Status Quo of Knowledge on Emerging Contaminants in SA

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Background

- WRC instituted at Short-Term research project:
- Collect information on the Status Quo of research on POPs and emerging contaminants
- Stakeholder Engagement
  - Who: research institutions and government agencies
  - What: data, analytical capacity and methods





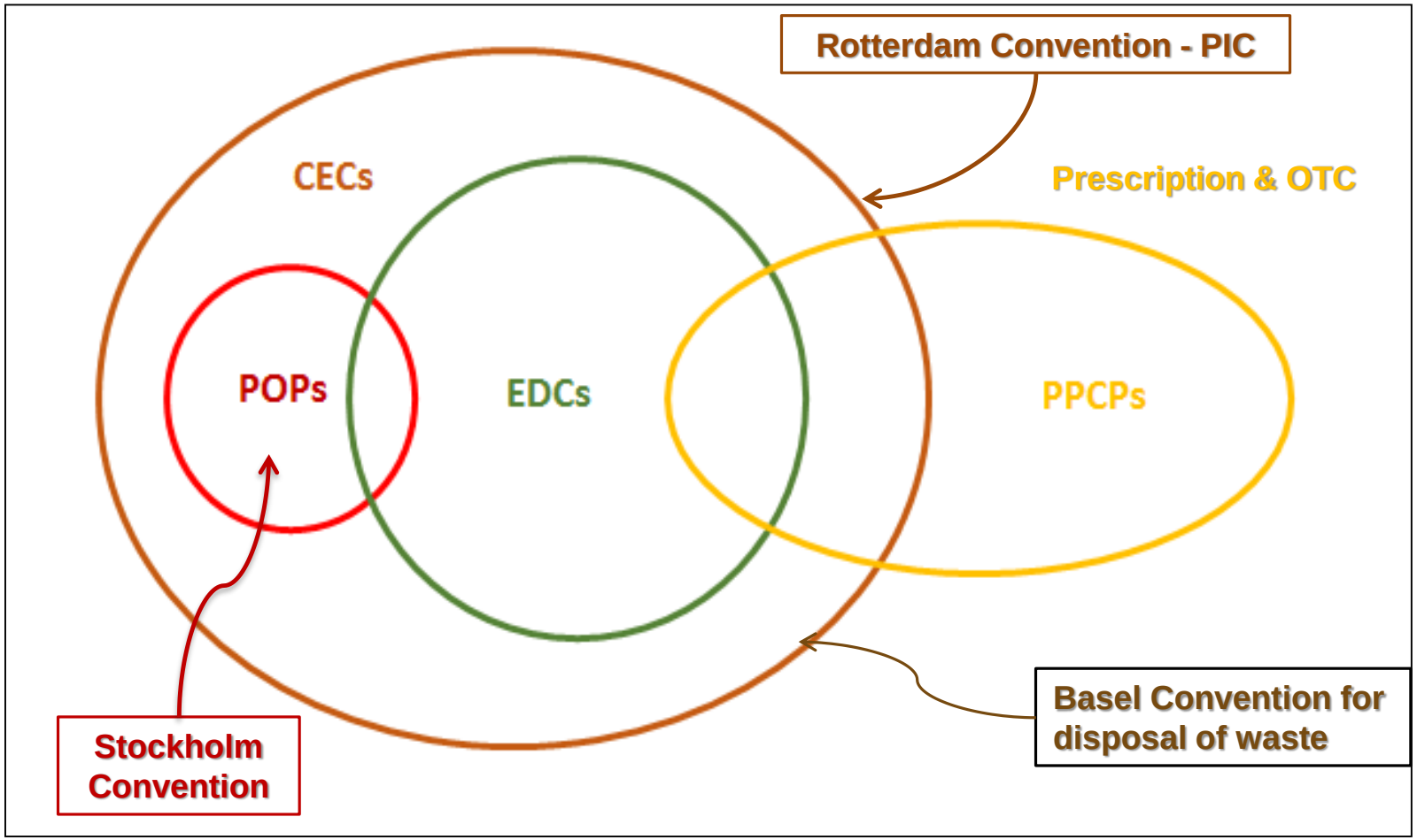
Background

- Develop a Concept Note for the July 22nd Workshop:
  - To address gaps in research on treatment and removal efficiencies,
  - Method development and standardisation,
  - Regulatory monitoring recommendations, and
  - Recommendations on policy development.

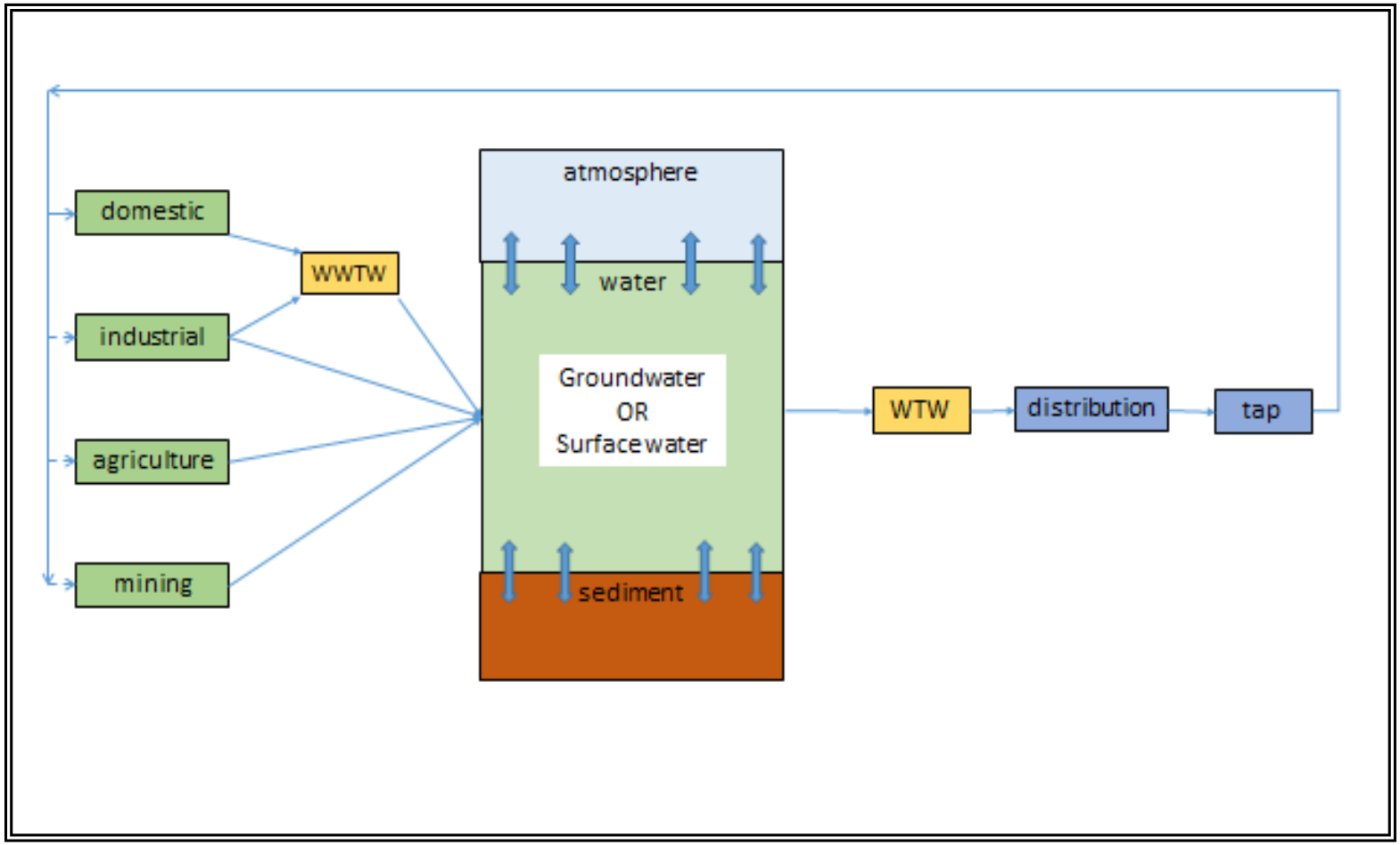




Scope: What


Rotterdam Convention - PIC
CECs
Prescription & OTC
POPs
EDCs
PPCPs
Stockholm Convention
Basel Convention for disposal of waste

The Scope: Where



Regulatory Framework

- Regulated by the **Stockholm Convention**
- 23 listed contaminants
- Focus on monitoring and regulation NOT research as these chemicals are well known and characterised.
  - **Annex A** - elimination (6 pesticides listed , 5 are banned in SA, no info on pentachlorobenzene)
  - **Annex B** – restriction (DDT , PFOS)
  - **Annex C** – unintentional by products (PCB)
- DDT is still used in some areas in SA but needs to be phased out by 2025 (10 years)
- PFOS found in biota (fish) at ↑ concentrations (Bouwman)





Regulatory Framework

- **Rotterdam Convention** –
  - Shared responsibility and cooperative trade of hazardous chemicals to protect human and environmental health
  - Facilitating information exchange
  - Obligations for PIC (Prior Informed Consent)
- **Basel Convention** -
  - Reduction and regulation of hazardous waste generation
  - Promotion of sound management of hazardous waste
  - Restricts trans boundary movement of hazardous waste





National Monitoring

- National Toxicity Monitoring Program (NTMP)
- National Chemical Monitoring Program (NCMP)
- National Microbiological Monitoring Program (NMMP)
- National Eutrophic Monitoring Program (NEMP)
- South African River Health Program – biological indicators
- Blue Drop /SANS 241 – organics -TOC Microcystin
- Green Drop /Water Use Licences – some specify toxicological tests





NTMP

- National Toxicity Monitoring Program (NTMP) initiated in 2002 to 2008 for implementation
- Currently monitors “hotspots”
- Interim Guidelines (NTMP 2008)
  - All Class IV - ↑probability of high level acute hazardous effect
  - Acute toxic hazard potential - low
  - Heavy metals - As,B,Cu,Ni and Fe levels ↑ Acute Effect Values
  - Organic pollutants - present but lower than guideline values





EC: Prioritization

- TEDX -The Endocrine Disruptor Exchange List: 14 classes of compounds
- EU - “Towards the establishment of a priority list of substances for further evaluation of their role in endocrine disruption”.
- SIN – Substitute It Now -406 compounds
- HSDB - Hazardous Substances Data Bank (5756 compounds) and Household Product (14 000) Data Base US Dept. of Health and Human Services
- IRIS – Integrated Risk Information System - 550 compounds (USEPA)
- EDSP -Endocrine Disruptor Screening Programme USEPA
  - Chemical Universe list
  - Tier 1 Screening *in vitro* and *in vivo* assays
  - Tier 2 Still to be decided
- Country specific lists





WRC Effort

- There is a sustained research effort at the WRC
  - Research institutions with a core body of well-informed professionals have been established and retained.
  - Exploratory research.
  - Follow up projects halted due to limited funding allocation.
- The WRC through this study, instituted a focus on EC to:
  - Develop a COP and collaboration within the DWS and other departments;
  - Pull resources and maximise effort and products
- There was a call made:
  - Analytical methods: testing, standardization
  - Monitoring and EWS
  - Hotspots
  - Risk Assessment





Catchment Philosophy

- What is the inflow and fate of chemicals in the catchment?
  - Input directed versus resource directed - inputs and the water source
- Catchment monitoring:
  - Coincide with national programme;
  - Data sharing (catchment, departments, regional level);
  - Skills subsidy; and
  - Resource sharing/ optimization.





Session 1.Priority list of Emerging Contaminants

- How to prioritise CECs and on what basis?
- Development of a list or several?
- Guidelines for sampling, testing and monitoring of CECs?
- What about new contaminants?
- Regulatory and legislative frameworks
- Reporting for Stockholm Convention and driving the National Implementation Plan- Links





Session 2: Prediction, monitoring, treatment and handling of waste

- Techniques/ process selection on removal of contaminants in drinking water and wastewater treatment processes.
- Guidelines on monitoring and testing wastewater effluents (toxicity/ WET/ screening for CECs)
- Data collection, handling, accuracy before/ and sharing between owners?
- How to predict concentrations in wastewater?
- How to easily monitor/ measure?
- What shall we monitor in wastewater and how often?
- What shall we focus on in terms of research?





Session 3: Risk assessment and communication

- How do we co-ordinate all our research and monitoring programmes to obtain the maximum use of the data?
- Centralised National Laboratory service options – how do we co-ordinate this to allow for sufficient sample numbers (volume) to make it a viable option?
- Consider setting up a Technical Forum to assist DEAT, DoH DWS etc. to roll out the NIP, direct research and provide communication strategies to the public and government.
- National Database of all research – options on how to implement this.
- What happens when the risks are elevated according to our lists?





Results

- Through Stakeholder engagement:
  - Community of Practice
    - Multi-stakeholder to share information (MCCM)
  - Catchment Monitoring
    - Water divide;
    - Government divide (local/ district);
    - Environmental divide (water/ air/ soil)
  - Analytical capability;
  - Need for regulation and enforcement; and
  - Public awareness;





THANK YOU