E/S/R

Science for Communities

He Pūtaiao, He Tāngata

SOCIAL SYSTEMS LAB

Social Systems Lab Learning report

2020/21

WHY A SOCIAL SYSTEMS LAB?

The world is facing complex societal challenges:

- **Climate change, COVID-19, increasing waste, reducing bio-diversity**
- **Structural racism, inequity, marginalisation of diverse knowledges and people**
- **Such complex challenges require systemic thinking and action.**

The Institute of Environmental Science and Research (ESR), a Crown Research Institute in New Zealand, has a vision of Aotearoa where the safety, health and wellbeing of our communities is protected. ESR focuses on science in the areas of environmental and public health, food safety, forensic science and radiation safety.

Through the Social Systems Lab, ESR brings together systems thinking and social science to understand and act on complex challenges in collaboration with communities. The team explores innovation in applied social systems methods, and supports those we work with to learn more about systems thinking in practice. The Social Systems Lab is funded through the ESR Strategic Science Investment Fund from MBIE.

WE ARE A MULTI-DISCIPLINARY TEAM OF SOCIAL RESEARCHERS WITH DIVERSE EXPERIENCE AND EXPERTISE

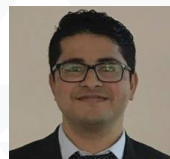|		
Social justice and equality	**Sustainability/ SDGs**	**Research impact**
Qualitative research	**Ethics**	**Co-design**
Systems thinking	**Trans-disciplinarity**	**Bicultural research**
	Kaupapa Māori	

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OUR VISION AND MISSION

VISION
Support science to have impact for communities.

MISSION
Work collaboratively to design science with iwi, hapū, government and communities, to benefit those who partner with ESR.

The Social Systems Lab (SSL) aims to be a space where transdisciplinarity, systems thinking, and multiple perspectives come together to collaboratively undertake problem structuring and identify systemic solutions to specific areas of work or research. The SSL aims to grow as a learning lab and become a leader and influencer in systems thinking, co-design and in the transdisciplinary research space.

HOW ARE WE TRACKING?

We are guided by our strategic blueprint and the learning framework for systemically monitoring and evaluating our activities, outputs and outcomes.

Our learning framework allows us to understand, reflect on and learn from our actions within the SSL in terms of:

- **Values and methods**
- **Spaces and platforms**
- **Capability development**

We refine our theory of change by regularly comparing our progress against the theory of change, and look for new understandings.

The general approach is that of adaptive action cycles: planning-action-reflection-planning-(re)action. This will be carried out individually and collectively.

OUR KEY ACHIEVEMENTS FOR 2020/21

Supported research impact initiative within ESR

Supported ESR and community groups to articulate theory of change through facilitated workshops

Facilitated problem structuring workshops with ESR forensic staff

Explored potential research relationships with Whitireia/WelTec

Helped establish a cross CRI social science network, including exploring ethics processes

Discussed SSL with stakeholders and at conferences

Explored transdisciplinary science approaches

Historical analysis of ESR Social Systems team

The whole team completed online course Mastering Systems Practice

Co-edited and contributed to special issue of New Directions for Evaluation on systems thinking & complexity in evaluation

Publications ("Critical Collaboration Model") and conference presentations (System Dynamics Conference)

2020/21 IN DETAIL

Method and process innovation
- Realist review and systems mapping
- Critical systems thinking and co-design
- System effects mapping
- Systems thinking and mātauranga Māori
- Transdisciplinary research

Problem structuring and analysis
- Problem structuring workshops with Forensic Science
- Systems mapping support to Ministry of Health Climate Change Group

Network and relations
- SDG Alliance
- Para Kore
- Whitireia/Weltec
- iPEN
- Cross-CRI social science network

Team capability development and learning
- Team training- Mastering Systems Practice
- Online collaborative tools: Kumu, MIRO
- Historical analysis of ESR Social Systems team

Peer review publication
- Realist review protocol
- Critical collaboration model

Conference presentation and other research outputs
- Two presentations at System Dynamics conference
- One presentation at International systems science conference
- Two presentations at the American Evaluation Conference

Social and community impact outputs
- Two research dissemination seminars with stakeholders (Zero waste network and Weltec)
- Proposal development with Para Kore on Cloth Nappies

Monitoring, evaluation and learning
- Three team wānanga (planning and reflection)
- One learning reflection document

FIRST YEAR LEARNING SUMMARY

Growing together as a learning team:

- Collective decision making, project planning, capacity development and learning documentation for synergy and growth.
- Team expansion and expertise in Kaupapa Māori with employment of a Kaupapa Māori researcher.

SSL as a space for research co-design and collaboration:

- Collaborative online space for co-design and systems mapping.
- Continue to expand the range of ways that collaborators can engage with the team, both online and face-to-face.

SSL as an incubator for method and process innovation:

- Ensuring resources and space for critical reflection on the methods and process from past and current research projects.
- Exploration of innovative methods/processes and their combination (e.g. realist review with systems dynamics; critical systems thinking within co-design processes).

Networking and relationships building:

- Developing/engaging with cross-CRI social science and evaluation networks for fostering research impact agenda.
- Initiation of new relationships with local and global agencies and alliances (e.g. Whitireia/WelTec, SDG alliance and Global health agencies).

SSL as a driver of systems thinking and leadership:

- Explore ways to build the capability of the ESR scientists around systems thinking and systems leadership, and provide spaces and platforms for engagement and innovation.
- Continue to engage in debate and knowledge generation around systems thinking and leadership.

FIRST YEAR LEARNINGS AND REFLECTIONS

1. Growing together as a learning team

Historically, the ESR Social Systems Team has had an emphasis on innovative use of systems, bicultural and community participatory approaches. The extent of these approaches has sometimes been limited due to lack of resourcing for collaboration partners, and the SSIF funding for the SSL has enabled this barrier to be partially overcome. The COVID-19 pandemic and associated restrictions was challenging yet provided the impetus for the team to experiment with online tools to enable continuation of collaborative thinking and co-designing of projects. The shared learning in the team has supported different team members to extend their technical expertise with these tools.

The team has collectively planned, discussed and reflected on the initiation of the SSL, which has been useful for developing collaborative working within the team. The experience of working on a joint venture is a learning activity in itself. The SSL gives a forum for the team to highlight and discuss academic and other publications with new methods or relevant content, and the process of undertaking an online systems course as a team was useful primarily for the opportunity for discussion and reflection. The addition of a Kaupapa Māori social scientist to the team has broadened our perspectives in these discussions.

In the future, we will continue to find ways of stimulating discussion among the team, including refining methods of gathering documentation for reflection.

2. SSL as a space for research co-design and collaboration

The Social Systems team adapted the preferred kanohi-ki-kanohi/face-to-face collaborative methods to online collaboration spaces during the COVID-19 pandemic. We trialled and then purchased licences for MIRO whiteboard and Kumu relationship mapping software, both cloud-based applications. The MIRO boards have proved useful for structuring workshops, allowing interactive participation during the workshop, and providing visual notes for distribution afterwards. The use of MIRO along with Teams video conferencing has been trialled in workshops internally and externally.

Kumu mapping software has been used to produce presentations that allow viewers to interact with the systems map. These Kumu presentations have been shared in seminars with Whitireia/WelTec polytechnic staff, and community networks such as 'Waste Free Welly', as well as prepared for the upcoming Systems Dynamics Conference. We have learnt from our early attempts and refined these presentations to be more accessible to lay people. Links to the presentations have now been provided to community stakeholders for sharing with their networks.

In the following years, the SSL will continue to expand the range of ways that collaborators can engage with the team. This recognises that different collaborators will have different needs and resources, and we will strategically use the SSL resources to enable a wider range of collaboration partners.

4. Networking and relationships building through SSL

SSL has focused on further developing networks and research relationships to strengthen the SSL platform in its first year. This has included supporting the development of a cross-CRI social science network through arranging online discussions and providing a Teams site to facilitate message sharing. An SSL team member has been a representative at the cross-CRI Impact, Planning and Evaluation Network (iPEN), and through that has delivered impact workshops for ESR staff. New relationships with a local polytechnic, Whitireia/WelTec has also been initiated. Further the SSL has experienced social science team members who already have extensive networks in

the environment and health fields. A common thread is the amount of time and resource that it takes to develop and maintain these relationships. This must be factored into research funding, as it is from such networks that new research projects emerge.

In the following years, the SSL will continue to grow these research networks. Another network that will be targeted is movements supporting localisation of Sustainable Development Goals, initially through engaging with stakeholders in the Canterbury region at an SDG summit to be held in Christchurch. A Global Health initiative is another potential focus, which is currently in the conception stage.

5. SSL as a driver of systems leadership

Systems leadership is an ability to foster collective leadership through three core capabilities: seeing the bigger picture, fostering reflective practice and adopting proactive co-creation approaches for systems-level changes. The SSL, working within a CRI context, uses a working definition of systems leadership as developing the skills and capabilities of scientists within, across and beyond the science system of Aotearoa New Zealand to see the larger system, cultivate a shared vision and enable collective action for maximum research impact. Our team is at early stage of learning about systems leadership. We have continued to engage in debate and knowledge generation around systems leadership with experts globally through engaging in community of practice and scholarship.

To support systems leadership practice, the SSL has been thinking of ways to build the capability of the ESR scientists around systems thinking, and provide spaces and platforms for engagement and innovation. Systems leadership in practice requires embracing uncertainty, thinking holistically, acting collectively and continual reflection and learning. This runs counter to many current scientific approaches which demand certainty and single discipline thinking, and aims for commercial impact. The ultimate goal of shifting towards systems leadership practice is increased societal impact.

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INSTITUTE OF ENVIRONMENTAL SCIENCE AND RESEARCH (ESR)
ESR is New Zealand's Crown Research Institute specialising in science for communities. ESR uses world-leading science to safeguard our health, keep our communities safer, protect our food-based economy, and improve the health of our water and natural environment.