

MEETING MINUTES

MABR Roundtable Gathering Volume 23
Friday December 2nd, 2022 from 09:00am to 11:30am
Location: Online – Zoom (*weather related cancellation at initial proposed location, Mosaic Forest Management – 201-648 Terminal Ave, Nanaimo, BC V9R 5E2, Canada*)



Attendees (14)

Anne Skipsey, Town of Qualicum Beach, Councillor
Ceri Peacey, Community Representative
Geraldine Manson, Snuneymuxw First Nation, Elder-in-Residence
Graham Sakaki, MABRRI, Regional Research Institute Manager
Jenica Ng-Cornish, MABRRI, Assistant Manager of Projects
Jenni Keppler, Visiting graduate research student with MABRRI
Kim Burden, Parksville & District Chamber of Commerce, E.D.
Lehann Wallace, Regional District of Nanaimo, Electoral Area G Director
Mandy Hobkirk, MABR Coordinator
Pam Jorgenson, Mosaic Forest Management, Land Use Forester
Shawn Lukas, West Coast Conservation Land Management
Steve Adams, Mosaic Forest Management, Resource Technologist
Sylvia Martin, City of Parksville, Councillor
Alanna Vivani, MABRRI, Project Coordinator

Regrets (3)

Michael Recalma, Qualicum First Nation, Chief
Blain Sepos, Parksville & Qualicum Beach Tourism Association, E.D.
Jennah Stavroff, Community Representative

Objectives

The main objectives of this Roundtable gathering are for participants to:

1. Continue to engage in respectful and meaningful dialogue with one another.
2. Hear from one another about regional/organizational/community updates.
3. Discuss past, present, and future events for the MABR/RI.
4. Re-visit MABRRI's Strategic Research Plan (2022 – 2025).

Welcome & Opening Prayer

- Round of introductions and welcome to new members and guests.
- Graham shared regrets from Chief Michael Recalma, Blain Sepos, and Jennah Stavroff
- Graham reviewed the *Culture of Engagement*
- Geraldine Manson

Agenda Adoption

- Graham reviewed previous agenda items needing attention:
 - Update guiding principles for collaborating with First Nations – to be added to next meeting’s agenda for further discussion.
 - Lehann made aware the reason behind the discussion from the last meeting was to ensure the conversation around this topic is to be had when all First Nation Partners are available.
 - Presentation to the Regional District of Nanaimo – new board now in place
 - Lehann confirmed a delegation to the new board would be ideal. Providing a summary of all the work that has happened and what the upcoming years may look like.
- Agenda adopted.

MABR Updates

TRANSECTS MABR TILL 2024 – Graham

- Funding awarded by Social Sciences and Humanities Research Council (SSHRC) of Canada for a 7-year project consisting of an international team of researchers and partners from Canada, Germany, and South Africa.
- Our team is made up of academics from the three countries who work with Biosphere Reserves around each of the university partners.
 - Canada: University of Saskatchewan and Vancouver Island University
 - Germany: Eberswalde University for Sustainable Development and Leuphana University
 - South Africa: Rhodes University and University of Cape Town
 - Other partners include Indigenous organizations, educational and professional organizations from each of the 3 partner countries
- In 2023, Germany will host the first full TILL (Transdisciplinary International Learning Laboratory). Students from all 6 of the partnering universities will come together in Germany, for 8 weeks, to experience applied research in place-based learning environments and bring back transdisciplinary skills to their respective regions.
- In 2024, VIU will be hosting the 2nd TILL as part of the international project, happening May-June 2024. Welcoming 20-24 students from the 6 universities and 3 countries to the Mount Arrowsmith Biosphere Region.
- Currently trying to put together an interesting, applied research experience for their time here. First 2-weeks is classroom based, learning about the MABR, the landscape, what to expect while in Canada and on Vancouver Island. Remainder of the time spent will be a blend of in-classroom and in-field activities to help with the research. Looking for leads on teaching space and potential accommodations in the MABR to host – will be utilizing VIU’s Nanaimo Campus as well.
- Pam Shaw and Alanna Vivani (MABRRI) will be attending a portion of the first TILL in Germany in January 2023 to learn how it is run and what knowledge and information can we bring back to Canada to help our TILL in 2024.
- Hoping to have students registered by December 2023, needing to open applications to students in the summer of 2023. We would like to see even representations from the countries – Canada is very underrepresented in Germany for January 2023 TILL.

OECM ECCC Project – Graham

- ECCC: Environmental and Climate Change Canada
- OECM: Other effective area-based conservation measures
- Funding is to establish OECMs, or conservation of biodiversity, or restoration of lands that will in turn support conservation of biodiversity within the MABR (with a focus on the buffer and transition zones)
- ~\$550,000 for 3 years, currently in year 2. In year 1, around \$70,000 of funds went to support the purchase of the FC Estuary Lands. The goal is to put this parcel of land through the decision support tool to see if it can qualify and be designated an OECM. Currently, the RDN is working with BC Parks Foundation and other community groups on developing the Management Plan. If the management plan speaks to supporting biodiversity on site, it has a higher chance of having success through the decision support tool (among many other categories).
- Parksville has shown interest, potentially working on the management plans for other sites. Specifically, on Ermeskine Wetlands and Shelly Creek Park. MABRRI has had early discussions with their team about potential designations of OECMs as well – some don't work out well due to ALRs (agriculture land reserves).
- Partner meeting scheduled January 10th with the committee to review completed work and upcoming work.
- In 2023, discussions with ECCC will continue on securing 2 additional years of funding. The potential of the extension will rely partly on the success of our work during the 3-year contract.

Questions:

- Lehann asks if there have been any open conversations with the RDN on the French Creek Community Park corridor (Island Highway ad Lee Road, 1236 Island Highway – has been acquired by the RDN, adjacent to the pollution control centre). Have any conversations happened with parks at RDN regarding restoration activities proposed for 2023? Amy Gore has been in contact for this, and there is an agenda item for RDN's next meeting to allocate tax funding for what the ECCC funding is outlined for. How can we connect the dots on this? Perhaps involving Tom Osborne.
 - Graham says there has been no discussions regarding that specific parcel of land. Would be best to connect the RDN team to Jenica and Alanna.

CBRA Winter Gathering (Indigenous Representative) – Graham

- CBRA: Canadian Biosphere Reserve Association, the body that supports the 19 biospheres across Canada.
- Hosting a fall gathering February 15-17th, 2023. A lot of attention will be on the ECCC OECM project as each Biosphere Region has received federal funding for this initiative, however they are also hosting Indigenous circle meetings and other Biosphere related discussions. Pam, Jenica, and Alanna (MABRRI) will be joining for the winter gathering. We do have funding to send a CBRA Indigenous Circle Member to attend as well. Graham invites Geraldine Manson, Michael Recalma, and Cheryl Jones to attend if they would like to. Will send out individual emails.
- Will provide an update at the next Roundtable meeting.

Additional Update – Graham

- Application with Nanoose Economic Development Corporation and Snaw-naw-as First Nation submitted for funding through the First Nations Cultural Council for around \$160,000 to erect

brother and sister carvings at the Nanoose Gas Station and signage around the significance of Nanoose Territory but also the MABR.

- Currently in phase 2 of the funding, asking for invoices. Thank you to Mosaic for providing the letter of support for timber and transportation of the poles. MABRRI provided in-kind support for signage and other development. Remainder of funds will go to the carvers, approximately \$45,000 each for 2 carvers.
- Hopeful that next year we can target the opportunity to apply for Qualicum First Nation, with breaking ground on their gas station near Horne Lake. Erecting brother and sister poles coming south along the highway with signage and information on the significance of the Qualicum Territory and MABR.

VIU Geography 452: Applications in Natural Resource Management – Graham

- Dr. Matt Bowes and MABRRI team up to teach the course focusing on MABR and applied field components.
- Two panel sessions to be hosted at the Parksville Centre, bringing in some not-for-profit environmental stewardship organizations from the region over 2 separate panels. Focusing on current work underway, issues around natural resource management, provide content for an intro to the biosphere. Afterwards, spending 6 days working with the organizations in the field.
- 5 field trips already established:
 - Trip and tour to the North Island Wildlife Recovery Centre
 - Tree survey at French Creek Nature Preserve (funded by BC Parks Foundation 25x25 initiative) with Arrowsmith Naturalists
 - Invasive species removal with Broom Busters (potential to partner with Mosaic to find a piece of land appropriate for removal)
 - Training session on use of iNaturalist for a mini bioblitz at Hamilton Marsh (so long as permission is granted)
 - Walk and talk with Parksville staff through Parksville Wetlands around managing for multiple different resources and the complications (fire, trespassing, biodiversity, water, etc.)
- There are 1 or 2 spots left if anyone has any ideas that can engage the students in the field – would prefer to have it within the MABR. Community was extremely receptive to it; we are grateful to their dedication and engagement with the students. Please reach out to Graham (Graham.Sakaki@viu.ca), Jenica (Jenica.Ng-cornish@viu.ca), or Alanna (Alanna.vivani@viu.ca) if you have any ideas.
- Other suggestion of interesting areas:
 - Nanaimo estuary or Gabriola Island
 - Geraldine expressed her interest in clam beds, fishing weirs, eelgrass – can be both in Nanaimo estuary or Gabriola Island. Past studies have recommended that you go back in and conduct additional surveys. Also suggested that Kim Recalma and Nancy Turner walked the estuary in relation to the plants on Gabriola Island, it would be a good idea to have a conversation with them on how we can bring up a project on the waters in relation to the plants.

Geraldine Publications – Graham

- Geraldine has already published a book regarding petroglyphs on Gabriola Island
 - Available at the VIU Bookstore
- Soon to publish a book on traditional place names in Nanaimo (perhaps spring 2023)

Student Researcher Presentation (Jenni Otilie Keppler)

Circular Sanitation, Water-Free & Nutrient Recovery

- Jenni is a visiting graduate research student with MABRRI at VIU
- Research is focused on circular sanitation, looking at water-free sanitation solutions with the aim of recovering nutrients from the solids and the liquids
- Why is this research relevant?
 - Water availability is an issue (summer and droughts)
 - Flushing feces down the toilet is bad for drinking water and not the most sustainable solution
 - Global supply chains – Island dependent on fragile supply chains
 - Create more resilience
 - Emergency settings, what happens when there's an earthquake?
- Research process involved speaking to 12 different stakeholders around the human nutrient cycle, such as community planners, provincial legislatures from Ministry of Health, residents in the MABR, early adopters (i.e. Lasqueti Island, Germany, Switzerland, Victoria), farmers who would be potential users of recycled fertilizer, individuals in Germany who already use this type of system
- Develop a systems model that merged 12 different models into 1. Jenni organized an online evaluation workshop in September to see what the starting points and impact indicators are, to further understand if the starting points for action are influencing the system.
- Three starting points for action and how to measure it were identified. Able to come across the pathways and the barriers.
- Main starting points for leveraging action are:
 - *Education & awareness* – relatively new topic, need to have a breakdown of fears and misconceptions, the actual potential risks and how to handle them, familiarize political and regulatory bodies on the topic through courses, fostering sociocultural acceptance
 - *Research on compost safety* – addresses fear and safety-based mindset that is prevalent, knowledge gaps on pharmaceutical residuals, pathogens, micropollutants, etc. Important to distinguish waste from hospitals and residential areas.
 - *Demonstration sites/pilot projects* – 2-year pilot project on a neighbourhood scale would be a way to have a low-barrier entry for individuals to have the experience and learn about the system. Synthesizes the existing research on that side, creating educational materials, exposure to the public, architects, engineers, politicians, authorities, investors, research community etc. Support from government and academia could increase trust into this type of innovation.
- Barriers present:
 - No actors/service providers at this point, people from organic matter recycling sector did not express interest in participating in research nor the evaluation workshop, neither did legislatures
 - No budgets for circular sanitation
 - Different treatment systems require different set-ups, different thinking than the current wastewater treatment happening (suburban, rural, urban, etc).
 - Health crisis on a societal level
 - Drugs going into the body to treat different concerns (depression, autoimmune disease, etc.). Pesticides in our environment. Where do these go and how do we deal with it?

- Next steps:
 - Networking, mapping actors on the island, communicating about circular sanitation (education and awareness), working on an infographic (hopeful for February 2023), finishing up masters thesis within the next 6 months, looking for hosting organizations to finance more work on this research
- Please see additional material at the end of the notes for the Evaluation Workshop Report.

Questions:

- Steve commended Jenni on her presentation and inquired about any information on the RDN's biosolid program. Mosaic partners with the RDN and takes biosolid as forest fertilization, is this comparable to a route she is intending to go?
 - Jenni informed it's similar, with some differences as with biosolids right now all the waste streams come together. PFAs, paint residue, rubber from wheels, all get mixed into the sludge and biosolids. Not all is extracted which then allows some of these materials to get into the soil that is being fertilized. In Michigan for example, biosolids were applied to agricultural land and it did not end well as the hay grown contained microplastics that then went into the cows during feeding, which transferred into the meat provided by the cows, up to humans. Separating these earlier would help, but there are still pharmaceutical concerns.
- Sylvia thanked Jenni on the presentation, suggested to apply for student support in the summer to do further research required. More availability for summer funding for students.
- Graham mentioned Canada Summer Jobs, but they do not fund international students. Hoping for an international Mitacs funding scholarship, needing a partner that could support project work of about \$7,500 which then Mitacs would provide matching funding, 4-6 month internship. RDN has been approached about this, however they are slightly a ways away from this. The DWWP has been involved in research stages of this and providing as much help as possible to Jenni. Potential to approach BC Parks as they have created some outhouses in their parks systems. Will continue to investigate funding but if anyone knows of any organizations who may be interested or are interested themselves, please reach out to Graham.
- Lehann thanked Jenni for her presentation and acknowledged the work they have done together during this process. Have any slides been put together on a website so that from a funding perspective we can get the info out there. This would be a good tool to share and amplify the information about this and provide a spot for potential funders to have a look at what has happened already.

MABRRI Strategic Plan Review

Approval from Roundtable for Adoption – Graham

- MABRRI is structured by 2 committees that provide input:
 - MABR Roundtable – partner/advisory committee
 - Scientific advisory committee at VIU
- Updated logo represents estuary, lands, and mountains with data peaks representing Mount Arrowsmith, colour matching to VIU and MABR's logos.
- Not too much text has changed, however the research priority areas have changed. In the past, three areas of focus were: environmental sustainability, social and cultural sustainability, and economic sustainability. As per last MABR Roundtable meeting, there was a discussion around moving away from the three pillars of sustainability. The Sustainable Development Goals (SDGs) were an option, in addition to the 5 P's underlining the SDGs (People, Planet, Prosperity, Peace,

Partnerships). Ultimately, the decision was to focus on the mandate of Biosphere Reserves that are adopted across the world with a 5th mandate unique to Canada:

- Conserve biodiversity
- Support sustainable development
- Support research, education, and facilitation of dialogue
- Climate action
- Reconciliation

The approach taken was to focus on the 5 key themes and support holistically what Biosphere Reserves are working towards and then choose a few strategic points underneath that we should put further emphasis on. The document should not limit creativity and stop us from exploring other relevant areas, but we want to use this to ground us and determine if we are doing enough within the identified key areas. If not, how can we do more?

- How does the MABR Roundtable feel regarding the report? Are there any thoughts regarding it, things to change/review/update, etc? Hoping to launch this in early 2023, valid until 2025 – nothing will formally shift over until April 1st.
 - Kim agrees it's a great step forward and helps to define things more clearly as it was a slower process moving forward to tackling challenging issues. Would like to adopt it.
 - Lehann agrees it captures nicely the last discussion had. Would like to raise a concern around definitions and the importance of recognizing what not to do in the strategic plan – as per the history of the MABR. Might be a good idea to include a definition of how we achieve ongoing compliance and continue to move in the right direction. Adding more content to the document itself, such as place names, specifically First Nation place names. There are important areas that have been established throughout various projects – is there a way we can incorporate all the work that has happened from the last research plan into this one. Ongoing projects that have delineated the biosphere region that does not match up with political boundaries – it's important to present that in this type of report. There are political names outlined, but no real mention of significant features such as river corridors, naming of rivers, names of nature preserves or other areas that have been acquired, etc. Adding names not only to the overall map, but the photos throughout the report. This can have readers connect more to the MABR, too.
 - Geraldine agrees on the importance of Place Names. If Snaw-naw-as and Qualicum have place names available, we should utilize that. In Geraldine's booklet, there are over 80 place names from the river to the mountains. Kim Recalma may be a good resource for this.
 - Graham worked with Lawrence from Snaw-naw-as on naming Mount Arrowsmith. Was given 2 different place names for it. In addition, there is another name for it on the east coast from the Nuu-chah-nulth language. Agree we should incorporate this into the report. Graham would like clarification on which image is being referred to – Figure 1, the overview map of the biosphere boundary?
 - Lehann confirmed that is the image in question. Referred to the Community in Bloom presentation that happened in March 2022. The background to the diagram talked about taking all the census data and information and creating a layer for the biosphere, if that map was laid over the political boundaries, that outcome would be this simple map. The recent designation of the acreage at Top Bridge in partnership with Snaw-naw-as now has a place name of the forest. This would be a great example of achieving a conservation aspect of the Strategic Plan that can also educate the public on how the goals are being moved forward.

- Graham mentions that MABRRI released an annual report each year outlining what has happened within the fiscal year – should we also be including accomplishments in the Strategic Plan every 3 years?
- Lehann clarifies the suggestions are much more simplified than that. Essentially, just including significant place names of the areas that are in the report as photos. Label the image as to where they are in the biosphere and tie it into the overview map. Not necessarily having a whole write up, but more connecting the photos to their place names and then having a reference to where they are located on the map.
- Steve agrees with Lehann on the importance of the names on the images and diagrams. Also stressed the significance on ensuring we include First Nation place names wherever possible. Wonders if there is a particular order to the biosphere mandates? Can we move up reconciliation in the list?
- Graham acknowledges the change to adding place names. Addresses the biosphere mandate order, as this order was just taken off the UNESCO website that has the first 4 in that order. Given reconciliation was an added mandate by Canada, and not adopted globally, it was just placed at the end, but we can absolutely change the order and move reconciliation up. Graham asks if everyone is in agreement with that change. Yes, everyone at the meeting agreed.
- Graham will work with Jessica and Courtney at MABRRI to make these changes, and hopeful to send out the report in January or February so we can hopefully adopt the report at the next Roundtable meeting. Will work closely with Indigenous Partners to ensure names are accurate and they wish for them to be publicly available.

MABRRI Roundtable Community Member Appointments

- Graham would like to take a moment to thank Ceri for her time on the Roundtable. She served 2 terms on the MABR Roundtable and surely will be coming back to these meetings in the future for various presentations. Her continued work with the community will always keep her well engaged with the MABR and we look forward to working with her.
- Ceri is thankful for her time with the Roundtable, a privilege to be one of the MABR Roundtable community representatives, especially as a pilot project. Read Richard Wagamese's *All that we are is story*.

Catherine Watson

- Graham acknowledges Catherine's volunteer efforts with the research institute, attendee of most community events and other engagements. She appears to be a great fit with years of experience in facilitation, strategic in her approach. Endorses and supports her.
- Lehann can attest to Catherine, has worked with her on the agriculture advisory committee for the RDN. Happy to endorse this selection.
- Mandy reviewed the application and acknowledged the importance of her affiliation with a variety of groups within the community.
- Graham asks the Roundtable if all in favour of having Catherine join the round table for a 2-year term. All agreed.

Ray Woroniak

- Graham has met and worked with Ray many times. He has presented to the Roundtable in the past and has been involved in many projects within the research institute. More recently

working on developing a program to support training/applied learning on the stream coming down from Kwalikum Secondary around salmonids. No hesitation with him joining the Roundtable, has a great connection to the students and the school district.

- Ceri offers her support to Ray, as he is really connected with the school board and the kids in the schools. Ray is also part of the Brant Wildlife Festival and works closely with Arrowview Elementary.
- Steve has worked with Ray as Ray is District PAC leader, always looking to help schools out and dedicated to the work. Great community member.
- Graham asks the Roundtable if all in favour of having Ray join the round table for a 2-year term. All agreed.

Wrap-Up

- Graham thanks Ceri and Jennah for their time and commitment to the roundtable. Will work with Mandy to get the new member package ready for the 2 new community reps. Additionally to send that package to Anne, Pam, Shawn, and Sylvia.
- Mandy will update the package (through drop box) and can send the updated link to all members.
- Kim would like to take a moment to give recognition to Chris Burger for his dedication and commitment to the MABR and getting it back on track.
- Graham agrees on this and was hoping to utilize this meeting to take the time and thank him 'in-person'. Hopefully we can see Chris Burger in another capacity for the MABR as his work has been invaluable.

Circle Updates from Roundtable Members

Ceri Peacey, MABR Community Representative

- Founder of MISC – Mid-Island Stewardship Coalition, facilitator for the Brant Wildlife Festival
- Item 1: Greig Road Development
 - The Greig Road development is located adjacent to Englishman River and has many groups (Arrowsmith Watershed Coalition Society, Arrowsmith Naturalists, Mid-Vancouver Island Habitat Enhancement Society, Greig Greenway Society to name a few) worried about the floodplain issues, river health, fate of 2 wetlands, concern of harm to the river and fish in the lower reaches of its watercourse. Concerned about lack of public access to environmental assessments. Development would add min 800 vehicles and apply stress to water supply, resulting sewage problem is also a concern. San Paniel residents are worried about the impact of digging and paving around the aquifer that supplies their water. Wayne Moorman presented Nov 21 regarding City of Parksville's non-compliance for water license since 2012.
 - Graham has had a lot of inquiries about the development to MABRRI from both the developers and the community. Developers inquired about having MABR review the promotional materials for engagement. Adjunct professors also reaching out for more information and support on mapping. Connected the interested parties to MABRRI's GIS technician on help with mapping. The data we have available for mapping is from the Province of BC's database, so the information may not be up to date on sensitive ecosystems.
 - Lehann mentions the parcel dissects Area G (above and below this), Parksville acquired this land through boundary expansion in 1970s-1980s, as an additional bridge crossing.

Since then, it has been zoned as AG1, does not have RDN jurisdiction. Challenge is when you have a piece of property that segments an electoral area that is very rural with natural spaces above and below it, it is a point of conflict. Property owners will be coming to Parksville Council on a public hearing about potentially rezoning the property, increasing the density of the property. There is a website that the developer has as well.

- Sylvia confirms they are coming to Parksville Council on December 5th to discuss this new project to the new council. February 13th (may change), there will be a public place where people can come see the exhibit and see what it is about. The new council wants to hear what the public has to say about the new property.
- Item 2: Area F Governance and Services Study
 - Area F includes Errington, Coombs, Meadowood, Hilliers, Whiskey Creek
 - RDN issued a summary document on the current state of governance on Nov 21, Area F Governance and Services Study has been released – welcoming residents’ feedback by completing the survey, gauging the current level of satisfaction with the RDN Management of the area.
 - On Saturday, the 3rd of 5 public information proceedings will occur (weather permitting), some residents would like to see Area F become its own municipality.
- Item 3: Brant Wildlife Festival
 - Arranging events is well underway, planning to be ahead of schedule.
 - Running from March 31st to April 9th, with Hamilton Marsh tour and BioBlitz happening the following weekend.
 - Festival is actively seeking sponsorship, please reach out to Ceri to receive package options if you are interested.
 - Many great events to look forward to: Seafood culinary event at Deep Bay; movie festival by Qualicum Beach Cinema Society; Arrowview Elementary hosting nature displays for students and public; photography contest at the MAC; and other regular events that happen each year.

Anne Skipsey, Town of Qualicum Beach, Councillor

- Reached out to Teunis if there was anything to add this round, nothing to report on.
- Anne’s role with the town presents as the liaison with Heritage Forest and will be chairing the Environment and Sustainability Committee as well as the Parks and Recreation Committee, lots of connections to be made and good communication ahead.
- One of the projects to work on, is a tree of vegetation management plan and urban forest master plan prioritized.

Mandy Hobkirk, MABR Coordinator

- Thank you to Ceri for her time on the Roundtable, appreciate working together and will continue to work together in other capacities.
- Thank you to Graham for facilitating with such a heavy workload already.
- Welcome to the new members of the Roundtable, lucky to have such wonderful people a part of this group and will work on getting the documents sent your way.

Kim Burden, Parksville & District Chamber of Commerce, E.D.

- Incredibly busy time at Qualicum Beach for the various events held during the holiday season. Moonlight madness finished in Qualicum Beach – lots of people in the streets and in the stores to kick off the Christmas season.

- Might be around for the next roundtable meeting but may not be part of it anymore. Has reached out to both the Parksville and Qualicum Beach Chamber Board that it is his desire to find a new representative. Believes it's time for fresh ideas in the department. Will hire separately, to have an E.D. for Parksville and one for Qualicum Beach.
- Working on building a kiosk in Qualicum Beach to dispense visitor information, primarily in the village core of Qualicum Beach. Will also be able to get out to various events to promote Qualicum Beach, kiosk can be onsite at events outside of the area to continue to promote the region. Funded through Town of Qualicum Beach and the Parksville Qualicum Beach Tourism Association. Allow us to expand visitor experience. Looking to rebuild the site on the beach, about a 4-year project.
- Graham expresses his gratitude to Kim for his time on the Roundtable since its inception in 2015. Hoping Kim can join the next roundtable so we can properly acknowledge his last meeting.

Lehann Wallace, Regional District of Nanaimo, Electoral Area G Director

- December board meeting next Tuesday at 1pm has large & long-term initiatives on the agenda, will be received by the new board for the first time. Will provide a link to the agenda or join the zoom version of the board meeting (will be a couple of hours). Some topics include:
 - Under reports, section 11: French Creek transportation plan, an official community plan amendment for FC urban containment boundary – for adoption on the agenda. This culminates 3 years of community engagement and transportation studies.
 - Intergovernmental initiatives update is a report that highlights what Ceri spoke to about Area F Governance and Services Study. Report does a great job showing the work that the RDN intergovernmental team is working on for Area G as well. Potentially moving to boundary changes or boundary studies. Regional Growth Strategy 5-year update shows if the RDN is moving towards regional growth strategy or away. Report does a good job outlining parking, water, and sewer. Number 1 question asks how we collaboratively work on planning for growth? The areas in Oceanside are different forms of government, there is no legislative requirement for cohesive planning – a huge gap we need to rectify in some way. Specific focus on environmental impacts and climate change impacts on the water supply – example that November 2020 was the lowest river flow of the Englishman River for 44 years (44 years of records only). Regional Growth Strategy doesn't include subdivision servicing, which is at the provincial level.
- In October, sale of land (Lot 7/8), previously owned by Mosaic, spans Little Qualicum River from above, Area G other side of lot. Sale from Mosaic to private forester of Lot 7 and 8 (lot 6 is crown land). Lehann has received innumerable meeting request, site visits, community meetings, town halls, emails, request for action from the RDN on how could this happen without them being approached first and how can the environmental inventory contained on Lots 8 (include river and significant old growth) and the process become public information. Wanting to share that it is stressful on the community to hear this information come out after decisions have been made without any indication of change, after assumption that his land was parkland.
 - There are 2 significant cedar trees (potentially more) within that lower bank area of the river itself. There is good chance of survival given their location. Community meeting with owner, where they answered all community concerns but there is nothing legislatively to answer these concerns.

Sylvia Martin, City of Parksville, Councilor

- Will report back to council meeting Monday night on what was discussed here today
- Was on Historical Society Museum board, working with Mosaic to have something showcased, a forestry exhibit as it is an important part of the history. Historical Society will have their 40-year anniversary in 2023.
- Steve wants to echo Sylvia's comment on the forestry display. Success story and looking forward to recognizing the history.

Shawn Lukas, West Coast Conservation Land Management

- In the past year, there have been acquisitions within the biosphere region – namely the Kw'a'luxw Property, Englishman River Corridor.
- Restoration projects underway within the Englishman River, installed 3 large woody debris complexes within the lower reaches of the river, continued estuary monitoring project underway (part of 5-year estuary resiliency project, ER is one of 15 along the coast – looking to include Little Qualicum River Estuary), Mariner Way restoration – removing all structural property including sea wall
- Day-to-day work within the PQBWMA, Dudley Marsh, Craig Creek; work with VIU and RMOT, BC Parks, and seasonal beach closures for dogs on beach regarding migratory Brant

Steve Adams, Mosaic Forest Management, Resource Technologist

- Late July announcement that Mosaic signed agreement for recreational ATV access (5 different clubs have legal access on their lands), to gain access you need to join one of the clubs. Receive training on how to ride, where to ride, safety, etc. Mosaic working to accommodate public access for personal safety and environmental protection.
 - Clubs support areas around Port Alberni, Sooke, Mid-Island, Comox Valley, and Cowichan
- Rob Goff, new President and CEO taking over for Jeff Zweig. Rob has already been a part of the company as a former VP, great people person and has 30 years of international natural resource experience.
- Newly formed Loon Lake Campground, built with First Nation values in mind. Named by Hupačasath people, a new fishing dock has just been built and will be a stocked lake.
- Signed access agreement with 7 different search and rescue organizations on Vancouver Island. They are equipped with everything they may need to safely get on land, radio frequencies, who to contact, etc.
 - Alberni, Arrowsmith, Campbell River, Juan De Fuca, Ladysmith, Nanaimo, Westcoast Inland

Closing

- Thank you to everyone who joined. Thank you to the newcomers and new committee members.
- Next meeting to occur first or second week of March, hope to host by Mosaic. Hopefully to meet in person next meeting and have a group photo taken.
- Final thank you to Kim, Ceri, and Jennah on their roles within the Roundtable.
- Happy Holidays!

Appendix A

MABR Roundtable Gathering Vol. 24

Friday, December 2nd, 2022 from 09:00am to 11:30am

Location: Mosaic Forest Management – 201-648 Terminal Ave, Nanaimo BC
V94 5E2, Canada



Roundtable contact: Graham Sakaki (250) 802-4826

Objectives

The main objectives of this Roundtable gathering are for participants to:

1. Continue to engage in respectful and meaningful dialogue with one another.
2. Hear from one another about regional/organizational/community updates.
3. Discuss past, present, and future events for the MABR/RI.
4. Approve MABRRI's Strategic Research Plan (2023 – 2025).

AGENDA

Time	Activity
09:05 – 09:15	Welcome/Opening <ul style="list-style-type: none">• Words of welcome (Geraldine Manson)• Acknowledgement of First Nation unceded Territory• Around the circle brief introductions• Review and collectively adopt agenda• Reminder of the MABR Roundtable Culture of Engagement
09:15 – 10:00	MABR Updates <ul style="list-style-type: none">• TRANSECTS MABR TILL 2024 - (Pam Shaw)• OECM Project - (Graham Sakaki)• CBRA Winter Gathering (Indigenous Representative) - (Graham Sakaki)• Geography 452 – Applications in Natural Resource Management - (Graham Sakaki)• Virtual Presentation from Visiting Researcher – (Jenni Keppler)
10:00 - 10:20	MABRRI Strategic Plan Review <ul style="list-style-type: none">• Looking for approval from Roundtable for adoption
10:20 – 10:35	MABRRI Roundtable Community Member Appointments
10:35 – 10:45	Coffee Break/Health Break
10:45 – 11:25	Roundtable Member Updates <ul style="list-style-type: none">• What's new with your organization?• Community Representative Updates
11:25 – 11:30	Closing <ul style="list-style-type: none">• Final reflections• Next Roundtable date and host• Closing words

Appendix B

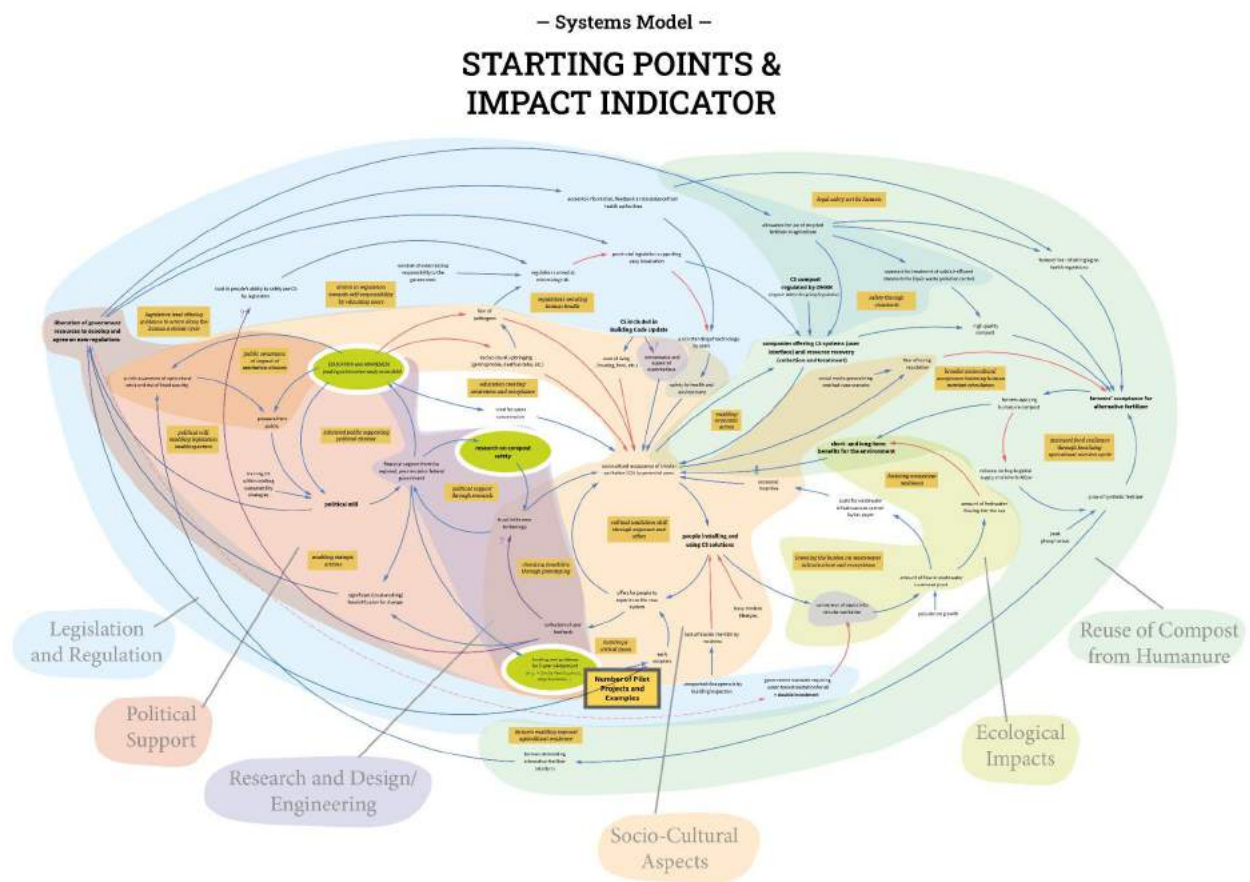
Circular Sanitation in the Mount Arrowsmith Biosphere Region

Evaluation Workshop Report – Jenni Otilie Keppler

<https://drive.google.com/file/d/1lbneocvvOBs9wwsrHcuxg73TqDcEhDjm/view>

Pathways to Implementing Circular Sanitation in the Mount Arrowsmith Biosphere Region

// EVALUATION WORKSHOP REPORT



A research project that engages critical actors along the human nutrient cycle to identify Starting Points for Action and Impact Indicators for measuring progress towards reaching the goal of establishing circular sanitation on a regional scale for the Mount Arrowsmith Biosphere Region.

Workshop report compiled and edited by


Jenni Ottilie Keppler

Visiting Graduate Research Student with Mount Arrowsmith Biosphere Region Research Institute and Vancouver Island University | Student of Global Change Management M.Sc., Eberswalde University for Sustainable Development

September 2022

Nanaimo, Vancouver Island, BC, Canada

OVERVIEW

- 
0. – *Acknowledgements* –
 1. HOW THIS RESEARCH EVOLVED
 2. WHY IS THIS RELEVANT?
 3. SUMMARY OF OUTCOMES
 4. ON THE PROCESS OF THE WORKSHOP
 5. STARTING POINTS & IMPACT INDICATORS
 6. RECOMMENDATIONS
 7. EVENT ANNOUNCEMENTS of Participants
 -
 8. SPECIAL CONTRIBUTION: Personal Reflections
 9. RESOURCES
- APPENDIX: System Models, Visual Recording*

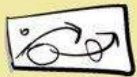
Visual Recording from the workshop

HOW TO ACHIEVE 20% CIRCULAR SANITATION IN THE MABR* BY 2030?

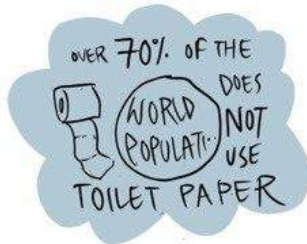
IN THE MABR*
 *MT. ARROWSMITH BIOSPHERE REGION

A SYSTEM MODEL WORKSHOP

by JENNI OTTILIE KEPPLER
www.ottilie.cc/loop-the-poop/



24/9/22



IDENTIFYING BARRIERS & LEVERAGE POINTS



VISUAL SCRIBING by JOANNA MITCHELL

textularia

– ACKNOWLEDGEMENTS –

Thank you

I would like to acknowledge and thank the Snuneymuxw, Quw'utsun, Tla'Amin, Snaw-naw-as and Qualicum First Nation on whose traditional lands I learn, research, live and share knowledge. I would also like to acknowledge that the Mount Arrowsmith Biosphere Region, where I am carrying out my research activities, is situated on the traditional lands of the K'ómox, Tseshaht, Hupacasath, and Ditidaht First Nation.

Thank you for lending your time, knowledge and enthusiasm to every single research participant

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Joanna Mitchell | Visual Scribe and Illustrator @textularia

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Robin Woolner | Courtney Vaugeois | Alicia Mclean | Caroline Meier | Julia Finkenzeller | Lena Morris | Florian Augustin

Pathways to Implementing Circular Sanitation in the Mount Arrowsmith Biosphere Region

1. // How this research evolved

Guiding Question for the Research Project:

Why is water-based sanitation still the norm in the Mount Arrowsmith Biosphere Region despite a daunting water crisis and risk of food insecurity?

The research project was set out to identify pathways and barriers to implementing circular sanitation solutions in the Mount Arrowsmith Biosphere Region (MABR).

Guiding Question for Inquiry to the Actors of the “ecosystem”:

What is needed for 20% of the human ‘waste’ generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through water-free resource recovery solutions* by 2030?

** now referred to as Circular Sanitation*

What is Circular Sanitation?

The term Circular Sanitation has been introduced by the researcher with the purpose of simplifying the communication of a system that aims at circulating nutrients through water-free sanitation and resource recovery. These systems refer to technologies such as composting toilets, where excretions are either (a) mixed with organic matter and cured and sanitized through a thermophilic composting process or (b) separated at the source by diverting and collecting urine to recover solids and liquids separately through different curing and sanitation processes.

2. // Why is this research relevant to the Mount Arrowsmith Biosphere Region?

Implementing composting toilet systems and recycling of humanure on a larger scale could increase regional resilience by helping address future water and nutrient shortages driven by climate change, population growth and disruptions in the global supply chains for food and fertilizer.

» Increase in awareness for ecological processes and soil resilience

It may increase individual environmental awareness of what can be put down the drain, and awareness around the miracles of natural organic decomposition processes. Where applied, bringing nutrients back into the soil can help plant growth, improve water retention of the soil and through that help aquifers replenish more easily.

» Decrease in Water-use

Using composting toilet systems has the potential to decrease the amount of freshwater that is currently introduced into the ocean through the wastewater treatment plants (instead of the groundwater).

» Decrease in costs for infrastructure for waste water services

It may also reduce the pressure on the current sanitation system and treatment plants, keeping costs for infrastructure updates at bay.

» Increased resilience during Emergency Preparedness

It may also be of help to keep sanitation safe when the water and waste-water system gets disrupted by larger events, e.g. earthquakes.

» Implementing globally trending concepts, e.g. Circular Economy and Zero Waste

The idea of circular sanitation practices links right into globally (and provincially) trending concepts of Zero Waste, Circular Economy, and water conservation. Regionally it would support the idea of a Regional Doughnut Economy as it contributes to staying within the ecological boundaries.

» Less dependence on global supply chains for food and fertilizer

Enabling regional nutrient circulation can foster local agriculture and food self-sufficiency.

» Supporting local agriculture

Independence from depleting resources, such as phosphorus, which is used for synthetic fertilizers and sold at a high price to farmers, could enable the farming community.

Clearly there are several enabling or disabling factors for these benefits to become a real outcome, as by picking one element in the system it will always be found linked to other elements in the system.

3. // SUMMARY of OUTCOMES

The preliminary results show that with investments in the **Starting Points** » *Education and Awareness*, » *Demonstration Projects*, and » *Research on (Compost) Safety*, the system would be able to move towards achieving the goal of having 20% of human waste in the Mount Arrowsmith Biosphere Region be disposed of, treated and recycled through circular sanitation solutions by 2030. The starting points give us a first idea for possible next steps in the next research process.

For measuring whether these investments have been beneficial to achieving this goal the **Impact Indicator** » *Number of Pilot Projects and Examples* can be used as a tool. Since this research is focussed on the possibility of something (versus something that is already implemented), at this stage of the modeling of the system the emphasis is on education and research to create an environment that is open and welcoming towards the idea. Once an enabling and supportive environment has been created the system model would speak more to the decisions around technical aspects of nutrient recovery. However, **without investments in the Starting Points which would enable a change in mindset, the system and its actors will unlikely be activated and the system will not be able to achieve its main purpose of circulating human nutrients and conserving water.**

4. // ON THE PROCESS OF THE WORKSHOP

Workshop Overview

- **Hello and Check-In**
- **Intro to Topic, Method and Miro**
- **Familiarizing with the model**
- **Finding Starting Points**
- **Finding Impact Indicators**
- **AHA-Moments, Announcements, Outlook**

Breaks around 10:30 and 11:30

The workshop included a presentation of a system model that integrates the responses and individual system models of 12 stakeholders along the human nutrient cycle and the current water-based sanitation system that were interviewed beforehand.

Stakeholder groups that were represented during the workshop:

- » community planners |
- » provincial legislators |
- » residents of the MABR |
- » early adopters |
- » composting toilet experts & long-term practitioners |
- » community builders and coordinators of regional multi-stakeholder partnerships
- » regional experts on water conservation |
- » potential users of recycled fertilizer (farmers) |
- » building & construction

The workshop aimed at providing orientation on the feasibility of implementing circular sanitation solutions in the MABR. In the first work session participants were presented with the topic, the area and the method (see presentation slides) as well as the online tool Miro, which was used to navigate the model. Time was also shared to get to know each other and find orientation within the model and the group. The second and third work sessions were dedicated to identifying Starting Points and Impact Indicator(s), and to take time for a sharing of insights and debrief. See the links below for the information materials of the workshop:

» **SLIDE PRESENTATION (PDF):**

[HTTPS://DRIVE.GOOGLE.COM/FILE/D/1MSIYQYFTDE5QKALS7ACALBLVC5EQYFRY/VIEW?USP=SHARING](https://drive.google.com/file/d/1MSIYQYFTDE5QKALS7ACALBLVC5EQYFRY/VIEW?USP=SHARING)

» **SLIDE PRESENTATION (MIRO):**

[HTTPS://MIRO.COM/APP/BOARD/UXJVPSYF0V4=?MOVETOWIDGET=3458764534564390233&COT=14](https://miro.com/app/board/UXJVPSYF0V4=?MOVETOWIDGET=3458764534564390233&COT=14)

» **INTRO on HOW TO READ THE MODEL (MIRO):**

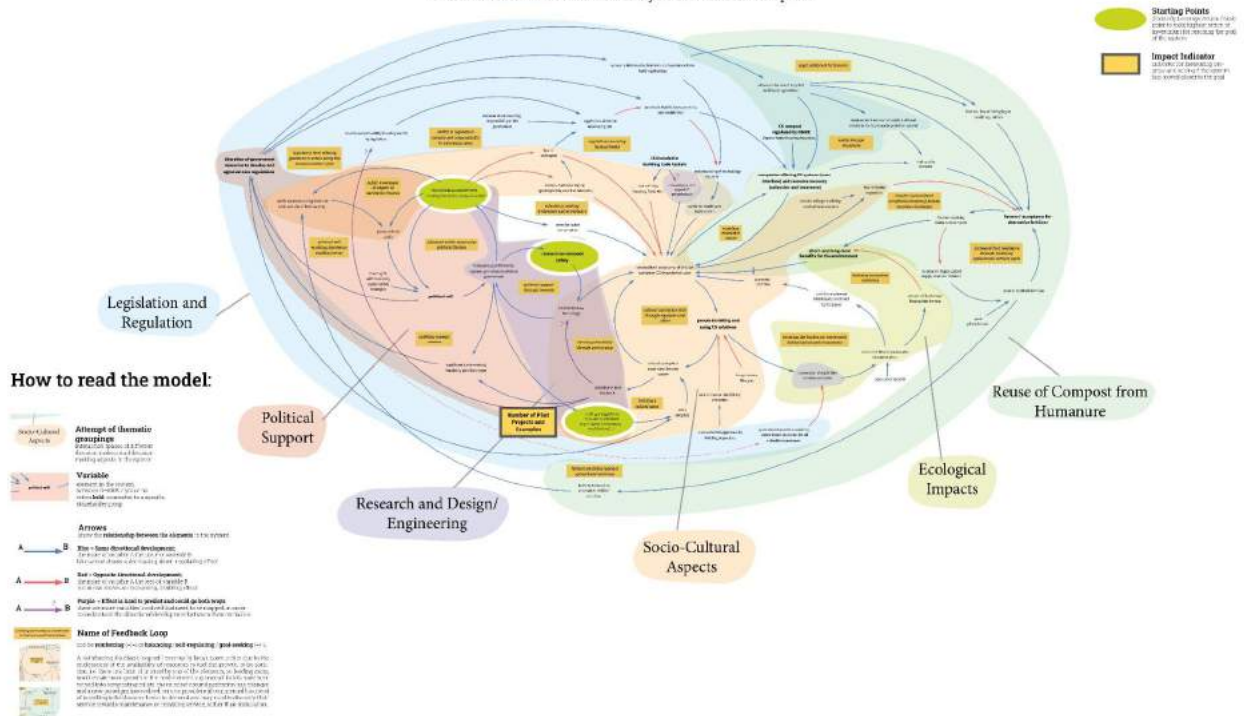
[HTTPS://MIRO.COM/APP/BOARD/UXJVPSYF0V4=?MOVETOWIDGET=345876453456477376&COT=14](https://miro.com/app/board/UXJVPSYF0V4=?MOVETOWIDGET=345876453456477376&COT=14)

5. // STARTING POINTS & IMPACT INDICATORS

– Systems Model –

What is needed for 20% of human “waste” generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through circular sanitation* (CS) by 2030?

* water-free toilets, such as composting toilets and source-separated toilets with the aim of nutrient recovery from solids and liquids



» VARIOUS VERSIONS OF THE SYSTEM MODEL

with and without Illustrations, with Starting Points, all Impact Indicators and Rationales (PDF):

https://drive.google.com/file/d/1W0J55PAWHVIBYORG2VLYT08SXOWIDW_G/view?usp=sharing

STARTING POINTS:

» INTERACTIVE SYSTEM MAP on MIRO:

<https://miro.com/app/board/UXJVP5YF0V4=?MOVETOWIDGET=3458764534565410130&COT=14>

It is HIGHLY RECOMMENDED (!) to use Miro Board link above for accessing in depth information on various variables in the system model.

| » *Education and Awareness*

| » *Demonstration Projects*

| » *Research on (Compost) Safety*

Identifying starting points for moving the system towards achieving the goal

After everyone had become familiar with the model the task was to find and decide on three variables that would yield a high return of investment by affecting the system in a way that actors were enabled to work towards the goal. You can find rationales for the top three starting points below. These points would address the main barriers of safety concerns, misperception and lack of access to information.

They would enable political will and public support to back up and request political decisions that foster more research and bring in the legislative level as a support and safety net. The gained trust in technology through research and experience would likely increase the overall socio-cultural acceptance of circular sanitation. Once this feedback loop is established, people may see composting toilet systems as just as normal as they see water-based toilets now.

The prompt for finding Starting Points was:

“If you had \$ 9000,000 and you had to split it into three parts, where would you invest this money?”

The answers from the workshop read as follows:

#1 |

EDUCATION & AWARENESS (9 VOTES)

In any kind of research education and awareness is relevant, especially in a topic that is not very known about.

It's critical to creating the draw for change and technology, for providing information and developing awareness that gets in front of and dismantles misconceptions, fears and any taboos that might be blocking people from conceiving of this as an option. Once the public

is educated the political choices are more likely to be supported.

“The regulators are going to want to regulate the crap out of it!”

Education would also be directed towards the political and regulatory bodies to enable a way of regulating that can help educate those who are interested in implementing parts of the human nutrient cycle. Familiarizing the political and regulatory bodies might also keep overregulation at bay that stems from fear and misconceptions. To address the legislators' lack of trust in people's ability to manage and

maintain a composting toilet system, it was suggested that there should be courses employed by regulating bodies, so that people who are operating the system are trained. This way education and research would bring confidence in the regulators that people can do it and it can be done.

Funding for this could potentially come from entities in the system that support research and education. During the workshop the Tri-Agency Council was mentioned.

#2 |

DEMONSTRATION PROJECTS – A two-year pilot project at neighborhood-scale (7 VOTES)

Having a physical space, where people can use and learn about the system would accomplish different objectives, such as increasing exposure, socio-cultural acceptance, and the synthesis of research and education.

Demonstration sites have a really low barrier to entry, as a user does not need to buy or integrate a system, e.g. through retro-fitting their home, hiring a trained wastewater service engineer and going through a permitting process, instead they just go and use it. It becomes a very personal way of understanding circular sanitation and it becomes more trustworthy.

Increasing visibility would mean exposure of the topic to a larger audience and entering people's common thought patterns, which would foster socio-cultural acceptance.

Additionally, creating a pilot project would entail a lot of synthesis of existing research. In

combination with the learnings from the pilot project this in return could produce more educational materials.

In order to be defensible the project needs support from government and academia. This way it becomes more trustworthy to a larger array of people.

So far composting toilets are mostly being installed in private homes. In interviews leading up to the workshop, several ideas on who to approach for becoming part of such a pilot project were gathered. To increase exposure the focus for a pilot project may rather involve public institutions, such as a school, BC Parks, or hall or office building of the municipal government, communal living setups, such as a strata development, a neighborhood or an ecovillage.

This might enable buy-in from users, architects, engineers, builders, politicians, health authorities, the research community and investors.

A pilot project would benefit from simple and easy-to-understand regulatory standards, which can then be integrated. Lowering this barrier could enable several smaller follow-on pilot projects to emerge.

To enable this, the government would need to develop standards that are a scaled-down version of the current regulations around biosolids, tailored to a more decentralized setups on neighborhood and community scale, rather than commercial treatment or composting facilities. Certain aspects would need to be changed in order to make it easier and less restrictive to employ testing of the finished compost.

These regulatory barriers can be broken down through a combination of funding and guidance and awareness-raising.

On the other hand, a high profile project that complies with a really stringent regulatory system with clear and safe guidelines for processing based on research does two things: it provides a clear pathway for startup projects to emerge and it addresses critiques of the most conservative voices.

Creating demonstration projects would entail the question around the end-use of the composted humanure: for figuring out a sort of “supply chain system” for where the solids would be cured and recycled and applied potential actors for collaboration on research need to be identified.

A dual system

Considerations were brought up of deciding on the end-use for the composted humare according to its source, e.g. solids and liquids coming from hospitals or nursing homes that have higher amounts of pharmaceutical residuals would go through a different treatment stream than those from residential areas. This precautionary system is even in a very decentralized setting not expensive to implement.

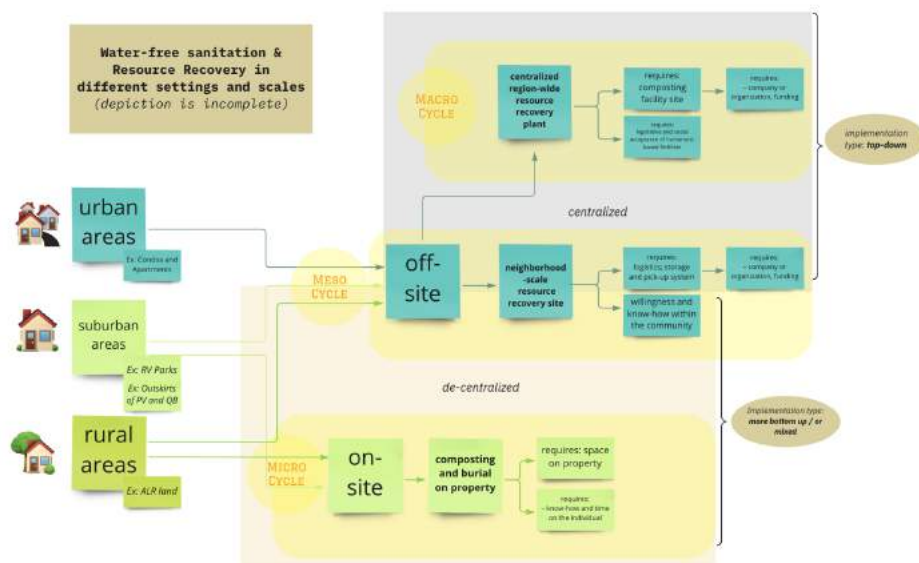
The next steps for implementing a pilot project tie into Starting Point #3:

#3 | RESEARCH ON (COMPOST) SAFETY (& END-USE) (6 VOTES)

In order to have buy-in from all stakeholders there needs to be certainty around the safety of the practice and the application of humanure compost as agricultural fertilizer.

A team of researchers could identify and approach actors, who are interested in becoming part of this research, e.g. by providing a testing site for composting humanure on a larger scale or tailoring existing research and synthesizing it to this geography, and social system as well of the area. Research by monitoring testing sites for the agricultural use of recycled fertilizer would help to fill in knowledge and safety gaps and help farmers, political leaders, legislators and users gain trust. Otherwise the finished compost might end up being applied in forests, as currently done with biosolids.

Overview (preliminary) of considerations for different settings



Flow-Chart based on insights from stakeholder interviews by Jenni Otilie Keppler (2022)

IMPACT INDICATOR

» INTERACTIVE SYSTEM MAP on IMPACT INDICATORS on MIRO:

[HTTPS://MIRO.COM/APP/BOARD/UXJVPSYF0V4=?MOVETOWIDGET=3458764534565837671&COT=14](https://miro.com/app/board/UXJVPSYF0V4=?MOVETOWIDGET=3458764534565837671&COT=14)

| » *Number of Pilot Projects and Prototype Examples*

Identifying Impact Indicator(s)

The third work session focussed on deciding on an Impact Indicator to measure progress. Four indicators were pre-selected and presented with a rationale. This was followed by an invitation to the participants to suggest any missing indicators.

For the decisions, two anonymous voting rounds were needed to receive a distinguished result. The first round allowed for one vote per person. Here 4 out of 5 indicators received an equal number of votes. The second round allowed for two votes per person.

The results were that **Number of Pilot Projects and Prototype Examples** received 7 votes, closely followed by **Number of Installed Toilets** with 5 votes, **Visibility and Quality of Information offered by Health Authorities** with 3 votes, **Number of Businesses and/or Services based on Resource Recovery from Humanure** with 2 votes. The additionally suggested indicator **Amount of Water Availability** received one vote, mainly due to the many variables included in measuring any impact on the actual water availability. Also it seemed challenging to identify a baseline against which to measure.

IMPACT INDICATOR | 'Number of PILOT PROJECTS and PROTOTYPE EXAMPLES'

Rationale:

The presence of Pilot Projects (prototypes at different scales and environments) would be a significant first step towards implementing circular sanitation on a broader scale. It would imply the backing from across levels of decision-making: individual, communal, municipal, regional, provincial and possibly even federal. It would also mean a strong stepping stone for further developments in these directions will be laid, as it will increase exposure of the topic and enable collecting valuable feedback for users and sociocultural acceptance.

How to measure the actual impact of the projects:

» *impact scale; number of people involved across all levels*

» *user surveys*

» *matrix for rating impact (power) of the outreach that each collaborator of the pilot projects has, e.g. if mayor was part of it, or journalist, or influencer etc.*

» *social media resonance of the projects?*

6. // RECOMMENDATIONS

Finding a middle ground for regulation through space for exploration, exchange and communication

In the conversation it became clear that there are different perspectives on what and how much of the practice needs regulation:

Safety through Regulation –

The benefit of regulation can be that those who have a more conservative mindset and tend to be skeptical of new solutions, and fearful of potential harmful consequences can feel safe when stringent regulations are applied.

Guidance through Regulation –

For actors along a neighborhood-scale or regional-scale human nutrient cycle to develop any service or business, they will need clear guidelines and permissions for what they do to avoid creating health risks and infringement on regulations.

Paralysis through overregulation –

The downside of too much regulation is the disabling of actors who would like to implement elements to enable circular sanitation, and nutrient circulation, e.g. farmers. More people implementing the system would enable collecting feedback for refining and improving the technology.

Suggested solutions and preliminary recommendations to address the above:

Short feedback loops and space for dialog among stakeholders —

In order to gather feedback on what amount of regulation is suitable and in order for skeptical stakeholders to gain trust, there needs to be space for dialogue between legislators, regulators and practitioners to share insights and recommendations and

feedback. Here the feedback cycle needs to be short, to enable a flow of progress and learning.

Pilot projects as a place for dialog and learning to gain trust and knowledge —

This space could develop around what was mentioned for the main Starting Points: Developing a two year pilot project as a demonstration project.

Overview of key barriers

Key barriers identified in the workshop are socio-cultural acceptance, lack of clarity for end-use of finished compost and regulations. Regulations affect the options for end-use, the installation of toilet systems, and the development of a pilot project, which would tie together government support through legislation and political leadership, as well as researchers, engineers, economic players, such as startups for developing composting services, and the toilet users. Thus addressing the barrier of regulation appears to yield most leverage. For weaving these actors together a systems approach is recommended. The question about who in the system may be able and willing to fund such a project remains open to further research. Part of this research would be collaboratively evaluating how far the starting points for action are at this point in the process, and identifying enabling resources.

CONCLUSION

The results from this workshop suggest, that without investments in education and awareness, demonstration projects and research on safety to enable a change in mindset, the system and its actors will unlikely be activated and the system will not be able to achieve its main purpose of circulating human nutrients and conserving water.

7. // ANNOUNCEMENTS: Upcoming Events on Circular Sanitation

/ ZIRKULIERBAR COLLOQUIUM „BACK IN THE CYCLE“: Adapting human excrement to a circular nutrient bioeconomy – future scenarios, perspectives for retailers and research access in Sweden

zirkulierBAR

Intermunicipal acceptance for sustainable value added from separately collected sanitary streams



The zirkulierBAR colloquium series starts in November. Exciting lectures on the subject of sanitary and nutrient transformation are regularly offered here (approx. every 2—3 months). We want to investigate the whole process chain of a circular economy with dry toilets and gain insights into the science and practitioners' perspectives.

The zirkulierBAR colloquium will start with a lecture by the scientist [Genevieve Metson](#) on possible future scenarios for a circular economy with dry toilets. In her scientific work, Genevieve Metson examined how nutrient flows between urban and rural areas can be made sustainable and what possible drivers are for the transformation towards a circular and sustainable future. The lecture will be held in English.

- » Time: **11/09/2022, 4 p.m (CET)**
- » Speaker: Genevieve Metson
- » Title: **Adapting human excrement to a circular nutrient bioeconomy – future scenarios, perspectives for retailers and research access in Sweden**

» [ZOOM Link to participate](#)

» **INFORMATION** about ZirkulierBAR, a multi-stakeholder project in Germany pioneering regional human nutrient circulation:

[HTTPS://ZIRKULIERBAR.DE/WP-CONTENT/UPLOADS/2022/07/FLYER-ZIRKULIERBAR-EN_WEB.PDF](https://zirkulierbar.de/wp-content/uploads/2022/07/flyer-zirkulierbar-en_web.pdf)

/ REGENERATIVE LIVING: Composting Toilet Workshop with Gord Baird

October 6th, 2022 – November 24th, 2022, online

Who is this workshop for?

- » **Anyone** who wants to decrease their water usage;
- » **Regulators** who are seeking to learn more about alternative waste management trends;
- » **Professionals** working remotely who have moved to their summer cottages and now need to address their lack of water;
- » **Permaculture designers** and educators;
- » **Homeowners** who are thinking about building;
- » **Temporary camps** seeking a responsible method to deal with otherwise harmful wastes;
- » **Architects & Waste Water Designers**, or professional associations seeking a course to meet annual training needs;
- » folks who build or use **Tiny homes on wheels** that want to ensure their systems are **mobile**; and
- » **Home Builders / contractors** (timberframe, loghome, natural builders) working on remote islands.

NOTE: No previous knowledge of compost toilets is required to attend this workshop.

» DETAILS & SIGN UP LINK:

[HTTPS://WWW.REGENERATIVELIVING.ONLINE/COURSE/COMPOSTINGTOILETS](https://www.regenerativeliving.online/course/compostingtoilets)

Code for DISCOUNT: **CSS2022**

Valid until **30.09.2022**.

Composting Toilets

Registration OPEN!

Join the author of "Essential Composting Toilets: From a waste-stream to mainstream" **Gord Baird** to develop a **comprehensive understanding** of the **application and design** of **composting toilets**.

By the end of the course you'll have a **solid foundation to build your own system**, work with a designer to create a system, or better understand the **critical health and safety aspects** if you are a regulator. More subtly you will learn the **benefits and potential pitfalls, tricks and tips** in **design and maintaining composting toilet systems**.

October 6th to November 24th 2022

Thursdays 7 - 8:30pm Pacific Time

- 1 - Introduction to Composting Toilets
- 2 - Maturation & Sanitization Intro
- 3 - Compost System Components
- 4 - Fluid Management Part 1
- 5 - Fluid Management Part 2
- 6 - Sizing the System
- 7 - Navigating Regulations
- 8 - Emergency Waste & Water, and Greywater, Rainwater Tie Ins

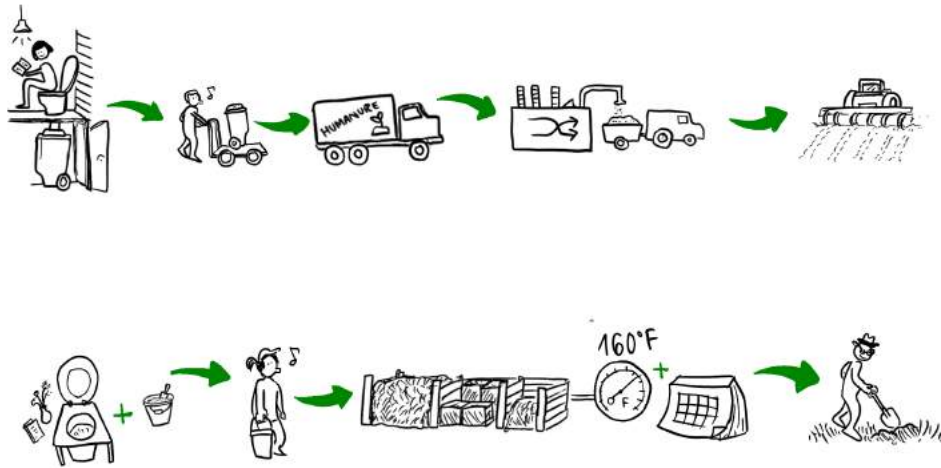


REGENERATIVE LIVING

8. // SPECIAL CONTRIBUTIONS: Reflections on a New Normal

How to live in the L00:P* –

Gaining Perspective(s) on Society's Norms



Top: Example of Off-site Resource Recovery | Regional Scale
Bottom: Example of On-site Resource Recovery | Individual Scale
Illustrations by Joanna Mitchell @textularia

Pet owners regularly take care of the poop of their dogs and cats by putting it into bags and getting it out of the cat litter – another opportunity for rethinking, as rotting organic matter put in landfills creates off-gassing as methane, a potent greenhouse gas.

In the workshop it was mentioned that about $\frac{3}{4}$ of all people in the world do not use toilet paper. In Italy BD's are very common. For children growing up on Lasqueti Island, composting (and non-composting pit) toilets are part of everyday life. What's normal here may be confusing to someone from the other side of the globe or simply backwards to another generation. Bringing in the dimension of time shows how short the window of exposure to a certain way of doing things actually is. If held against the age of the planet, a human lifespan becomes miniscule and so much can change within a life span. So when introducing a new technology the question is:

How and why does something become normal? Is it a conscious choice or the structures around us? And how does a new technology affect people's everyday life? The way each individual relates with each other, with themselves and their environment, their sense of responsibility and their sense of impact they have on a place? Is the technology enabling connection or alienating? How does it change society as a whole?

– Curious questions by the researcher herself Jenni Otilie Keppler

* Phrase credited to Ann Baird

‘The Massive Dump’ –

A perspective from someone who transitioned to using a composting toilet (commode batch system) in their community



Above: Image of humanure compost pile system as suggested in J. Jenkins’ “The Humanure Handbook”

“One of the first details to work out when establishing a post wildfire research station was what to do with our poop. Eventually we settled on a nifty system described in the pages of ‘The Humanure Handbook.’ It works like this:

Our toilet moves our waste into a five gallon plastic container which is layered with saw dust (from local mills) between each deposit. When a container is full we put a lid on it and replace it with an empty one. It’s easy, simple and odor free.

Anyway, once 20 of our containers are full it’s time for what we colloquially refer to as the ‘massive dump.’ That is, we empty our containers into the compost bin, clean our containers and add all water used for cleaning into the compost. We take great precautions to keep all materials in the compost bin. Massive dumps require an hour’s worth of work every three months to compost the waste of four full time members plus guests. After a year of using this system I can now say that it is easy, simple and in time becomes an inoffensive task. What is best about it is how it brings us together. When you live and work with others, social tensions come forward every now and then. Somehow coming together to literally deal with each other’s shit brings forward a relieving sense of forgiveness and fellowship. I can’t explain why but it always happens. What else can I say? At this point dry toilets are cleaner and more comfortable for me. Pooping in water now strikes me as an ever so slightly irreverent act.”

–A requested contribution gratefully received from Robin Woolner

9. // RESOURCES

» **LOOP THE POOP – Blog for this Research Project by Jenni Ottilie Keppler**

<https://www.ottilie.cc/loop-the-poop/>

» **EVALUATION WORKSHOP REPORT – Interactive Miro Board with System Maps**

https://miro.com/app/board/uXjVPSyFOV4-/?share_link_id=728987916806

Relevant Documents

» **BC Manual for Composting Toilets and Greywater Practice**

<https://www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/provincial-composting-toilet-manual.pdf>

» **Liquid Waste Management Plan (LWMP)**

<https://www.rdn.bc.ca/liquid-waste-management-plan>

» **Organic Matter Recycling Regulation (OMRR)**

<https://www2.gov.bc.ca/gov/content/environment/waste-management/food-and-organic-waste/regulations-guidelines>

// APPENDIX

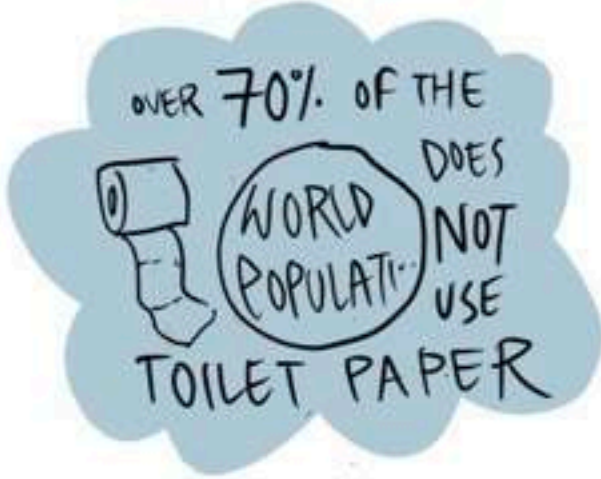
- » **Integrated System Model** with different overlays of information
- » **Visual Recording** of the Workshop by Joanna Mitchell – *please feel free to share!*

HOW TO ACHIEVE 20% CIRCULAR SANITATION IN THE MABR* BY 2030?

* MT. ARROWSMITH BIOSPHERE REGION

by JENNI OTTILIE KEPPLER
www.ottilie.cc/loop-the-poop/

A SYSTEM MODEL WORKSHOP
 24/9/22



IDENTIFYING BARRIERS & LEVERAGE POINTS



**– An integrated Systems Model on
How to implement Circular Sanitation in the
Mount Arrowsmith Biosphere Region –**

Guiding Question
for collecting the perspectives was:

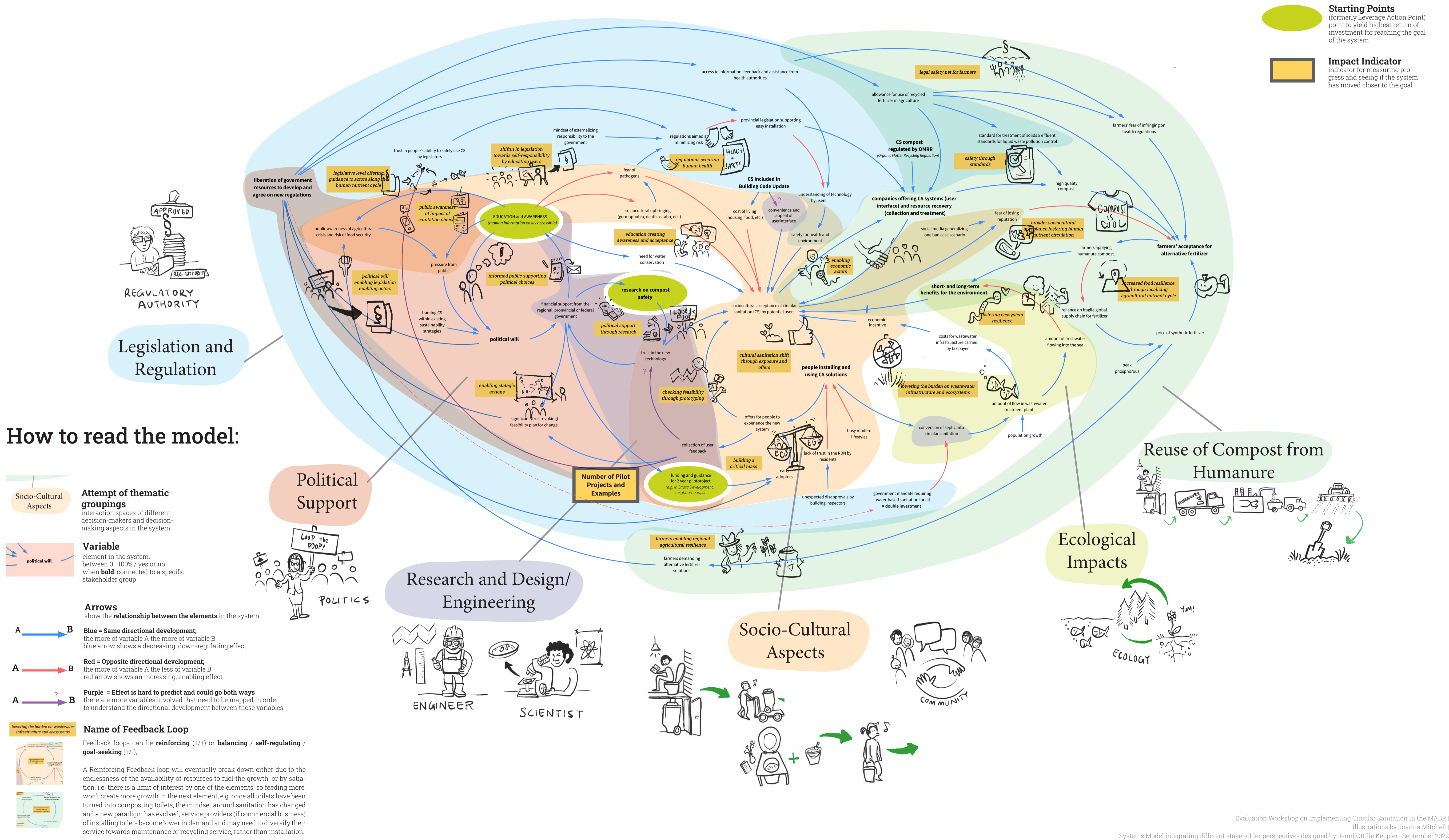
What is needed for 20% of human “waste” generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through circular sanitation* (CS) by 2030?

September 2022

– Systems Model (illustrated) –

What is needed for 20% of human “waste” generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through circular sanitation* (CS) by 2030?

* water-free toilets, such as composting toilets and source-separated toilets with the aim of nutrient recovery from solids and liquids



Starting Points
(formerly Leverage Action Point)
point to yield highest return of investment for reaching the goal of the system

Impact Indicator
indicator for measuring progress and seeing if the system has moved closer to the goal

How to read the model:

- Socio-Cultural Aspects**
- Attempt of thematic groupings**
interaction spaces of different decision-makers and decision-making aspects in the system
- Variable**
element in the system, between 0–100% / yes or no when **bold** connected to a specific stakeholder group
- Arrows**
show the relationship between the elements in the system
 - Blue** = Same directional development; the more of variable A the more of variable B
blue arrow shows a decreasing, down-regulating effect
 - Red** = Opposite directional development; the more of variable A the less of variable B
red arrow shows an increasing, enabling effect
 - Purple** = Effect is hard to predict and could go both ways
there are more variables involved that need to be mapped in order to understand the directional development between these variables

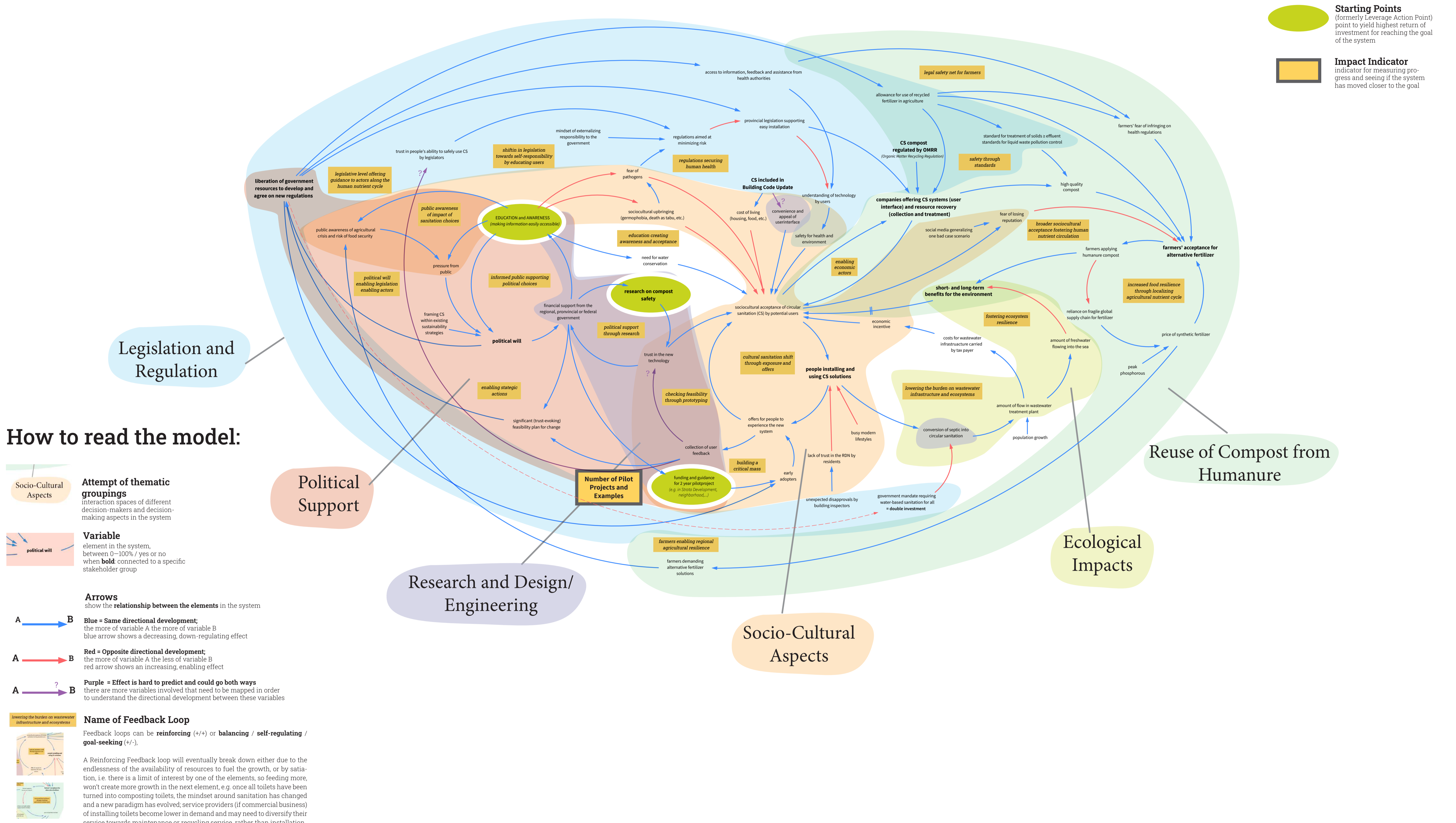
Name of Feedback Loop
Feedback loops can be **reinforcing** (++) or **balancing / self-regulating / goal-seeking** (+/-).

A Reinforcing Feedback loop will eventually break down either due to the endlessness of the availability of resources to fuel the growth, or by saturation, i.e. there is a limit of interest by one of the elements, so feeding more, won't create more growth in the next element, e.g. once all toilets have been turned into composting toilets, the mindset around sanitation has changed and a new paradigm has evolved; service providers (if commercial business) of installing toilets become lower in demand and may need to diversify their service towards maintenance or recycling service, rather than installation.

– Systems Model –

What is needed for 20% of human “waste” generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through circular sanitation* (CS) by 2030?

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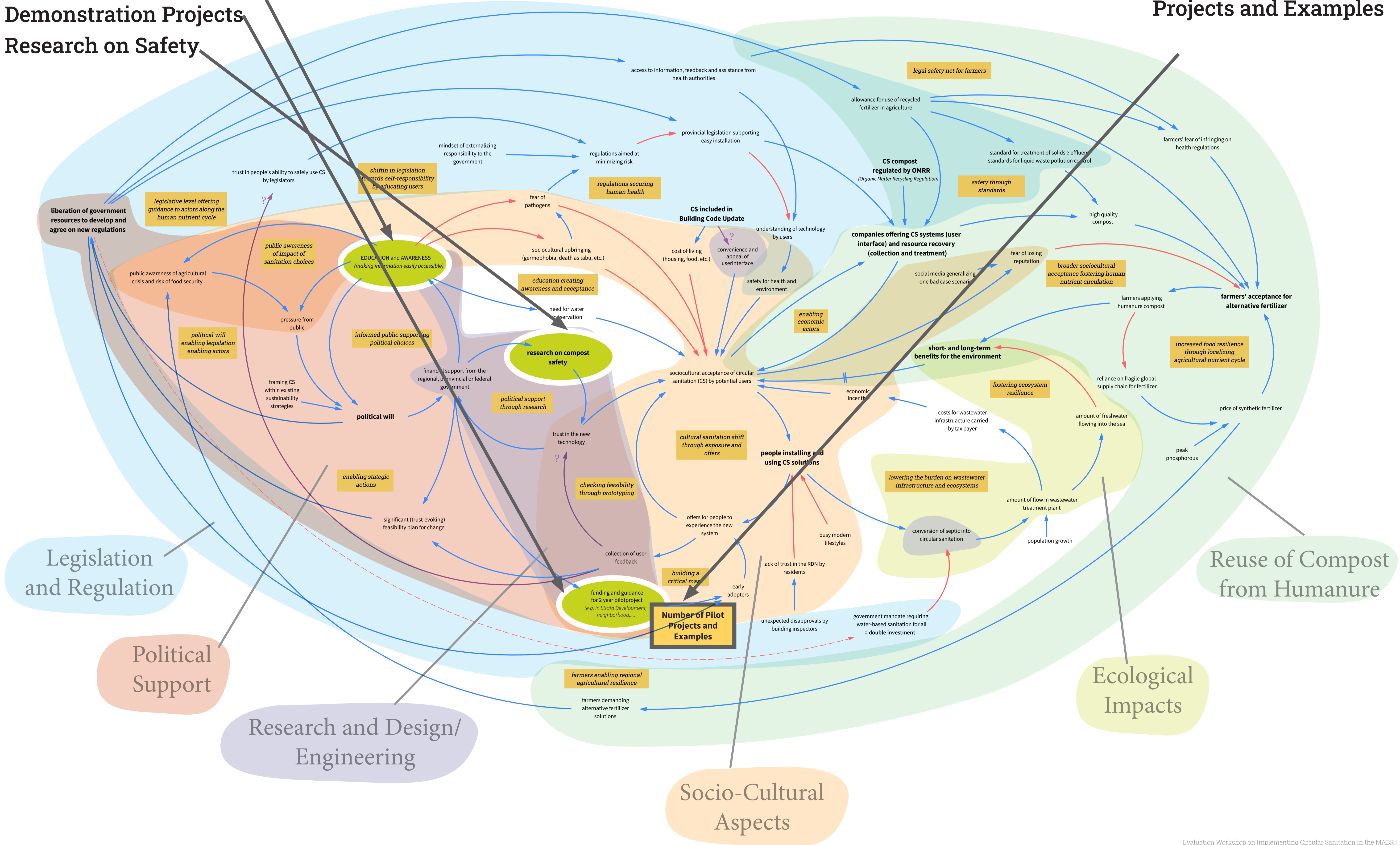
STARTING POINTS & IMPACT INDICATOR

Starting Points:

- 1 Education & Awareness
- 2 Demonstration Projects
- 3 Research on Safety

Impact Indicator

Number of Pilot Projects and Examples



Systems Model for Implementing Circular Sanitation in the Mount Arrowsmith Biosphere Region

Starting Points for Action (green)

The prompt for identifying Starting Points:
„If you had \$ 900,000, where would you invest it? Looking for the first step of action that we need to take in order to move the system towards the goal.“

Summary/Case Studies: Sanitation in the Mount Arrowsmith Biosphere Region
 10/20/2020 10:59:12 AM

Education and Awareness
Demonstration Projects
Research on (Compost) Safety

Identifying starting points for moving the system towards achieving the goal after everyone has become familiar with the overall task needs first and clearly on those variables that would just allow them to be identified by affecting the system in a way that starts with the most visible and the most immediate. The variables for the first three starting points below. These points would address the main barriers of safety, systems, management and lack of access to information. They would include national and public support to build up and improve political decisions that foster more research and bring in the legislative level as a support and safety net. The general action strategy through demonstration and awareness would increase the overall socio-cultural acceptance of circular sanitation. Once the feedback loops established, people may see competing toilet systems as just as normal as they see water-based toilets.

The prompt for finding Starting Points was:
 "If you had \$ 900,000 and you had to split it into three parts, where would you invest this money?"

The answers from the workshop must be as follows:

#1 | EDUCATION & AWARENESS (1 VOTES)
 In any kind of research education and awareness is important, especially in a topic that is not very broad or clear. Education would also be needed to educate the public and regulatory bodies to create a way of thinking that can help overcome the socio-cultural acceptance barriers of the current system. Further down the path and regulatory bodies might also be investigated at that time. The first four starting points that are being discussed are that: awareness of the new or older. One of the public.

#2 | DEMONSTRATION PROJECTS – A two-year pilot project at neighborhood-scale (1 VOTES)
 Demonstration also has a really low barrier to entry, as it can be done in a small scale to integrate a system, e.g. through introducing that from being a small-scale demonstration project. This would include creating a small-scale demonstration project, which can be done in a small scale to integrate a system, e.g. through introducing that from being a small-scale demonstration project. This would include creating a small-scale demonstration project, which can be done in a small scale to integrate a system, e.g. through introducing that from being a small-scale demonstration project.

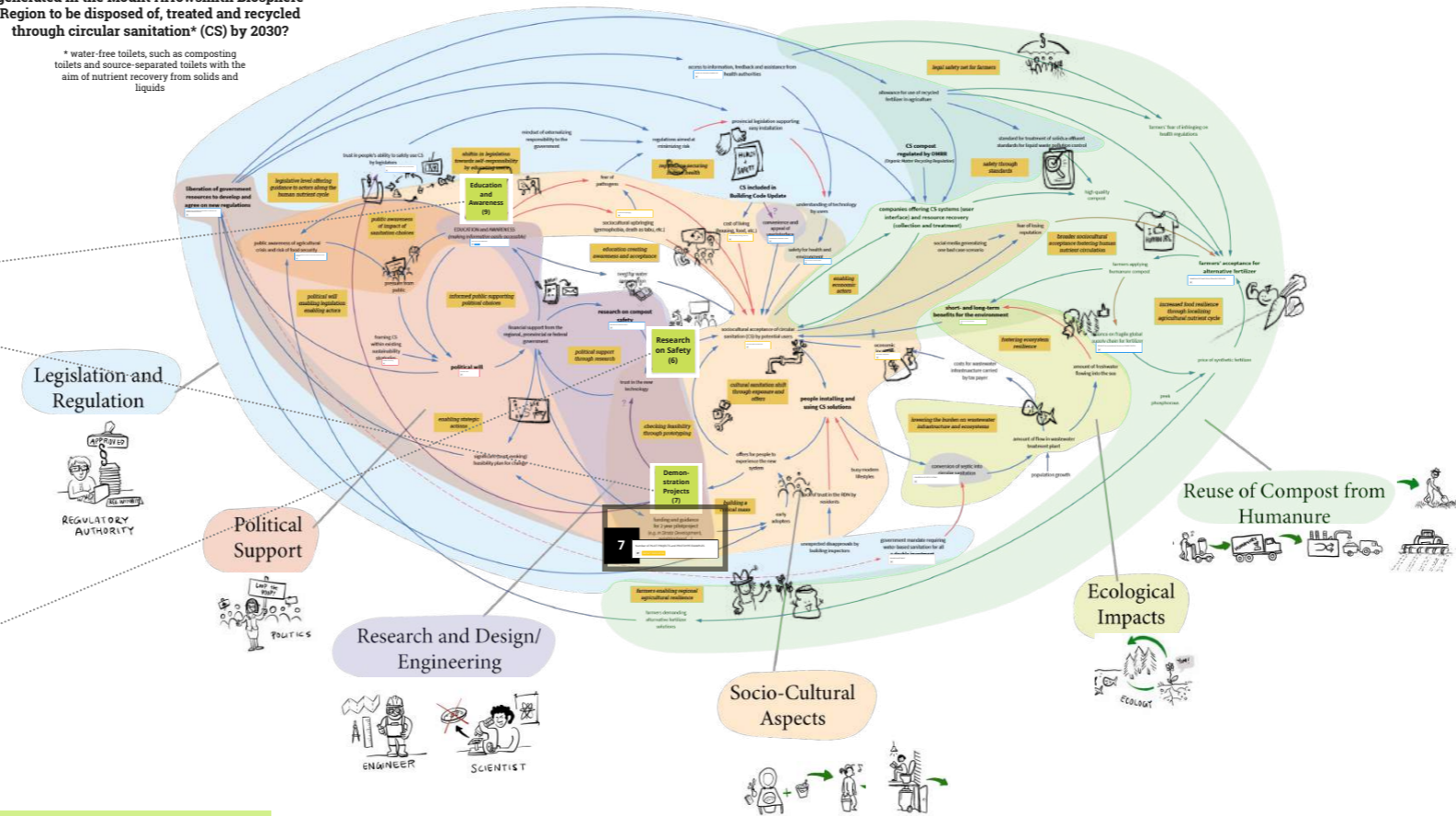
#3 | RESEARCH ON (COMPOST) SAFETY (0 END-USE) (1 VOTES)
 In order to have look at from all stakeholders that needs to be carefully assessed the safety of the practice and the application of humanure compost as agricultural fertilizer. Humanure compost is a natural fertilizer that is made from human waste and is used as a soil amendment. It is a natural fertilizer that is made from human waste and is used as a soil amendment. It is a natural fertilizer that is made from human waste and is used as a soil amendment.

Overview (prevention) of considerations for different settings

Circular Sanitation in the MABR

What is needed for 20% of human "waste" generated in the Mount Arrowsmith Biosphere Region to be disposed of, treated and recycled through circular sanitation* (CS) by 2030?

* water-free toilets, such as composting toilets and source-separated toilets with the aim of nutrient recovery from solids and liquids



Main Impact Indicator (black)

The prompt for identifying Impact Indicators:
In the year 2030 what variable(s) can tell us that we have come closer to the goal?

As suggested by Jenni:

#4 | Number of PILOT PROJECTS and PROTOTYPE EXAMPLES

IMPACT INDICATOR

Rationale:
 The presence of Pilot Projects (prototypes at different scales and environments) would be a significant first step towards implementing CS on a broader scale. It would imply the backing from across levels of decision-making: individual, communal, municipal, regional, provincial and possibly even federal. It would also mean a strong stepping stone for further developments in this directions will be laid, as it will increase exposure of the topic and enable collecting valuable feedback for users and sociocultural acceptance.

How to measure the actual impact of the projects:

- impact scale; number of people involved across all levels
- user surveys
- matrix for rating impact (power) of the outreach that each collaborator of the pilot projects has, e.g. is mayor was part of it, or journalist, or influencer etc.
- social media resonance of the projects?

Highland Park Example:

Legend

A/A → B/B
 Blue/S = Same directional development; the more of variable A the more of variable B

A → B
 Red/O = Opposite directional development; the more of variable A the less of variable B

blue arrow shows a decreasing, down-regulating effect

red arrow shows an increasing, enabling effect

Starting Points for Action (formerly Leverage Points)

The prompt for identifying Starting Points:
"If you had \$ 900,000, where would you invest it? Looking for the first step of action that we need to take in order to move the system towards the goal."

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Legislation and Regulation



Political Support



Research and Design/Engineering



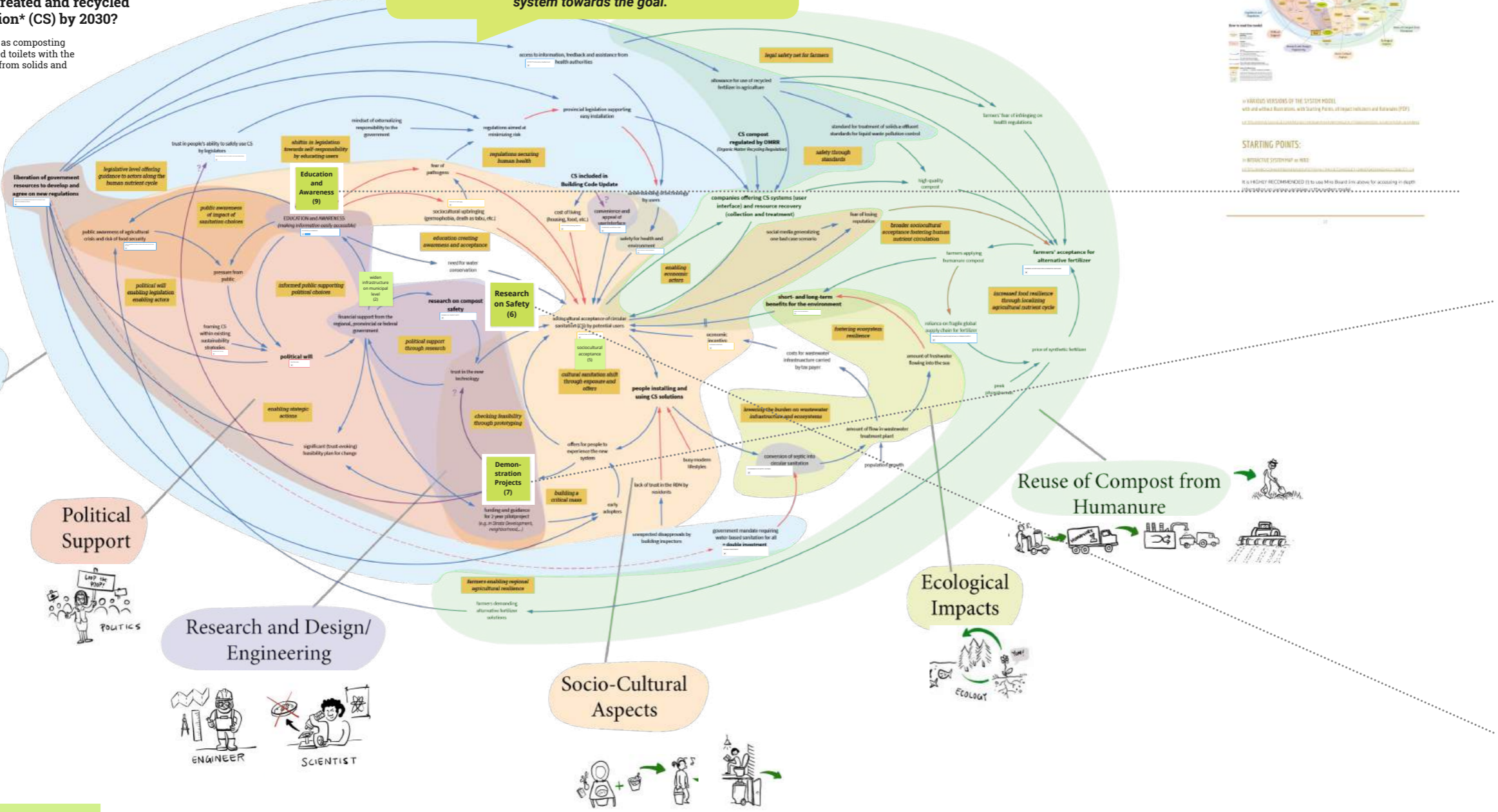
Socio-Cultural Aspects



Reuse of Compost from Humanure



Ecological Impacts



Legend

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Identifying starting points for moving the system towards a thriving goal
 After overview had become familiar with the task was to find and describe on three variables that would yield a high return of investment by affecting the system in a way that actors were enabled to work towards the goal. You can find rationale for the top three starting points below. These points would address the main barriers of safety concerns, misperception and lack of access to information. They would enable political and public support to back up and request additional decisions that foster more research and bring in the legislative level as a support and safety net. The general trust in technology through research and experience would likely increase the overall socio-cultural acceptance of circular sanitation. Once the feedback loop is established, people may see competing toilet systems as just normal as they see water-based toilets now.

The process for finding Starting Points was:
 "If you had a \$100,000 and you had to split it into three parts, where would you invest this money?"

The answers from the workshop read as follows:
 #1) EDUCATION & AWARENESS (9 votes)
 #2) DEMONSTRATION PROJECTS - A two-year pilot project at neighborhood-scale (7 votes)
 #3) RESEARCH ON (COMPOST) SAFETY (6 END-USE) (6 votes)

Education & Awareness (9 votes)
 Education would also be directed towards the political and regulatory bodies to make a way of enabling that can help ensure those who are interested in implementing parts of the humanure cycle, familiarizing the political and regulatory bodies of right also being important. Some and law makers that might be holding people from considering this as an option. Once the public is educated the political choices are more likely to be supported.

Demonstration Projects - A two-year pilot project at neighborhood-scale (7 votes)
 Having a physical space, where people can see and learn about the system would support the adoption. During the workshop the Tr-Agency Council was mentioned.

Research on (Compost) Safety (6 End-Use) (6 votes)
 In order to have buy-in from all stakeholders there needs to be clarity around the safety of the product and the application of humanure compost as agricultural fertilizer.

Impact Indicators

How to measure progress

For seeing the rationale for each point zoom in to the card and click on the icon

As suggested by Jenni:

#1] VISIBILITY AND QUALITY OF INFORMATION OFFERED by Health Authorities

IMPACT INDICATOR

Rationale:

- if provincial legislation has taken action on informing the public on the topic, it shows that the topic has reached higher decision making levels and gained support from politicians and public

Possible Criteria:

- accessibility of information:
 - e.g. where can I find it (how many clicks away)?
 - web, print, social media
- activity of spreading information
- what services are offered by the government:
 - handbooks, workshops, trainings for engineers, etc?
 - user-friendliness of material
 - high amount of visual information vs. text blocks

As suggested by Jenni:

#2] NUMBER OF BUSINESSES and/or SERVICES BASED ON RESOURCE RECOVERY FROM HUMANURE

IMPACT INDICATOR

Rationale:

- if there are businesses or services making money or being funded to offer the service of collecting, treating humanure and distributing finished compost as a product, it means that legislation has passed laws as well as installed regulations that secure this process to be safe to humans and their environment, also there has been an increase in awareness and acceptance among the public (sociocultural acceptance) and the narrative of human waste has started to change towards seeing human waste as a valuable resource, which points to a change in mindset in leading actors of the system and the beginning of a shift in the paradigm towards circular thinking

Possible Criteria:

- # of organic matter and liquids processed in the facilities

Added during workshop:

#5] AMOUNT OF WATER

Indicator:

- measure water from point of installation
- different municipalities have different measuring of water as wastewater use
- need a baseline, e.g. newly installed home

Hurdle:

- has a lot of variables coming in
 - more applicable for municipal use, where composting toilets are currently less likely to be installed
 - people who conserve water are already low in water use
- Could be overcome with BASELINE (moment of installation)
- Compare per capita overall use in the region v.s. household with composting toilet

As suggested by Jenni:

#3] NUMBER OF INSTALLED TOILETS

IMPACT INDICATOR

Rationale:

- number of toilets can be counted (!) in theory...
- assumption that data on toilet installation in **new homes (rather than in retrofits)** would be collected by housing & building sector

Hurdle to measuring it:

- private owners unlikely to share information of toilet installation

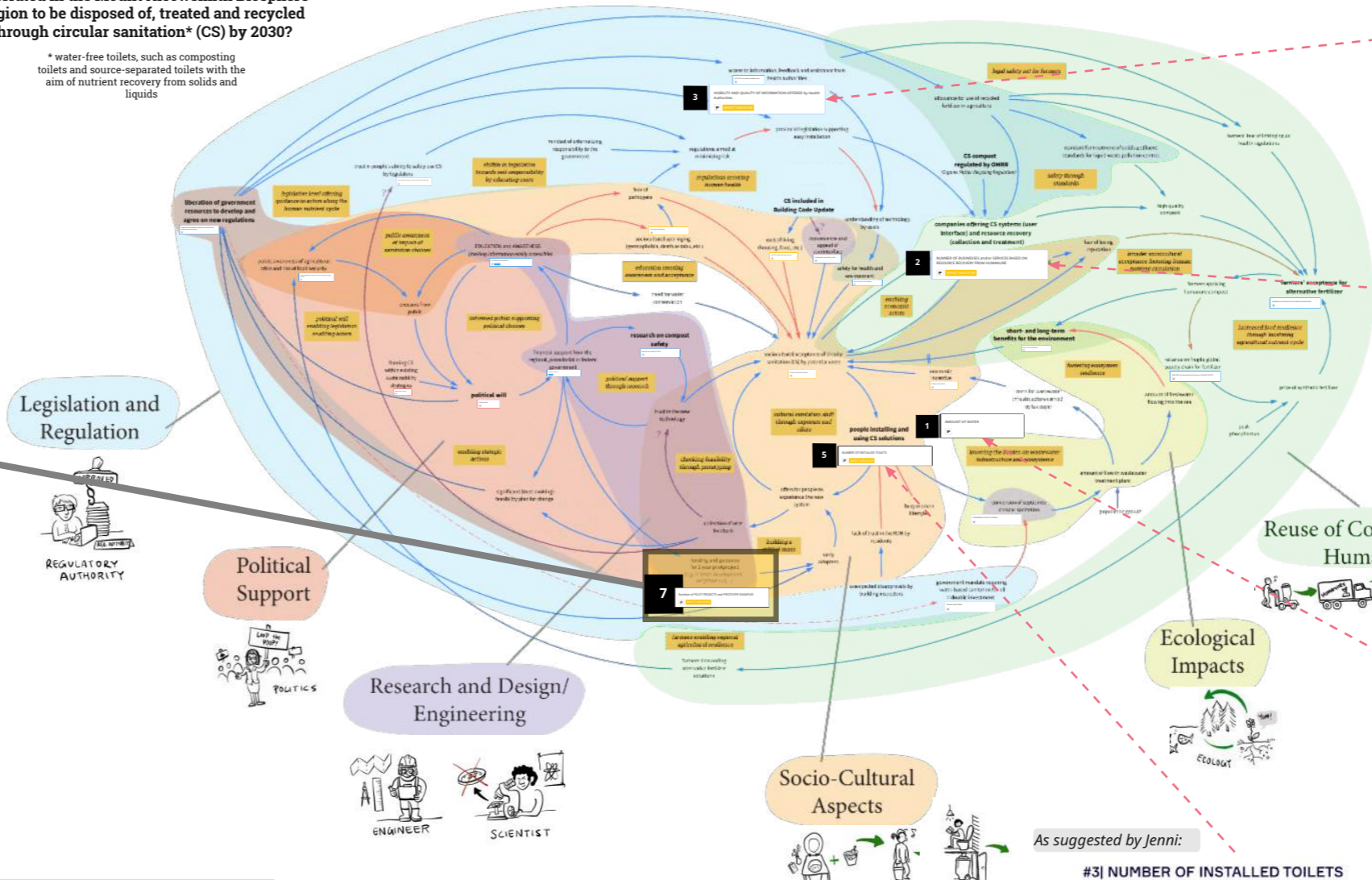
Ideas for possible proxy indicators

- health authorities documenting # of filings for compost toilets
- building permits? difficult, as processing for permits is different for indoor implementation

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Main Impact Indicator

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