Journal of the International Society for the Systems Sciences | 69th Meeting of the International Society for the Systems Sciences, Birmingham, UK.
Wilby, J., Makar, J. and Smith, G. eds.

ALL FOR ONE AND ONE FOR ALL: ACTION LEARNING THROUGH MULTISPECIES HUBS

McIntyre-Mills, J.J.[1], with Lethole, P.[2] , Makaulule, M[3]. and Widianingsih, I.[4] and Riswanda,R.[5]
Janet.mcintyre@adelaide.edu.au

Abstract

Despite the current analyses that 'globalisation has ended', the reality is that we live in an entangled global economy. Democracy is at risk along with a regulated fair economy that protects people and the habitat they share with co-dependent species of which human beings are but one of many other species. 'It's up to all of us to fix this,' Obama (Apr 5, 2025) [i] in a recent talk stressed that democracy can only be protected if people grasp their responsibility to be part of the so-called 'fight back.'

This research addresses the challenges facing the research environment by honouring both diversity and biodiversity. It stives to focus on ways to honour both by using available resources and the energy of those who believe that if we want to protect our shared habitat and democracy and then we need to do something about it. The team spanning Australia, Indonesia and South Africa build on our established track record with indigenous custodians and participating universities. Together we build on an existing community of practice with local communities to test engagement and governance processes linked with circular green local economies. Our shared understanding is that our shared survival is through a better understanding of our interdependency with others.

The research addresses a significant gap in knowledge and suggests pathways forward. Apartheid thinking is divided thinking. The book addresses what Shiva (2024) calls 'Ecological apartheid' in her lecture 'Quantum thinking changes everything'[ii]. If we recognise that we live in an entangled world, then we need to address species apartheid. The rationale for our participatory action research project and the related book is that we are living beyond our human limits and using the resources of this generation of living systems and the next generation of living systems. Our way of life as a human species is out of balance and unrealistic. It can only result in extinctions of several species and given our current policies human being are also on the extinction list.

The purpose of our work is to set up multispecies hubs, one project at a time in order to teach participatory democracy linked with the I Naturalist website. The organisations include local government, regional government and community groups, for example in South Africa such as Dzomo la Mupo (Voice of the Earth), Singabanakekeli beMvelo (looking after the nature / Nurturing nature), Tlhahopele (Voice of Nature), Thusanang (Caring for others) and an organic farmer's network (Participatory Guarantee System, PGSA).

Our way of life as a human species is out of balance and unrealistic. It can only result in extinctions of several species and given our current policies human being are also on the extinction list. Our project engages local communities to think about our relationship with the environment and one another and to support local democratic participation and decision making as well as local governance to protect the environment and through job creation in local circular, green economies.

'Attention is a moral act, and it changes the world', according to Ian McGilchrist. [iii] How we think matters quite literally.

This place based participatory design addresses multispecies relationality. Our approach is in line with the latest agenda of the Club of Rome to foster community engagement that fosters hope. The COP work is rooted

[1] University of Adelaide and University of South Africa
[2] University of South Africa
[3] Dzomo la Mupo
[4] Universitas Padjadjaran
[5] Universitas Sultan Agang

in striving to address the concern that not only are we living beyond our limits as a human species we are using the resources of other species on which we are dependent. The community of practice (COP) spans projects in Indonesia and South Africa with graduates, their students, colleagues and members of the community. The ancient societies such as those in Ciptagler and Baduy and the resilient communities in South Africa led by Dzomo la Mupo are inspiring intergenerational learning with young people. The potential implications of our research for future learning and educational policies is to set up learning communities, one multispecies hub at a time. We work together to enable local green circular economies that foster multispecies and hope for the future. The common good needs to be supported by democratic engagement.

Our area of concern is 1. Learning lessons from communities that have food security and are self-reliant. 2. How to protect these communities 3. Applying the lessons to support local green circular economies in other communities. Our applied mixed methods praxis addresses the challenge of species apartheid by learning from communities that live in harmony with nature and applying these lessons to re-establish multispecies relationality in circular green economies. The research addresses a significant gap in knowledge and suggests pathways forward to address the red flags of species apartheid, overpopulation, greed, conflict, climate change, fires, floods, displacement, dispossession, hunger and thirst.

Our multimethod approach combines qualitative and quantitative methods which we apply through participatory design and praxis with Indigenous custodians and local communities to address multispecies relationality. Our fieldwork comprises both focus groups and in-depth interviews with relevant sectors of local population.

Please note this paper is linked with the other 2 papers, namely 'All for one and one for all' and 'All life communicates'. A longer version of the paper will appear in an edited volume , tentatively titled 'Action Learning through Multispecies hubs: All for one and one for all'

Keywords: co-learning, indigenous custodians, multispecies relationality, redressing species apartheid

1. INTRODUCTION: PARTICIPATORY ACTION RESEARCH IN PREFIGURATIVE PROJECTS TOGETHER WITH THE COMMUNITY.

The team spanning Australia, Indonesia and South Africa build on our established track record with indigenous custodians and participating universities. Together we build on an existing community of practice with local communities to test engagement and governance processes linked with circular green local economies (Wirawan et al 2023). Our shared understanding is that our shared survival is through a better understanding of our interdependency with others (Simard 2021)**.** The implications of our research for future learning and educational policies is supported by the University of South Africa through so-called 'flagship' status with the community engagement leadership by Patricia Lethole of the Daveyton hub and through the facilitation and mentorship of members at the University of Adelaide, Universitas Padjadjaran and McIntyre, for example chairs the Special Integration Group at the International Society for the Systems Sciences and leads an associated research community aimed at making a difference. Our research addresses the challenges of the Anthropocene and the broken relationship between humans and nature through a cross cultural, interdisciplinary team that focuses on intergenerational learning with Indigenous custodians to support knowledge on regeneration, multispecies relationality and wellbeing. We foster youth leadership through sharing the lessons of best practice and action learning teaching and learning.

The research addresses a significant gap in knowledge and suggests pathways forward. Apartheid thinking is divided thinking . The book addresses what Shiva (2024) calls 'Ecological apartheid' in her lecture 'Quantum thinking changes everything'[iv] . If we recognise that we live in an entangled world , then we need to address species apartheid .

Action Learning through Multispecies Hubs

The rationale for our participatory action research project and the related book is that we are living beyond our human limits and using the resources of this generation of living systems and the next generation of living systems. Our way of life as a human species is out of balance and unrealistic. It can only result in extinctions of several species and given our current policies human being are also on the extinction list. The purpose of our work is to set up multispecies hubs to teach participatory democracy linked with the I Naturalist website. Our way of life as a human species is out of balance and unrealistic. It can only result in extinctions of several species and given our current policies human being are also on the extinction list. Our project engages local communities to think about our relationship with the environment and one another and to support local democratic participation and decision making as well as local governance to protect the environment and through job creation in local circular, green economies.

The organisations include local government, regional government and community groups, for example in South Africa such as Dzomo la Mupo (Voice of the Earth), Singabanakekeli beMvelo (looking after the nature / Nurturing nature), Tlhahopele (Voice of Nature), Thusanang (Caring for others) and an organic farmer's network (Participatory Guarantee System, PGSA).

The facilitators are based at universities such as University of Adelaide, Universitas Padjadjaran, University of Indonesia, Sultan Agang and government departments such as Ministry of Religious Affairs, provincial and village level government as well as research institutes, such as Future Worlds Center and professional organisations such as International Society for the Systems Sciences.

Together we build on an existing community of practice with Indigenous knowledge holders and local communities strive to test engagement and governance processes to protect multispecies relationality linked with circular green local economies and the understanding that " mistreatment of one species is mistreatment of all…it means expanding our epistemologies and methodologies …. Simard 2021:295) .

We aim to:

1. **Explore** *a priori* and *a posteriori participatory governance approaches* with a community of practice in Australia, Indonesia and South Africa linked shared concerns associated with high rates of urbanisation, habitat and species loss, displacement and the risks associated with climate change, namely food, water and energy insecurity.
2. **Draw on** Indigenous knowledge systems to improve decision making by building on the team's track record of establishing green circular economies with indigenous custodians and participating universities. We use mixed methods involving fieldwork that comprises both focus groups and in-depth interviews with relevant sectors of local population in an urban an rural region of South Africa and Indonesia. Together we research what works, why and how in grounded community studies focusing on the patterns in stories to develop indicators of social economic and environmental wellbeing (McIntyre-Mills et al 2014, 2023, Wirawan et al, 2023).

The team members spanning Australia, Indonesia and South Africa build on our established track record with indigenous custodians and participating universities. Together we build on an existing community of practice with local communities to test engagement and governance processes linked with circular green local economies (Wirawan et al 2023) . We understand that our shared survival is through a better understanding of our interdependency with other species (Simard 2021)**.** Our research aims to make a difference by a) researching whether a community of practice (Wenger et al., 2009) can help to support raising awareness through regular participation in Zoom webinars on learning by doing to support green circular social enterprises and whether the community of practice webinars plus different forms of engagement after the webinars help to support capacity building on how to address the regional/international UN Sustainable development Agenda (2030). The project supports the policy agenda underlined by the UNDRIP, 2007, current Indigenous concerns on protection of country (Chilisa,2019), the South African Government Voluntary Review (2019) promotes IKS across the sectors and the UN Declaration of Rights of Indigenous People (2007). It also responds to the UN policy to address food, energy and water security and the need to redress high rates of urbanisation and the cascading impact on human security (UN Urbanisation Report, 2014, UN Sendai Risk Platform, 2030, IPPC, 2023). We draw on and adapt the principle of the 'One Village, One Product approach', decreed by Jokowi

(2014) in Indonesia, to enable working across sites to facilitate the mapping of opportunities and the cross fertilisation of ideas (that is, learning from practices in Indonesia in which the team have been involved).

2. CONCEPTUAL FRAMEWORK AND RESEARCH APPROACH

Together with indigenous custodians and members of the community our multispecies mixed methods approach explores different types of 'bottom up engagement' to address Ostrom's stewardship principles to protect and re-generate local environments. We start with the premise that we live lives that are interdependent with other species and that improving governance and accountability is vital for addressing mitigation and adaptation to climate change. The case studies rely on mixed methods to foster systemic thinking and an 'ecology of mind' (Bateson, 1972) rooted in storytelling and mapping using soft systems and structured dialogues (Makaulule, et al., 2024, McIntyre-Mills et al., 2024, Laouris,2024).

The aim of this engagement research is to explore a priori and a posteriori participatory democracy and governance strategy with a community of practice in Australia, Indonesia and South Africa by building on the team's established track record on case studies of multispecies hubs linked with participating universities. Our research hypothesis is that the greater the level of participation by indigenous custodians and local community participants in multispecies hubs, the greater the match between user's perceptions and governance outcomes. Our multimethod approach combines participatory action research within case study areas with synchronous zoom meetings and asynchronous metalogues to engage with participants.

The case study areas share concerns associated with the following, namely: high rates of urbanisation, habitat and species loss, displacement and the risks associated with climate change, such as food, water and energy security.

The aim of this engagement research is to explore a priori and a posteriori participatory democracy and governance strategy with a community of practice in Australia, Indonesia and South Africa by building on the team's established track record on case studies of multispecies hubs linked with participating universities. Our research hypothesis is that the greater the level of participation by indigenous custodians and local community participants in multispecies hubs, the greater the match between user's perceptions and governance outcomes. Our multimethod approach combines participatory action research within case study areas with synchronous zoom meetings and asynchronous metalogues to engage with participants. For example, we host training sessions to enable and mentor across projects such as:

- Establishing and testing community engagement processes with the Future Worlds Centre and International Systems Sciences members to address the concern that currently democracy is under threat by confusing freedom from responsibility with freedom to exploit. Our community of practice comprises cross cultural and multi faith groups.
- Training citizen scientists to test water and map species within the neighbourhood using the I – naturalist website which is freely available at https://www.inaturalist.org/pages to raise awareness of local biodiversity, monitor and benchmark the local habitats.
- Setting up Indigenous plant nursery, seed bank, organic compost and associated organic market for vegetables, plants, compost and healthy snacks. The leadership of Dzomo la Mupo and PGSA enables co-learning.
- Water testing to help improve the natural wetlands to support a bird sanctuary, for example at Daveyton (South Africa) and Taramujaya (West Java) to protect the Citarum River.
- Creating a virtuous cycle to protect the local wetlands and to create a bird sanctuary. Together we address: production, marketing, management of projects including a sewing project making re-uesable sanitaty ware and a laundry located at the Daveyton campus of the University of South Africa.

2.1 Participatory action research in prefigurative projects together with the community.

The organisations include local government, regional government and community groups , for example in South Africa such as Dzomo la Mupo (Voice of the Earth), Singabanakekeli beMvelo (looking after the nature / Nurturing nature), Tlhahopele (Voice of Nature),Thusanang (Caring for others) and an organic farmer's network (Participatory Guarantee System, PGSA).

The facilitators are based at universities such as University of Adelaide, Universitas Padjadjaran, University of Indonesia, Sultan Agang and government departments such as Ministry of Religious Affairs, provincial and village level government as well as research institutes, such as Future Worlds Center and professional organisations such as International Society for the Systems Sciences.

Together we build on an existing community of practice with Indigenous knowledge holders and local communities strive to test engagement and governance processes to protect multispecies relationality linked with circular green local economies and the understanding that:

> " mistreatment of one species is mistreatment of all…it means expanding our epistemologies and methodologies …. Simard 2021:295)[v].

Year 1: A face to face and digital learning community supported by a shared platform for data analysis to address the aims. We develop work plan across organizations. The research team will extend ongoing research with our active community of practice spanning University of Adelaide, University of South Africa, The University of Venda, Participatory Guarantee System, South Africa (an organic farmer's network, Dzomo la Mupo (Voice of the Earth) and Universitas Padjadjaran to address multiple sites in order to scale up local enterprises map re-generative pathways based on participatory action research. We aaddress Elinor Ostrom's 8 principles for local engagement and the UNSDGs on zero poverty, water and food security and the creation of partnerships as a means to address local needs.

Year 2: Ongoing Analysis through primary and secondary data. Personal stories based on addressing the question "how should we live in order to achieve wellbeing" reveal patterns. Patterns provide residents and service providers the opportunity to explore pathways to wellbeing.

Year 3: Evaluating the learning organisation and publication of research findings. The stories of material and non-material haves, needs, turning points for the better and worse, barriers inform our approach.

2.2 Further research

Could Indigenous custodians teach AI to care ? AI is more than a tool, it has agency and interacts with other tools (Kurzweil, 2024, Harari, 2024) our shared environment, all other species, including us. What are the design implications of learning from a narrow section of the population (Harari, 2024) for democracy (Stiglitz, 2024 , Banki Moon, 2024, Guterres, 2024? What are the implications of being exposed to narrow sets of data and not being designed to engage in well-defined tasks? (Hinton, 2024, Shiva, 2012) This requires addressing subjective perceptions, objective empiricism and intersubjective dialogue informed by both idealism and pragmatism (Churchman, 1971,1979.1982).

2.3 The Approach

We work with an established team comprising leaders in systems design , early career academics and members of the community to make a difference by building on ARC linkage grant (LP0560406), a PhD thesis by Wirawan (2024), in kind support of Adelaide University, the University of South Africa , Universitas Padjadjaran and the International Systems Sciences through a Special Integration Group and the support of

Yiannis Laouris and Marcus Hallside along with the related team members to apply structured democratic dialogue.

2.3.1 Research Hypothesis and exploratory questions

The greater the level of participation by indigenous custodians and local community participants in green circular economy hubs, the greater the match between user's perceptions of social, economic and environmental indicators of wellbeing and governance outcomes pertaining to UN SDG on food, water and energy security.

1. What are the most effective ways to facilitate inclusive conversations that honour diverse cultural backgrounds and perspectives, and how do these methods impact community cohesion and environmental outcomes?

2. To what extent can digital platforms support fair and transparent governance in communities across different cultural and geographic contexts?

3. How does the inclusion of Indigenous practices and values in decision-making affect the sustainability of local ecosystems? What can indigenous custodians teach us about relationality spanning organic and inorganic totems?

The paradigms taught in schools and universities need reshaping as stressed in "Transformative Education"; we need to learn from nature's classroom (McIntyre-Mills et al, 2022). How does this align with panpsychism (Chalmers, 2013, 2016), the Cambridge declaration on consciousness (Low, 2012) decision making by plants and animals (Gaglioni et al, 2018, Rayner, 2017, De Waal, 2009, Goodall, 2020)?

3. LEARNING OUTCOMES AND OUTPUTS

Together we can grow and together we can inspire hope. Our findings empower educators and practitioners to drive systemic change through a COP that addresses transformative education by learning by doing, enabling people to understand the need to move away from polarisation to multispecies relationships and helping to inspire practical affirmative interventions to support multispecies relationships. We incorporate traditional knowledge and indigenous wisdom into your research through working with indigenous custodians to learn lessons of resilience from communities that protect forests, rivers and wetlands and rely on organic farming methods through multispecies relationships. In South Africa, for example unemployment is at the level of 31 % of the population but much higher amongst young people and those with disabilities.

The potential implications of our research for future learning and educational policies is to set up learning communities, one multispecies hub at a time. This is what we are doing in our community of practice. We use 'learning by doing' with community leaders, indigenous custodians in a prefigurative, multidisciplinary action learning project.

Our community of practice is well placed to collaborate with partner investigators in South Africa, Australia and Indonesia. To sum up community engagement is through:

- **Setting up a learning community** with a range of stakeholders, including the employed and unemployed to enable ongoing learning across generations, disciplines and cultures. Our transdisciplinary approach engages communities and universities in exploring practices that regenerate life-forces (Mupo) and create employment opportunities by working with the environment with 180 participants at Daveyton on 2nd Feb and ongoing COP networking with participants on line.
- **Collaborative Efforts using Mixed Methods by** collaborating with University of South Africa, Participatory guarantee System (PGA, an organic farmers network), the University of Venda, the University of Adelaide, Universitas Padjadjaran, Universitas Sultan Agung to learn from Ciptagler and Baduy communities with graduates who are linked with the areas, the custodian Mphatheleni Makaulule

who leads Dzomo la Mupo, and other institutions highlights the integration of indigenous and Western knowledge systems.

- **Impact on Teaching and Learning**
  The research aims to balance indigenous knowledge with Western scientific approaches, promoting a green circular economy using a metalogue approach to weave together many ways of knowing.
- **Innovative educational practices** include the use of metalogues to co-learn with indigenous custodians and facilitators, combining eco-mapping with on mapping pathways to wellbeing techniques supported by PhD graduates and Structured Democratic Dialogues with leaders such as Dr Yiannis Laouris of Future Worlds Center.
- The participants were also asked to download I naturalist and to use the application to understand the Ekurhulenu area. The members of the COP were introduced to the website on 2nd February 2025 in a two day training programme with a follow up program led by student leader Siphiwe Buthelezi
- Participants were asked to form groups and were invited to join a friendly competition to see who could load the most indigenous species of plants, insects , frogs and birds. The competition is ongoing and the winning group will be awarded a prize and their names added to the planned publications.

The community members were trained on the I Naturalist website at the Unisa Daveyton Campus, Training led by Siphiwe Buthelezi

Photo : Eco mapping led by Vho Mphaṱheleni, Makaulule and Vho Joice Mbengeni (Indigenous people) at Daveyton with members of the community of practice.

Eco mapping activities in the Daveyton Campus

Photo: Eco map of Daveyton to inspire local people to think about how they live their lives across the seasons. The participants were asked to reflect on their lives and their neighbourhood including the cosmos.They were able to see the interconnectedness and interdependence of the universe. The Daveyton community were encouraged to participate in the observations of the species around Daveyton during the eco mapping workshop. At the end of the workshop, the community members that observed during the week were awarded prices so to encourage others to part take in this activity. Siphiwe Buthelezi won first prize, Susanah Ntuli won second price, Priscilla Leshabe won third place and lastly Mpho Mbhele won the 4th place.

Photo : Mapping local plants and wetlands

The COP were mapping Unisa wetland in eco-mapping workshop. The Community of Practice members drew pictures of the habita(plants and animals) of the wetland . In addition , they also collect real plants from the wetland.

The Eco-Mapping Workshop was held over five days, with approximately 30 active participants with the goal of exploring indigenous knowledge systems and understanding multispecies relationships within the context of Daveyton.

Opening Remarks

The event was officially opened by Prof. Ditchaba, who welcomed participants and introduced the keynote speakers. Ms. Lethole emphasized its purpose: to help build sustainable communities through a deeper connection with nature and traditional knowledge.

Session 1: Self-Introspection and Connection with Nature

Participants were asked to spend at least 20 minutes outdoors in nature, reflecting on the following introspective questions:

Who am I?

Where was I born?

Where did my water come from growing up?

Where do I live now, and where does our water come from today?

After this reflective exercise, participants shared their thoughts. A common theme emerged: most participants originally sourced water from rivers, but now rely on taps. One participant highlighted that Daveyton was established in 1959, during apartheid, as a township designated for Black people. Notably, water infrastructure was first introduced on 1 April 1959.

Presentations by Organizations

Voice of Africa

A non-profit organization focused on environmental preservation. Their mission is to reconnect with nature by planting indigenous trees, maintaining seed banks, and promoting the use of organic fertilizers. Their ultimate goal is to recover ancestral knowledge and restore balance to the earth.

Earthlife Africa

Established in 1988 by students from Wits University, Earthline Africa is a non-profit organization dedicated to addressing environmental challenges, such as water pollution. It has branches in Cape Town, Durban, Namibia, and Johannesburg—each with a specific focus. The Johannesburg branch concentrates on climate change and electricity issues. The organization works collaboratively with stakeholders, including financial and legal experts, to challenge environmentally harmful activities.

Group Activities

Participants were divided into three groups for a discussion-based activity:

Group 1: General Concerns in Daveyton

Issues raised included water pollution in wetlands, teenage pregnancy, inadequate public transportation, lack of sports facilities, poor service delivery, drug abuse, and crime.

Group 2: Environmental Focus Areas for Daveyton

Concerns included climate change, squatter camps, illegal dumping, pollution in wetlands threatening biodiversity, poverty, lack of environmental education, and the need for reforestation.

Group 3: Mapping Exercise

This group was tasked with identifying Daveyton on a map of Gauteng. They demonstrated how to locate the area and its geographical context.

Take-Home Assignment

Attendees were asked to complete an activity at home:

Action Learning through Multispecies Hubs

Find a word in their local language that means "nature."

Identify indigenous plants and animals, and name them in their native language.

Recall and document traditional stories and songs from earlier generations.

1st place – I naturalist award price giving Facilitated by Kgomotso Nyamakazi

2nd place

3rd place

I Naturalist training in Tarumajaya led by Ida Widianingsih resulted in participation by students and villagers., the number of observations reported was 1028 on the 3rd of February.

The collaboration in Baduy Community includes conservationists, economists, academics and community leaders . The second photo shows how everything is 'made by nature' in Baduy community[vi].

The Baduy community in Banten, Indonesia, is recognized for their profound reverence for nature and their dedication to maintaining traditional lifestyles that coexist well with the environment.

4. NO LIMITS TO HOPE

Our work addresses the concern that not only are we living beyond our limits as a human species we are using the resources of other species on which we are dependent.

In order to 'learn for life', the community of practice (COP) spans projects in Indonesia and South Africa with graduates, their students, colleagues and members of the community. The ancient societies such as those in Ciptagler (West Java, Indonesia) and Baduy (Bantam Province, Indonesia) and the resilient communities in South Africa led by Dzomo la Mupo are inspiring intergenerational learning with young people. We have chosen to work in Africa and Indonesia, two developing nations that share a colonial legacy of colonisation . The case study areas share concerns associated with the following, namely: high rates of urbanisation, habitat and species loss, displacement and the risks associated with climate change, such as food, water and energy security.

The potential implications of our research for future learning and educational policies is to set up learning communities, one multispecies hub at a time. We work together to enable local green circular economies that foster multispecies and hope for the future. The common good needs to be supported by democratic engagement.

Our area of concern is 1. Learning lessons from communities that have food security and are self-reliant. 2. How to protect these communities 3. Applying the lessons to support local green circular economies in other communities.

Our applied mixed methods praxis addresses the challenge of species apartheid by learning from communities that live in harmony with nature and applying these lessons to re-establish multispecies relationality in circular green economies. The research addresses a significant gap in knowledge and suggests pathways forward to address the red flags of species apartheid, overpopulation, greed, conflict, climate change, fires, floods, displacement, dispossession, hunger and thirst.

Our multimethod approach combines qualitative and quantitative methods which we apply through participatory design and praxis with Indigenous custodians and local communities to address multispecies relationality. Our fieldwork comprises both focus groups and in-depth interviews with relevant sectors of local population.

This research fills critical knowledge gaps and proposes pathways to address global challenges such as overpopulation, climate change, ecological degradation, displacement, hunger, and thirst. By integrating traditional ecological knowledge from Ciptagelar, Baduy, and Dzomo la Mupo with modern regenerative and sustainability practices, we aim to create resilient systems that benefit humans and non-human species while inspiring educational policies rooted in intergenerational learning and ecological stewardship.

4.1 Innovations/New Knowledge

- **Indigenous knowledge and demonstration** on climate change adaptation, re-generation and UNSDGs and learning what works why and how from patterns in stories by working with Indigenous custodians .

4.1.1 Potential economic , environmental, social and cultural benefit to Australia, South Africa and Indonesia

This project will integrate data on life chances of women and young leaders to enable them to set up innovative social enterprises based on engagement that fosters an awareness of social ecology whilst enabling them to protect food and water security. This research strives to contribute by exploring different forms of engagement to support social and environmental justice by considering to what extent engagement could play a role in limiting top down AI approaches to human rights and the abuse of power through enabling more surveillance 'from below' and through enhancing the stewardship potential to protect our shared multispecies habitat. If all life communicates – including plants and animals – we need to rethink law, governance and democracy to ensure our shared habitat – is protected.

REFERENCES:

Bateson, G. 1972. *Steps to an Ecology of Mind*. NY: Ballantine.
Ban Ki-moon Human Rights in a Fractured World https://www.youtube.com/watch?v=nxpJllA7BSA.
Bateson, G. 1972. Steps to an Ecology of Mind. NY: Ballantine.
Chilisa, B. (2017). Decolonizing transdisciplinary research approaches: An African perspective for enhancing knowledge integration in sustainability science. *Sustainability Sc., 12*(5), 813–827.
Haraway, D. J. (2016) Staying with the trouble.
Gutterres,2024 https://indonesia.un.org/en/281339-un-day-2024-secretary-generals-message-antonio-guterres
Harari , N.Y (2024) . *Nexus.* NY. Random House
IPPC(2022) Report Climate Change.
Hinton, G (2024) "Will digital intelligence replace biology.https://youtube.com/watch..
Laouris,Y (2024) Structured Democratic Dialogue https://i2insights.org/?s=SDD. Makaulule, M.Lethole,P.et al (in press) . Responsibility to heed the call through a community of practice: the influence of indigenous wisdom Paper for the *68th Meeting of the International society for the systems sciences* .
Makaulule, M.Lethole,P.et al (in press) . Responsibility to heed the call through a community of practice: the influence of indigenous wisdom Paper for the *68th Meeting of the International society for the systems sciences* .
McIntyre-Mills, J. J. (2022). The importance of relationality. *Systems Res. and Behavioral Science*, 39(2), 339–353.
McIntyre-Mills, J.J, Corcoran Nantes, Y. (2022) *Transformative education for re- generative development*, Springer. McIntyre-Mills, J.J. (2024) Organic metalogue across spaces and places to rethink species relationships in a community of practice.*Systemic Prac & Action* Volume 36, pages 275–319 Romm, N. & Lethole, P. (2021
McIntyre-Mills, J. J. (2022). The importance of relationality. *Systems Res. and Behavioral Science*, 39(2), 339–353.

McIntyre-Mills, J.J, Corcoran Nantes, Y. (2022) *Transformative education for re- generative development*, Springer.

Romm, N. & Lethole, P. (2021). Prospects for sustainable living In *From Polarisation to Multispecies Relationships* (pp. 87-114). Cham: Springer.

Wenger, E., et al. (2009). *Digital habitats: Stewarding technology for communities*. CPsquare.

Wirawan, R., et al (2023). Pathways to well-being in Tarumajaya, West Java: Post-COVID 19 Systems Res. and Behav.Science, 1–24.

Some references to our collaboration

McIntyre-Mills, J.J. (2014) 'Systemic Ethics and non-anthropocentric stewardship Springer, New York.

McIntyre-Mills, J.J (2017) 'Planetary Passport: Re-presentation, Accountability and Re-Generation'. Springer International Publishing AG, Cham, Switzerland. eBook ISBN, 978-3-319-58011-1, 10.1007/978-3-319- 58011-1

McIntyre-Mills, J., Romm, NRA and Corcoran Nantes, Y. (Eds) (2018) Balancing Individualism and Collectivism. Collected papers from Special Integration Group for International Systems Sciences plus 16 contributors. Contemporary Systems Series. Springer, Cham, Switzerland. 10.1007/978-3-319-58014-2.

McIntyre-Mills, J.J. and Romm, NRA (Eds) (2019) Mixed Methods and Cross Disciplinary Research: Towards Cultivating Ecosystemic Living. Cham, Switzerland. 10.1007/978-3-319-58014-2

McIntyre-Mills, J., Romm, NRA and Corcoran Nantes, Y. (Eds) (2019) Democracy and Governance for Resourcing the Commons: Theory and Practice on Rural-Urban Balance. Springer, Cham, Switzerland. 10.1007/978-3-319-58014-2

McIntyre-Mills, J.J. , Corcoran-Nantes, Y. (Eds) (2021) 'From Polarisation to Multispecies Relationships in the Age of Mass Extinctions . Springer Nature. Singapore https://doi.org/10.1007/978-981-33-6884-2

McIntyre-Mills, J.J. (2024) 'Affirmative Intervention to support Multispecies Relationships'. Springer Nature , Singapore.

McIntyre-Mills, J.J., Corcoran Nantes, Y. (2022) Transformative Education for Regenerative development, Springer. Singapore.

McIntyre-Mills, J. J., Lethole, P., Makaulule, M., Wirawan, R., Widianingsih, I., & Romm, N. (2023). Towards eco-systemic living: learning with Indigenous leaders in Africa and Indonesia through a community of practice: implications for climate change and pandemics. Systems Research and Behavioral Science, 40(5), 779–786. https://doi.org/10.1002/sres.2976

McIntyre-Mills, J.J. (2024) Organic metalogue across spaces and places to rethink species relationships in a community of practice Systemic Practice and Action DOI: 10.1007/s11213-024-09697-9

McIntyre-Mills, J. J. (2022). The importance of relationality: A note on co-determinism, multispecies relationships and implications for COVID-19. *Systems Research and Behavioral Science*, 39(2), 339–353. https://doi.org/ 10.1002/sres.281

[i] https://www.youtube.com/watch?v=J48l41l94HQ

[ii] https://www.youtube.com/watch?v=b4t8Xt_QqGE

[iii] McGilchrist, I. (2019). The Master and His Emissary: The Divided Brain and the Making of the Western World. Yale University Press..https://www.youtube.com/watch?v=3V3_Y_FuMYk

[iv] https://www.youtube.com/watch?v=b4t8Xt_QqGE

[v] Simard, S. (2021) 'Finding the mother tree. Uncovering the wisdom and intelligence of the forest'. UK . Random House

[vi] A notable characteristic of Baduy culture is the construction and utilization of all their possessions — including houses, clothing, and tools — from natural materials, sustainably acquired from their environment.

Their residences are exclusively built from organic materials: bamboo for the framework, rattan for fastening, and palm or thatch leaves for roofing. No nails, cement, or artificial materials are employed. The house's architecture is straightforward, raised on stilts to safeguard against dampness and wildlife, and aligned with indigenous spiritual beliefs. The construction techniques are transmitted over generations and consistently emphasize ecological equilibrium. The Baduy people deliberately eschew contemporary technology and industrial products to the greatest extent feasible. They eschew electricity, reject plastic, and cultivate their own food employing traditional agricultural techniques devoid of chemical fertilizers or pesticides. Their garments are handcrafted from woven cotton, dyed with natural pigments, and assembled without machinery.

This method transcends tradition; it embodies environmental stewardship. The Baduy hold the belief that humans are an integral part of nature, rather than superior to it. Their lifestyle exemplifies sustainable living—utilizing only what is necessary, using it with respect, and safeguarding the earth's health for future generations.

In a contemporary world characterized by consumption and industrialization, the Baduy exemplify a unique society that flourishes while maintaining complete ecological equilibrium. The notion of Community of Practice (CoP) within the Baduy community is intricately woven into their daily existence; despite the absence of the terminology, the underlying concepts are in perfect alignment.

The Baduy have a profound dedication to adat (customary law) and ecological practices. Their "domain" encompasses the expertise and application of sustaining equilibrium with nature, eschewing contemporary influences, and preserving traditional wisdom.

The Baduy community is organized around strong familial ties and shared obligations. Knowledge is transmitted verbally and by practice, with elders instructing the youth in agriculture, weaving, construction, and spiritual doctrines. This continuous engagement fosters a robust relationship of trust and knowledge acquisition. Rituals such as Seba Baduy (a journey to present offerings to the governor) further fortify local identity and support collective ideals.

3. Practice: Collective Knowledge, Competencies, and Convictions. They disseminate and safeguard: conventional agricultural practices, such as shifting cultivation or ladang, construction of residences utilizing natural materials, crafting traditional textiles, particularly by Baduy women, utilization of herbal medicine, verbal narration and spiritual rituals. These are not merely solo chores; they are communal practices bolstered by group norms, involvement, and ongoing learning.

In short, the Baduy exemplify a traditional Community of Practice that has endured for centuries. Without modern schooling, they master complex ecological and cultural knowledge through social learning, observation, and participation. Their community is not just preserving knowledge — it is an ecosystem of learning deeply woven into everyday life.