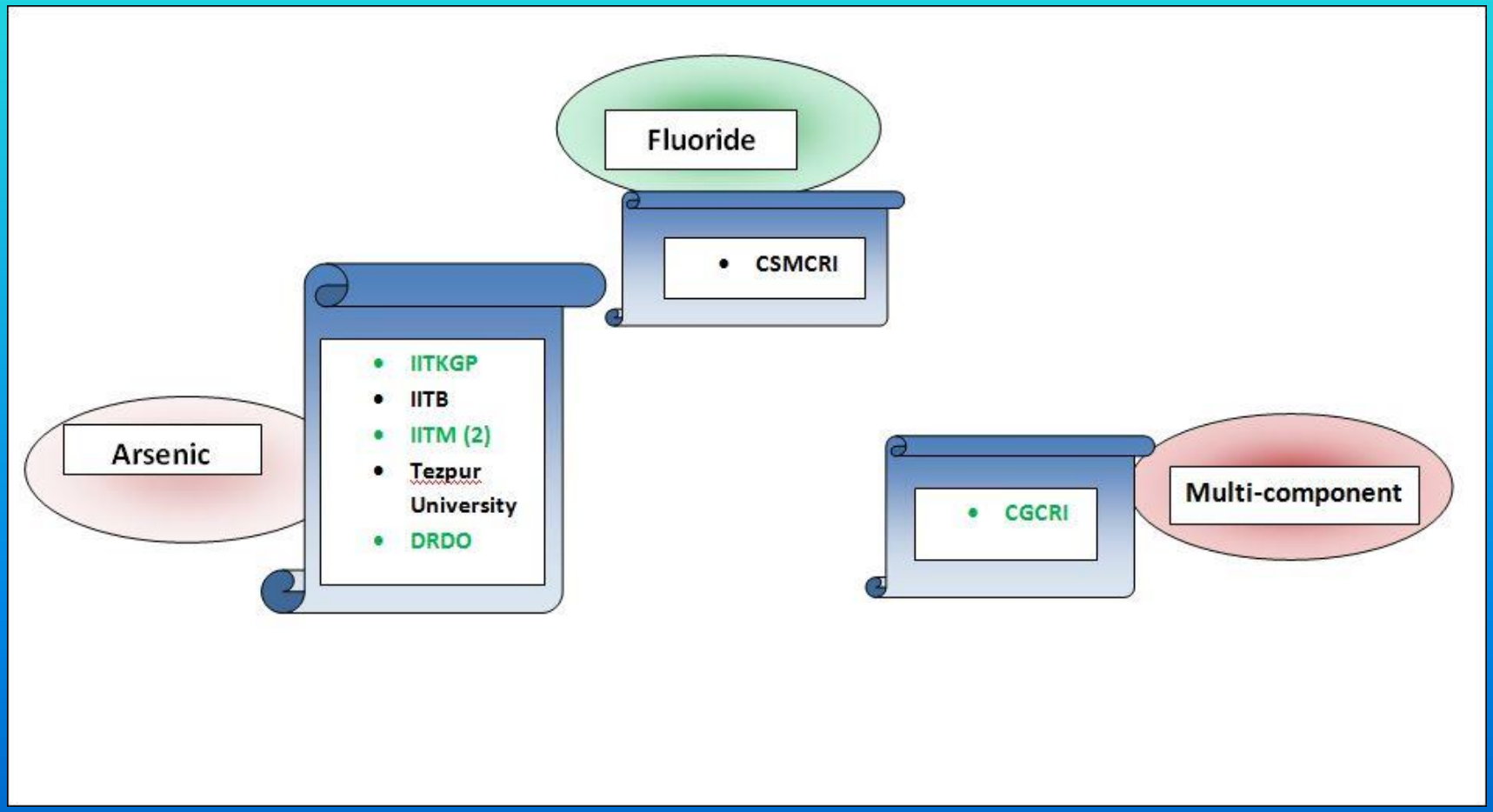
Consortia


Fluoride
IMMT
CSMCRI
CECRI
IICT
NEERI
NCL
JNU
HCS
MERCK
BARC
ICTB
Arsenic
IMMT
CSMCRI
NML
NEERI
IITB
IITK
DRDO
HCSTUP
MERCK
Iron
IMMT
IICT
NEERI
NCL
BARC
IITM
Biological
CLRI
BARC
Multi-component
IITD
IITKGP
CGCRI
NEERI
NEIST
VIT univ.
Guwahati Univ.
Thapar univ.

Field Impact

- Water Technology Initiative Programme has become fairly popular with research organizations, universities as well as companies which is evident from increase in number of applicants.
- All major innovative researchers in India are participating in the programme and the programme is very beneficial for the researchers in the field of environment sciences. This programme amply meets the requirement of country regarding the water crisis.

Patents


Fluoride
CSMCRI
Arsenic
IITKGP
IITB
IITM (2)
Tezpur University
DRDO
Multi-component
CGCRI

Thanks