Sustainability With End-of-Life Industrial Plastics: A Case Study

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Problem:

SABRN

>8 million tons of plastic reaches the ocean every year

Medical, Fisheries, Aquaculture, Agriculture, Tourism, Fashion …

Only 20 companies responsible for >50% of global plastic waste

Planetary Health Crisis:

SABRN

Pollution is directly related to 1:6 deaths globally

>90% of all deaths from pollution are in low-medium income countries

Pollution and biodiversity loss intrinsically linked and integral to health crisis

Health Burden:

sustainability

MDPI

Review

Microplastics and Nanoplastics as Environmental Contaminants of Emerging Concern: Potential Hazards for Human Health

Rita Khanna [1,*], Abhilash Chandra [2,3], Shaundeep Sen [4,5], Yuri Konyukhov [6], Erick Fuentes [7], Igor Burmistrov [8] and Maksim Kravchenko [9]

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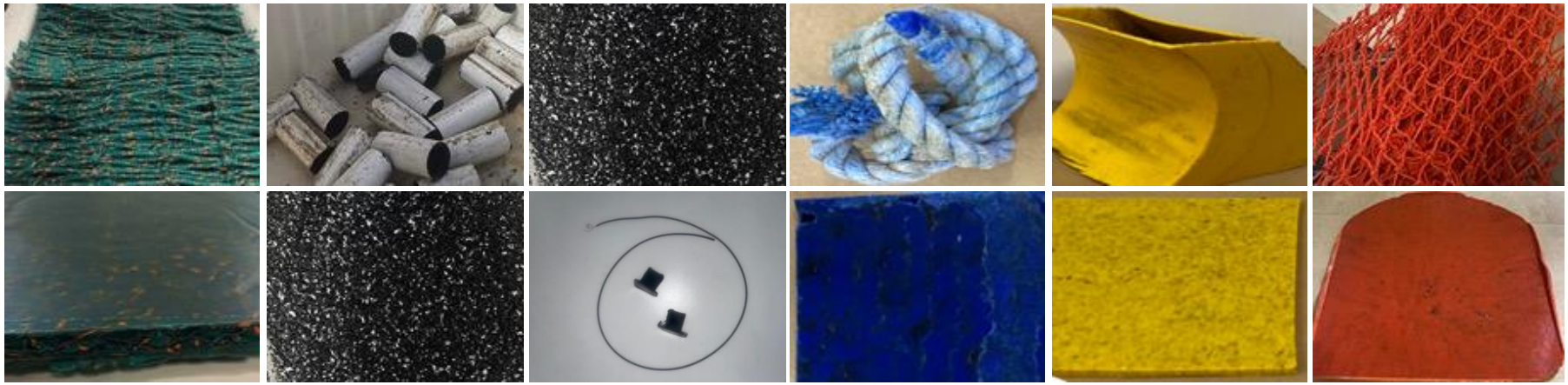
creasing momentum [206,207]. EU rules on single-use plastic products aim to reduce/prevent the impact of various plastic products on human health and the environment, especially the marine environment. Plastic pollution poses the greatest public health hazard faced by humanity. Global efforts are required to limit the plastic waste generated to the extent possible and extent associated with environmental damage.

Case Study – Port Lincoln:

Value Proposition: SABRN Circular can convert end-of-life plastic materials into products of value (environmental-social-economical) for regional communities with its scalable co-located upstream and downstream manufacturing capability



SABRN Circular Model:

- De-centralised system (avoids environmental and economic costs of transport)
- Co-located upstream and downstream manufacturing
- Establishes Sovereign Manufacturing Capabilities at multiple regions
- Multidimensional impact
- Environment, Social, Economic
- Employment of most socially disadvantaged people
- Indigenous, refugees, disabled, displaced, incarcerated, victims of abuse
- Empowers the community to deal with end-of-life materials
- Significant increase in community engagement with greater purpose
- Scalable to other regional centers in South Australia and Australia

End-of-Life Industrial Plastics:

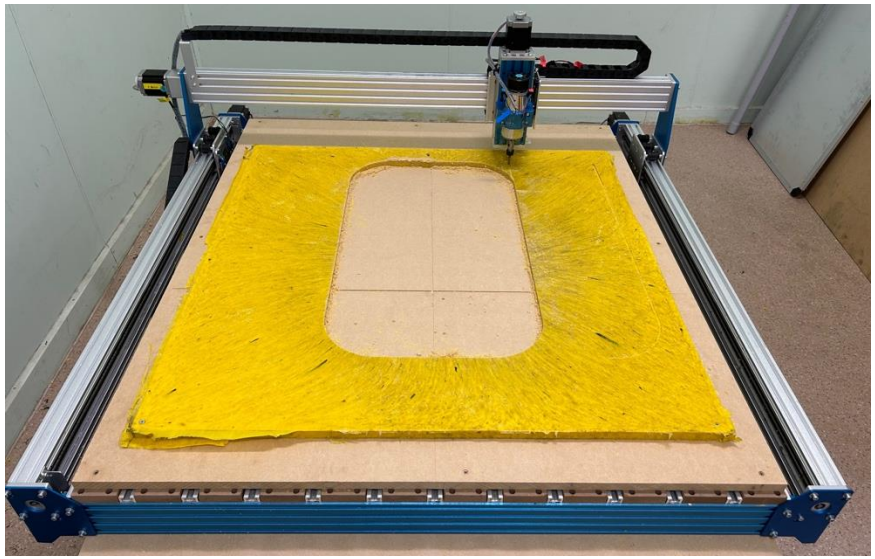
SABRN

Infrastructure:

Upstream Equipment:

Intermediate (Granules):

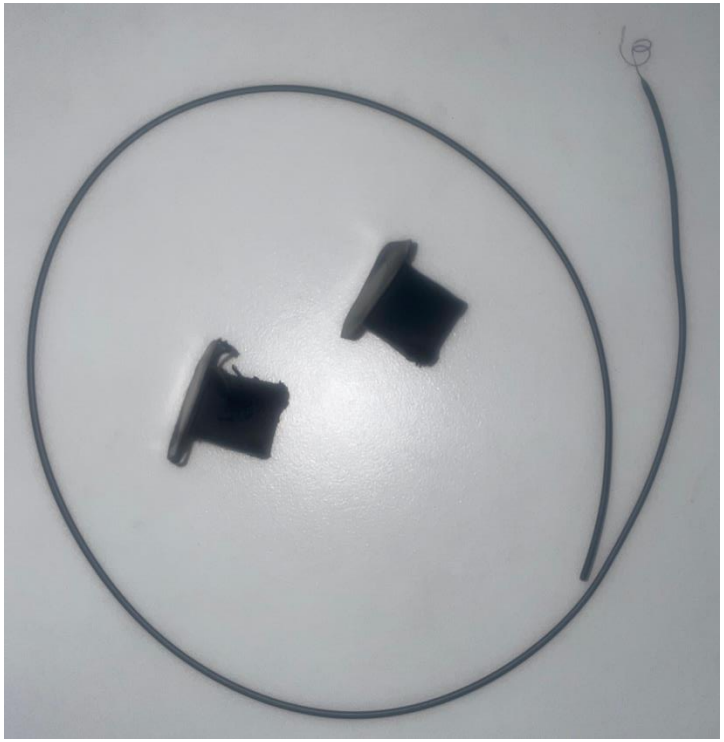
Downstream Equipment:

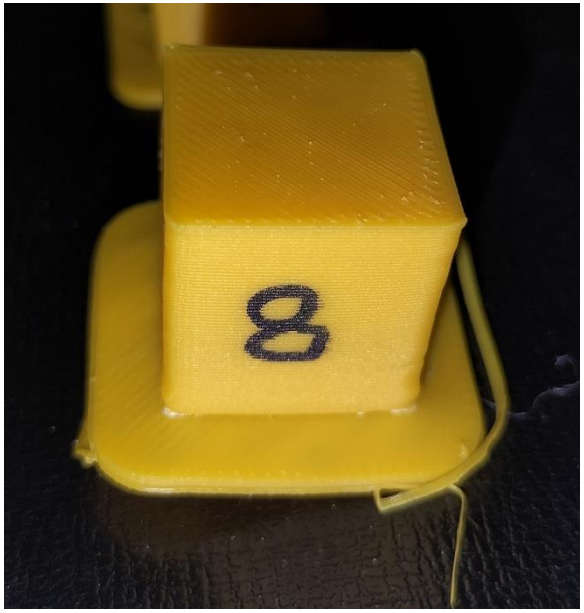


Downstream Products (1):

Downstream Products (2 & 3):

Downstream Products (4):





Benefits:

- Environmental
- Economic
- Social
- New technology sector
- Reduced 'brain drain'
- New jobs
- Increased creativity
- Autonomy in decision making for communities re: climate change impact

Accolades:

2022 SA ENVIRONMENT AWARDS

Conservation Council SA

https://www.saenvironmentawards.org.au/winners2022

Hurdles:

- Increased rent
- Electricity & water being siphoned from neighbour's property

- Terminated lease
- Equipment in storage

Future:

- 2026 COP 31 – bid by Adelaide
- Options
  - Brick-and-mortar vs containerised
  - Energy resilience → Solar, wind, ?nuclear?
  - Water resilience → ?Sea water
  - Commercialisation strategy
  - Other end-of-life plastic streams (medical, construction etc)

Summary

- Case study = possible to have co-located upstream and downstream re-manufacturing centers for end-of-life marine-based plastics to have positive environmental, economic, & social impacts