



# Polybrominated Diphenyl Ethers(PBDEs) in Plastics

Dr. Chen Yuan , Prof. Li Jinhui

Basel Convention Regional Centre for Asia and the Pacific  
Stockholm Convention Regional Centre for Capacity-building and  
the Transfer of Technology in Asia and the Pacific (BCRC China)



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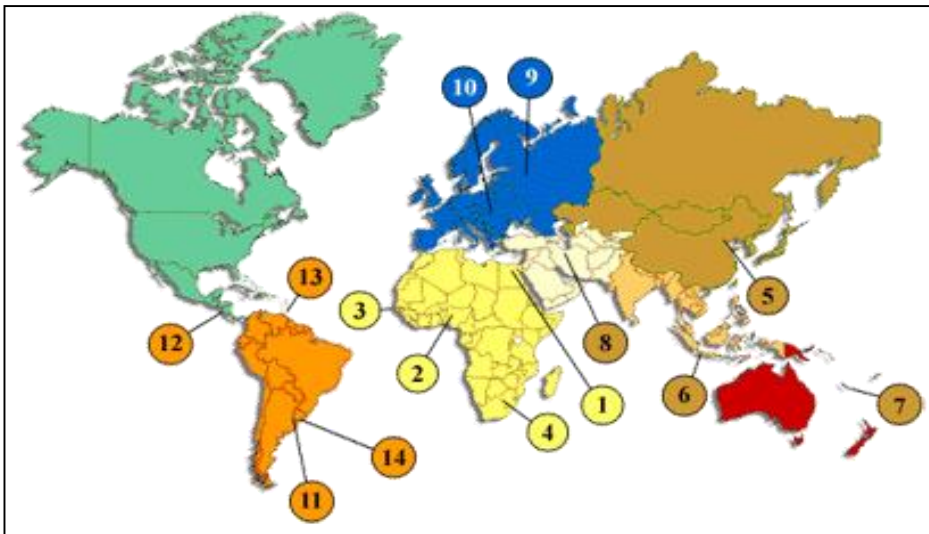
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# Basel/Stockholm Convention Regional Centre for Asia and the Pacific

Article 14 of Basel Convention: The Parties agree that, according to the specific needs of different regions and subregions, regional or sub-regional centres for training and technology transfers regarding the management of hazardous wastes and other wastes and the minimization of their generation should be established.

Article 12 of Stockholm convention : That parties shall provide...The performance...Arrangements, including capacity-building and technology transfer centres at the regional and sub-regional levels, to assist developing country and economies in transition parties to implement their obligations under the convention



4 of the 14 Basel Convention Regional Centers are in the Asia-Pacific region

5 of the 16 Stockholm convention regional centers are in in the Asia-Pacific region

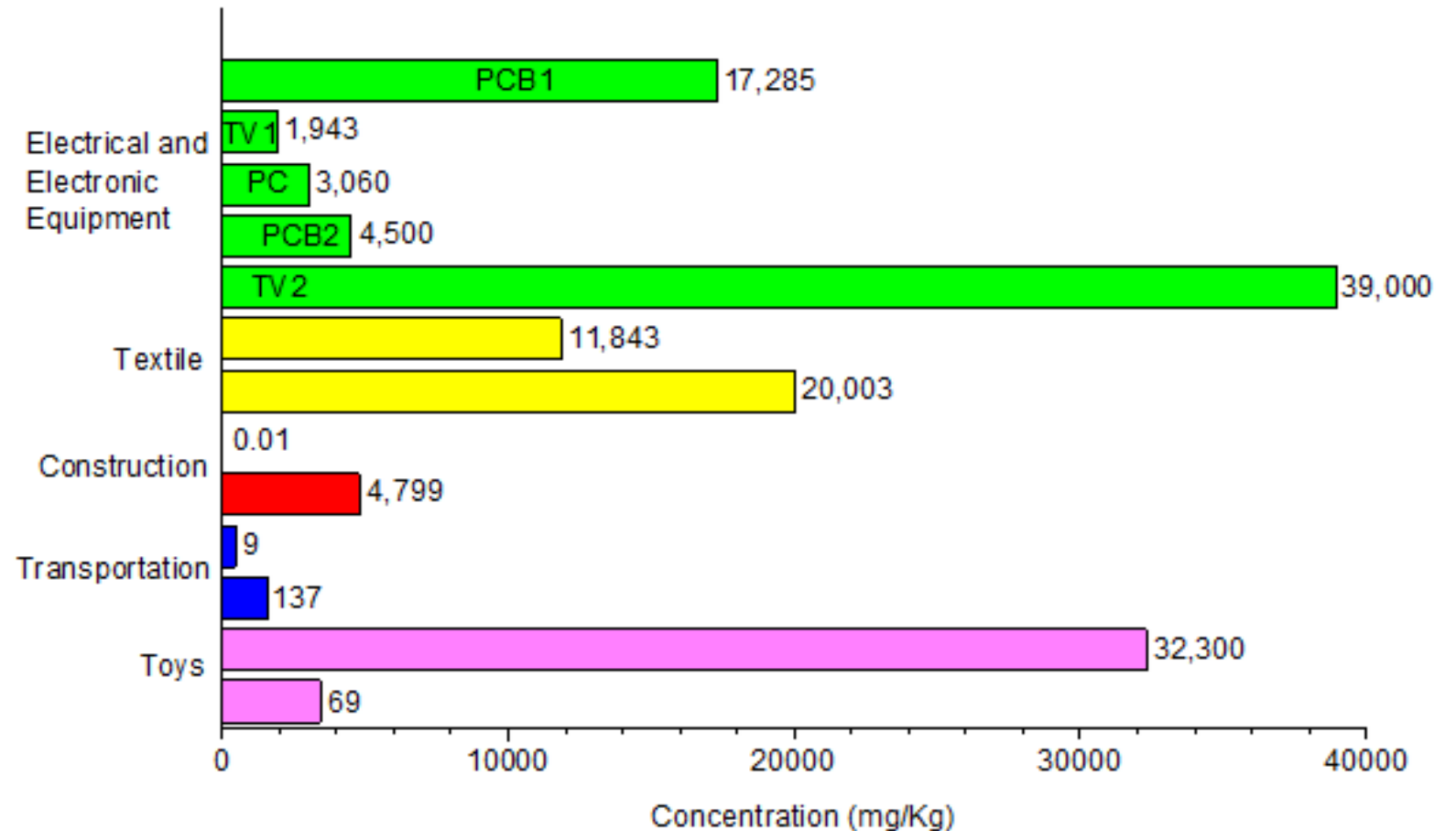
There were comprehensive assessments of the performance and sustainability of the 14 BCRCs and 16 SCRCs worldwide in the COPs in 2015 and 2019. BCRC China has scored a full mark of 100 on both assessments. It is the only one in the world with the highest evaluation score.

# Production & application of PBDEs

PBDEs have been used since 1970s, and countries of production are:

1. C-PentaBDE was produced mainly in Israel, Japan, the United States, the European Union and China([UNEP 2010a](#)).
2. C-OctaBDE was produced in the Netherlands, France, the United States, Japan, the United Kingdom and Israel.
3. The production of c-DecaBDE was estimated at over 1.1 million tonnes until 2005. Since 2005, the production of DecaBDE has been about 100,000 tons in the world.

The mean concentration of PBDEs in different articles

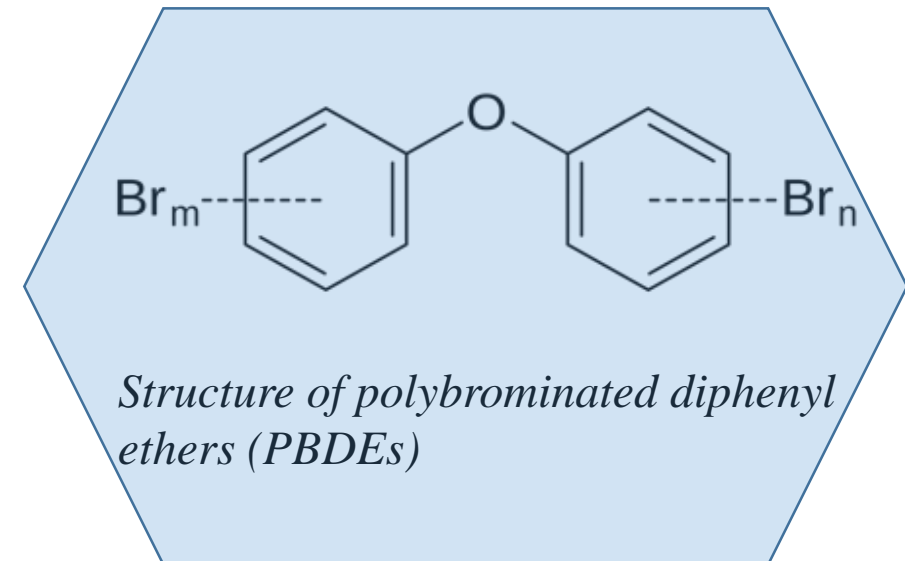
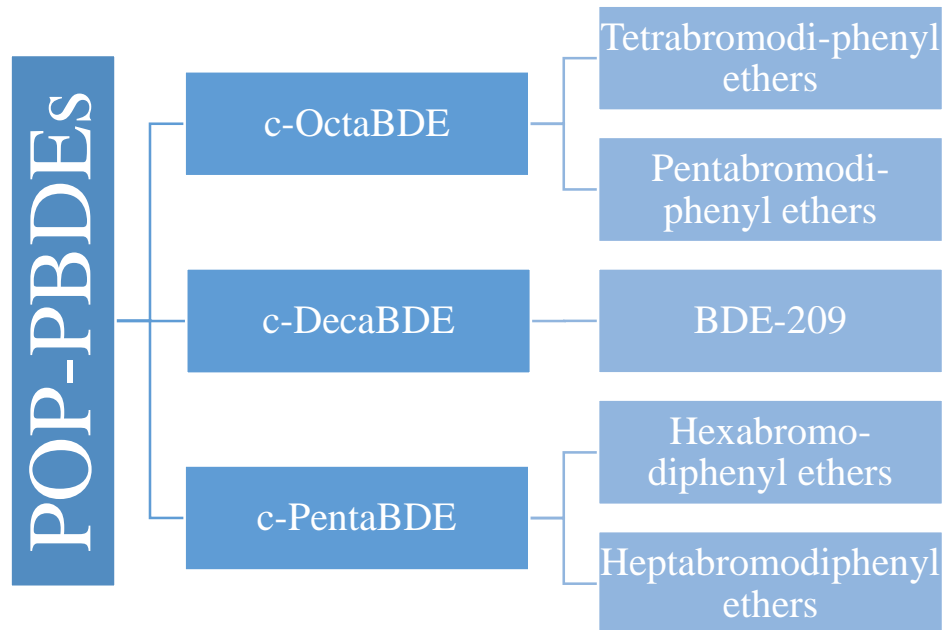


PBDEs have been detected in electrical and electronic equipment, textiles, automotive interior materials, building materials, and children's toys.

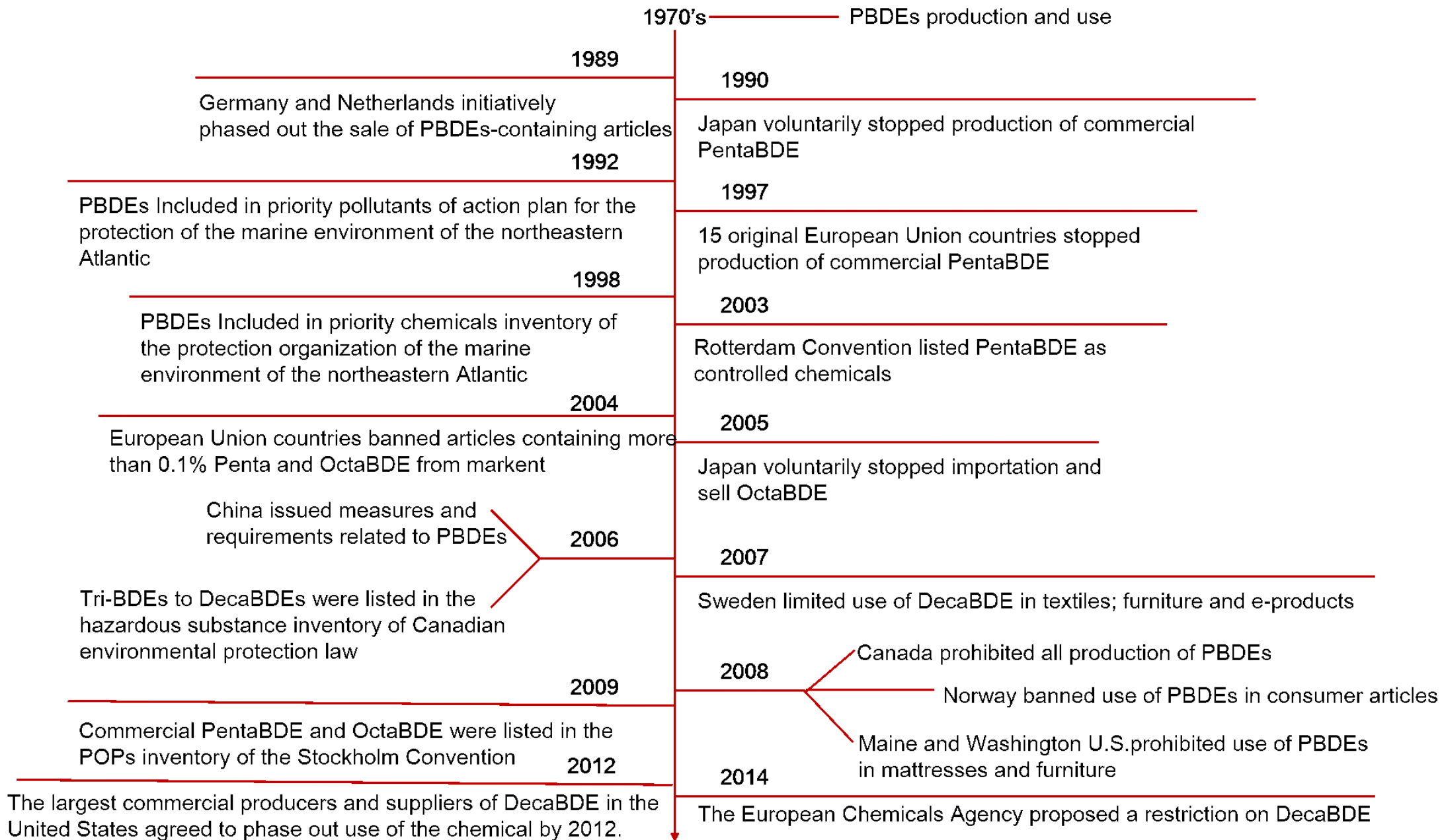
# PBDEs under the Stockholm Convention

In May 2009, the Stockholm Convention on Persistent Organic Pollutants (POPs) was amended by the Conference of the Parties (COP) to the Convention to include several polybrominated diphenyl ethers (PBDEs) in its **Annex A**:

- Hexabromodiphenyl ether and heptabromodiphenyl ether
- Tetrabromodiphenyl ether and pentabromodiphenyl ether
- From 24 April to 5 May 2017, taking note of the recommendation by the Persistent Organic Pollutants Review Committee that decabromodiphenyl ether (BDE-209) of c-decaBDE be listed in Annex A to the Convention .



# PBDE management in the world



# BCRC China work on PBDEs



Pakistan

On 17 February, 2016

- Feasibility study on separation of PBDEs containing waste from the general waste stream.
- Generate awareness on PBDEs management
- Establish an information platform on PBDEs management and operational activities



Sri Lanka

On 27 November 2015



Cambodia

On 16 December, 2015

China Trust fund project “Capacity-Building for Environmentally Sound Management (ESM) of Polybrominated Diphenyl Ethers (PBDEs) and Their Waste in Selected Asia-Pacific Countries”

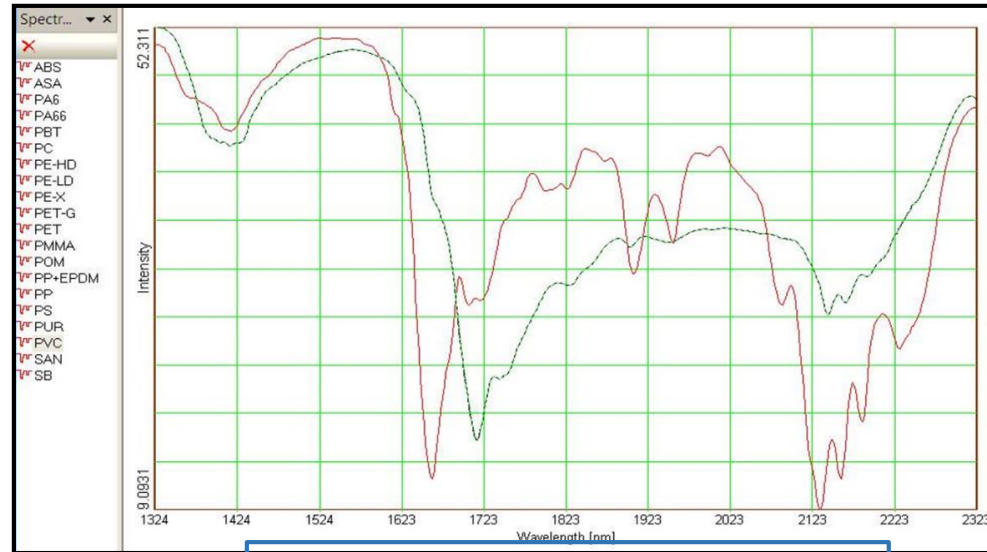


Establish a new window on PBDEs management and operational activities.

# Technologies on PBDEs containing plastic sorting

- Dry method
  - light separation;
  - electrostatic separation;
  - wind power separation.

- Wet method
  - density separation;
  - sink and float separation.



Near infrared (NIR) technology

Not suitable for black plastic polymers. For the flame retardant plastic sorting, only some parameters need to be set up, then the device will automatically separate the plastic.



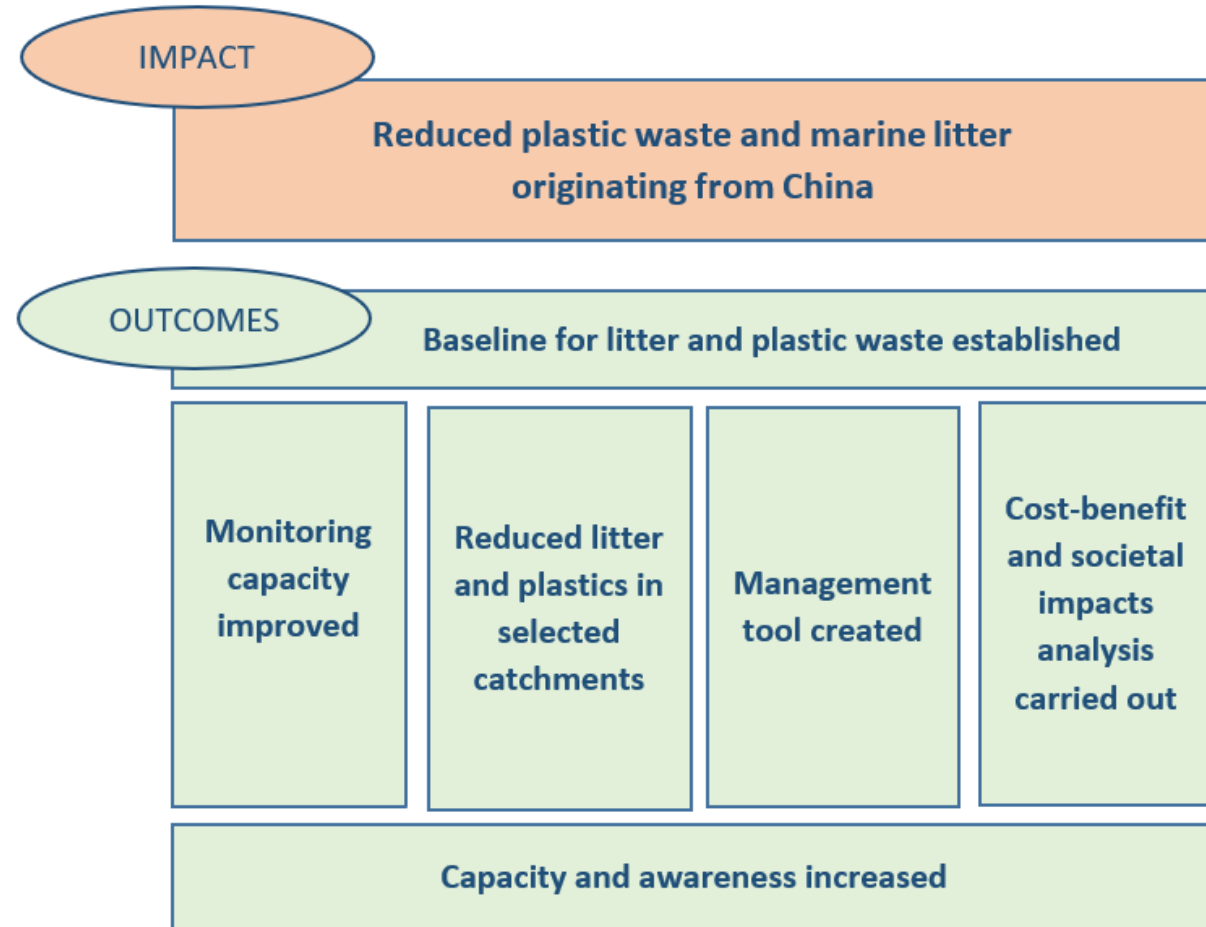
According to different densities of polymers, using liquid media with appropriate densities can separate.



Experienced workers observe the appearance of the plastic characteristics to distinguish whether plastic containing flame retardant by touch, eyes view



# Sino-Norwegian cooperation project on capacity building for reducing plastic and microplastic pollution



## Partners:

### Norway side:

- Norwegian Environment Agency (NEA)
- Norwegian Institute for Water Research (NIVA)

### China side:

- MEE (**Applicant**)
- Basel Convention Regional Centre for Asia and the Pacific (BCRC China) (**Executing unit**)
- Solid Waste and Chemical Management Center (SCC MEE)
- National Maritime Environmental Monitoring Centre (NMEMC MEE)
- State Key Laboratory of Estuarine and Coastal Studies of East China Normal University

• **Timeline:** 3.5 years,  
NOK

**Budget requested from Norway:** 26 mill



# THANK YOU !

联合国环境署巴塞尔公约亚太区域中心

Basel Convention Regional Centre for Asia and the Pacific

斯德哥尔摩公约亚太地区能力建设与技术转让中心

Stockholm Convention Regional Centre for Capacity-building and the  
Transfer of Technology in Asia and the Pacific

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地址：清华大学环境学院

Address: School of environment, Tsinghua University

Tel: +86 10 62794351

Fax: +86 10 62772048

Website: <http://ch.bcrc.cn/>

Email: [zhaonana@tsinghua.edu.cn](mailto:zhaonana@tsinghua.edu.cn), [bccc@tsinghua.edu.cn](mailto:bccc@tsinghua.edu.cn)

微信：BCRC-China



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