



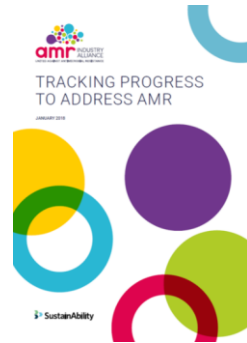
Sustainable Antibiotics Production

Frans Vlaar
Vice President, DSM Sinochem Pharmaceuticals

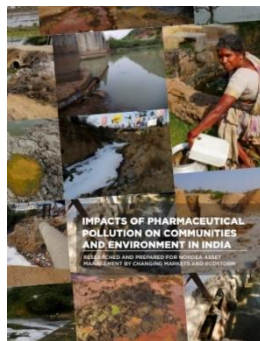
Stakeholder Pressure on Industry to Act



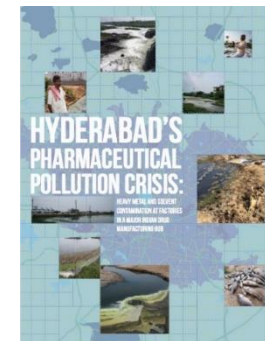
Manufacturing workstream most active with tangible progress on “Common framework for managing antibiotic discharge”



Tracks how pharmaceutical companies respond to the increase in drug resistance



Global investors such as **Nordea** and **BNP Paribas** have raised concerns about potential damage to global health and environment due to uncontrolled antibiotic discharges in India’s pharmaceutical hubs



SINOCEM



DSM

DSM Sinochem Pharmaceuticals

The AMR Industry Alliance creates Common Antibiotic Discharge Framework

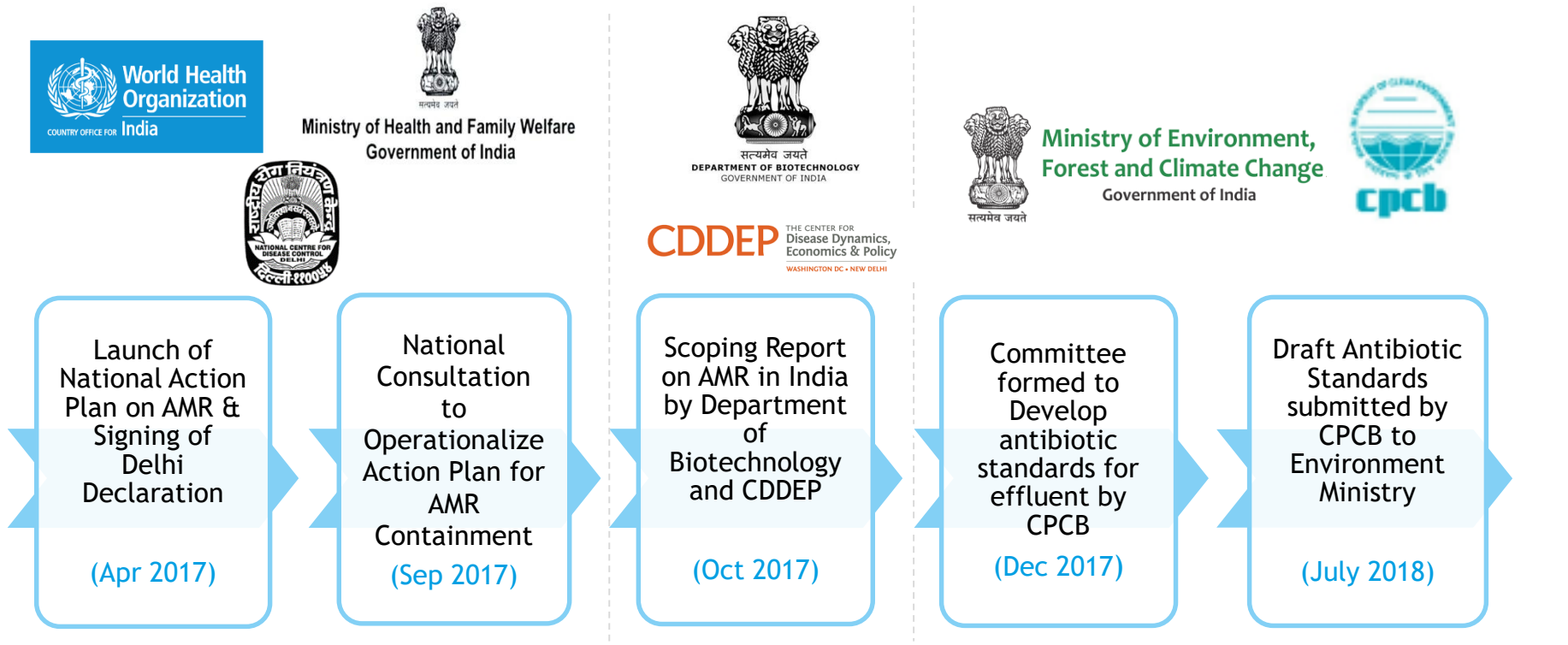


One of the largest private sector coalitions set up to provide sustainable solutions to curb AMR, with over 100 companies joining forces.

- The Framework provides a **methodology and set of minimum requirements** needed to conduct a site risk evaluation in our supply chains. It includes:
 - minimum expectations related to abiding by local laws
 - water management
 - solid waste management
 - audits.
- Emission limits are currently under development. Reliant on the evolving science as a means to arriving at a consistent methodology for these limits by 2020.



Environmental Aspects of AMR: Developments in India



Responsible Antibiotics Manufacturing

Our obligation to demand responsibly/responsible behavior throughout the value chain



Use the **best technology available** with the lowest environmental impact throughout the supply chain.



Operate dedicated **wastewater treatment plants 24/7/365** at every antibiotics manufacturing site.



Apply **antimicrobial activity testing** to ensure the disposed water is clean.

