Mountains to Sea Conservation Trust Wananga, Omaha Marae, April 2017

Citizen science workshop – full notes

Compiled by Monica Peters people+science

The following is a comprehensive summary of notes compiled from workshop sessions run during the wananga.

METHOD: early in the wananga, 3 sheets of paper were put up for participants to add their notes to. These included defining citizen science, marine/FW citizen science underway in NZ, and ideas for themed events.

1 What is citizen science?

Getting people involved in science, katiakitanga, Local people caring for local places; ongoing long-term monitoring to guide restoration and management; people in a community having ideas about their world and trying to see if they are valid; science with a heart and social conscience; the involvement of citizens (public) in science investigation/monitoring of their local place – growing environmental citizenship. Needs to be intertwined and linked with matauranga maori ie mauri model potential to link with all cultural values from citizen's perspective; working with other to share knowledge; science that is available and involves the community – locally relevant and meaningful. Citizen science is a natural fit with kaitiakitanga which is driven by core values of caring for people and environment – big picture science!

2 Citizen science underway in the freshwater and marine space

NaturewatchNZ (www.naturewatch.org.nz) provides a project development and data storage platform. Marine project examples include kelps and shore species. Apps include Hectors (Whale and Dolphin Conservation) and Maui (WWF) dolphin sightings, reporting recreational fishing catches

(www.fish4all.co.nz), as well as a new app for logging the numbers of trees planted (Tindall Foundation). Other projects include

- Whale watching in Cook Strait (www.doc.govt.nz/news/media-releases/2015/whale-watching-in-cook-strait/)
- Whangateau shellfish surveys (from c.2007)
- Tawharanui Marine Reserve fish & crayfish surveys (50X10m fixed transects, since 1977)
- Dotterel 'guardians' (Auckland) e.g., Waiheke Dotterel Guardians Charitable Trust
- Ghost fishing (www.ghostfishing.org)
- Project Aware (www.projectaware.org) combatting marine debris; protecting sharks and rays as well as 'Adopt a dive site'
- Marine Meter Squared (www.mm2.net.nz)
- Community shellfish monitoring – 7 sites in the Hauraki
- Tuna/eel monitoring in Kaipara Nga Kaitiaki O Nga Wai Maori (5 hapu) partnered with NIWA
- DOC Marine Mammal sightings database
- Pauatahanui Inlet Cockle Count (Guardians of the Pauatahanui Inlet and NIWA)
- Sustainable Coastlines: love your water, love your coast both with data collection
- NaturewatchNZ platform: kelps, shore species
- Project Baseline, Wellington (Facebook)
- Reef savers (EMR)

2.1 NZ Freshwater

- Waicare freshwater stream monitoring
- Inanga spawn site ID in Parenga, Auckland
- Wairarapa Moana kakahi survey
- Enviromental Investigators Programme Canterbury (WBC)

3 Promoting citizen science via events

Suggestions included World Rivers Day http://worldriversday.com/, Microplastic Awareness Day (see http://stjohns.ifas.ufl.edu/sea/microplastics/index.html), running a BioBlitz on World Wetlands Day and uploading data to NaturewatchNZ, Citizen Science Day (http://citizenscience.org/events/citizen-science-day/)

4 Barriers and opportunities for growing citizen science in NZ

METHOD: The group was divided in half and asked to write down barriers on sticky notes and then categorise into larger categories. Both sides reported back/summarised content at the end of the exercise.

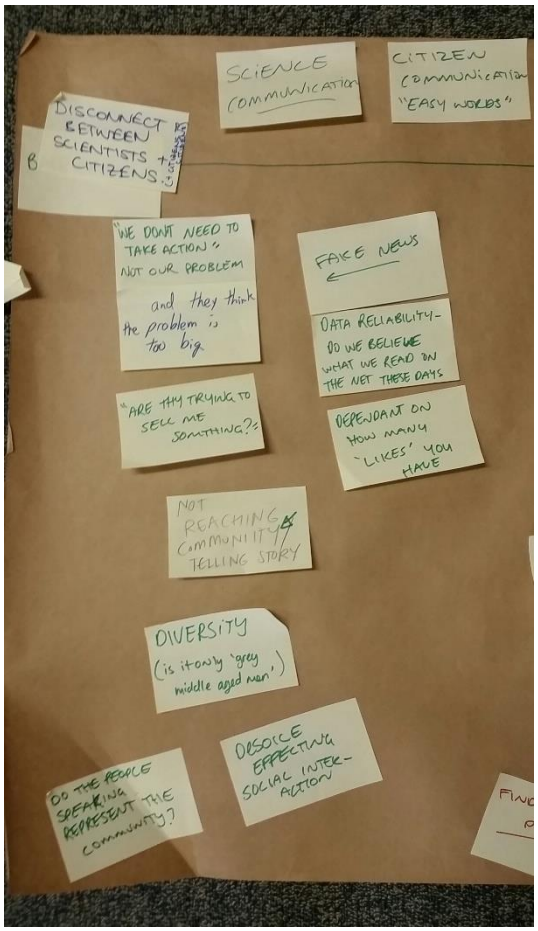
Barriers to citizen science	***Opportunities for growing citizen science***
Data • Centralisation of data collection • Perception of data quality; credibility • Data management, locating sources of data, knowing how community data used by agencies • Background database: ease of introducing new data; clear presentation of outcomes • Data consistency between projects (national vs local) • Difficult working environment once you go from tidal to intertidal • Integrating Matauranga	*Schools and students* • Young enterprise schemes – student-led sustainable businesss • Involve schools: OSCAR holiday programmes; ongoing monitoring by kura • Good narratives; positive encouragement • Dvping organisations to link students and scientists; communication between students and scientists • Tuakana-teina model (big sister/brother – younger sibling) • Mentoring, apprenticeships • Teach science skills • Linking actions with student concerns • University students providing ideas for study/MSc, PhD; Ako - new learnings • Role models: Whakatane Secondary school; Project Hotspot
Tools/resources • Time/access, funding; being paid to collect data; reliable volunteers • Lack of knowledge; using local knowledge • Perception that we don't know enough to produce something useful • Lack of even spread of cooperation; population base to collect data; access to technology and skill/training	*Funding* • PSP funding (x2) case-studies and Curious Minds funding • Long term funding and commitment • Online + physical resources • Our Estuaries Hub; Develop a community toolbox • NaturewatchNZ • Collaboration – larger projects; larger/bigger funding pool

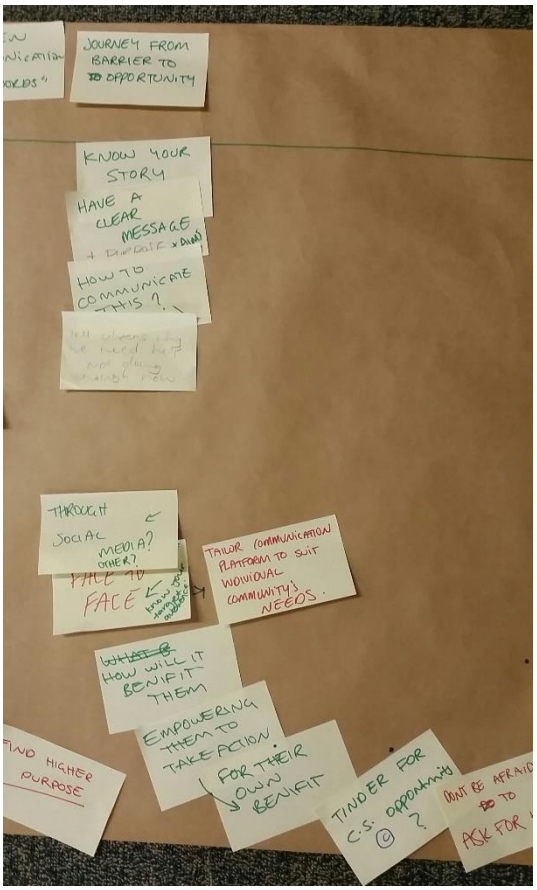
Sustainability	*Communities*
• Lack of value to science; Project purpose • Others/scientists not willing to collaborate; egos and a distrust of collaborative partners • Constant (agency) restructures • Competition with others working in a similar space • Communication between groups • Succession planning and lack of leadership • Bureaucracy/red tape/hoop jumping; H&S; inaccessible environments (landowners; forests; biosecurity) • Multiple overlapping platforms • Lack of quick feedback • Keeping it going/sustainability	• Community empowerment; growth of moana Kaitiaki • Extending/encouraging community involvement with action projects • Getting indoor people outside • Marae events, wananga and community meetings - listen to issues arising; freedom to express personal opinions • Running training workshops in monitoring for community groups (e.g., working with Sally Carson) • Community analysing/monitoring/clean-ups • Monitoring in groups or getting people into it; restoration monitoring • Homemade devices for monitoring • Geo referenced photography • Citizens trialling new tech for NIWA/other companies • Working with industries/orgs involved with the environment e.g., logging, forestry, shipping, roading as well as end users • Regional zone committees • Govt valuing citizen collected data • Linking in with existing community groups; Iwi

Personal/social • Loss of interest over time/motivation (when it gets boring) • Lack of self-belief/confidence • Personal issues override community issues (e.g., poverty, health); basic needs not met • Feeling like making a meaningful contribution; not knowing where to begin; denial of problems • Feeling like your data/info isn't making a difference or being listened to/taken up by policy/decision-makers; not influencing outcomes • Not social or fun • Working with a number of agencies – keeping them in all in the loop • Cultural barriers and language; value judgements	*National* • Nat CS coordinator with one centralised hub to link all CS; Nat CS database • National standardised monitoring protocols • Research into how to use data
Specific actions for growing citizen science • Citizens informing policy; marine reserve formation and monitoring • Full catchment collaborative monitoring • Business/training opportunities • EMR action projects • Develop existing organisations and increase awareness through larger corporations (e.g., Fed Farmers consultation) • Develop white fish ladders; trial fern bundles in salt wedge for inanga eggs	

5 Pathways from barriers to solutions

METHOD: Participants numbered off from 1-8 and then joined their respective groups. Each was asked to pick one or two issues/barriers and then consider the pathway toward the solution. Each group reported back at the end of the exercise.
(Notes below combine voice recordings with sheets and sticky notes produced by the 8 groups).

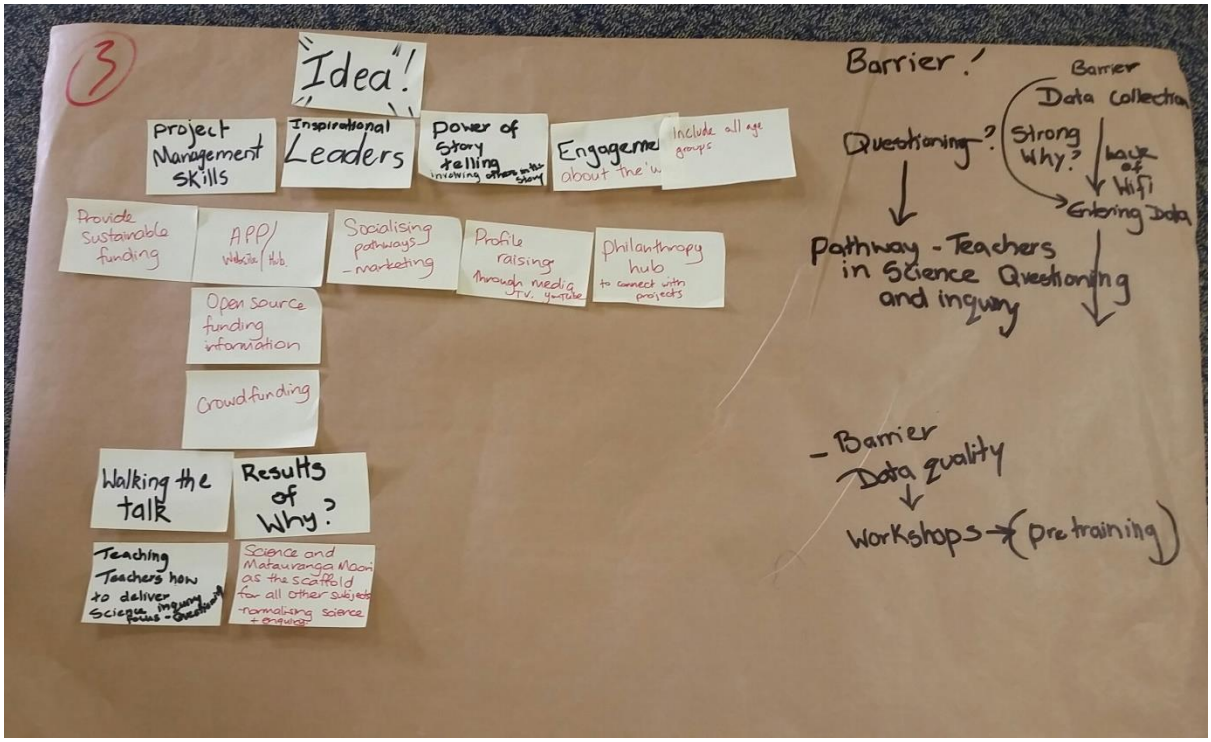




5.1 Communicating with purpose

Starting point: the disconnect between scientists and citizens and between citizens themselves. Attitudes include 'it's not our problem, we don't need to take action' and 'the problem is too big' as well as distrusting data/information sources.

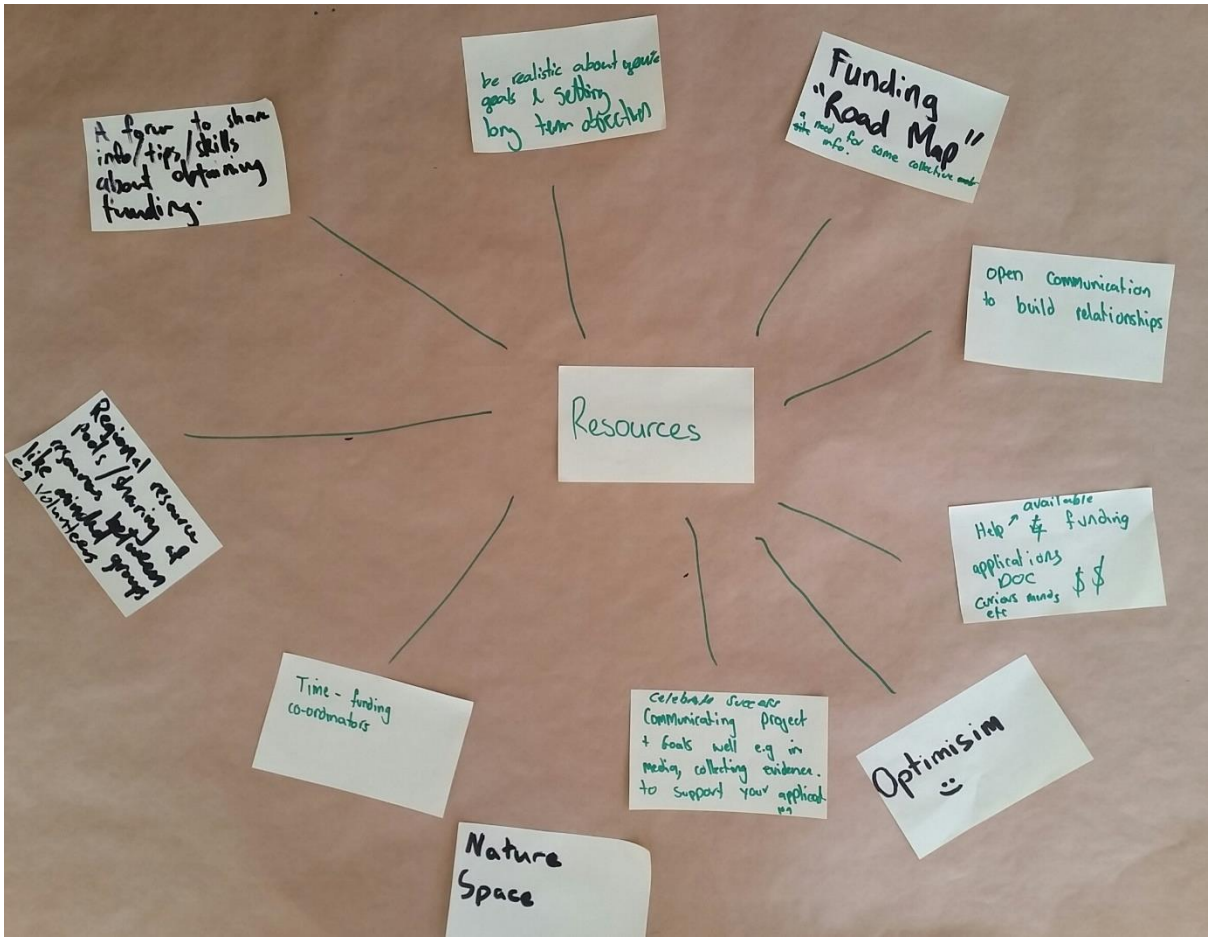
Opportunity: a greater connection and purpose for everyone through 'knowing your story', delivering a clear message, purpose and aims to avoid confusion. In short, explaining why we need everyone's help and letting everyone know that we're not doing enough now for the environment. Empowering people to take action: for project coordinators, this means 'surrounding ourselves with skilled people' e.g., in media and comms (2020 Comms Trust in Wgtn (2020.org.nz/) and tailoring communication to suit individual community needs. In the Far North, face to face meetings are more effective than social media. Zoe Studd suggested developing 'Green Tinder' as a novel tech approach… imagine restoration projects flipping up on your screen and choosing which project you want to connect with! Take home message to coordinators? 'don't be afraid to ask for help'



5.2 The inspired idea, the inspired leader

Starting points: Why collecting data and getting project data out. Need to have the idea first – how do get people to engage in that idea.

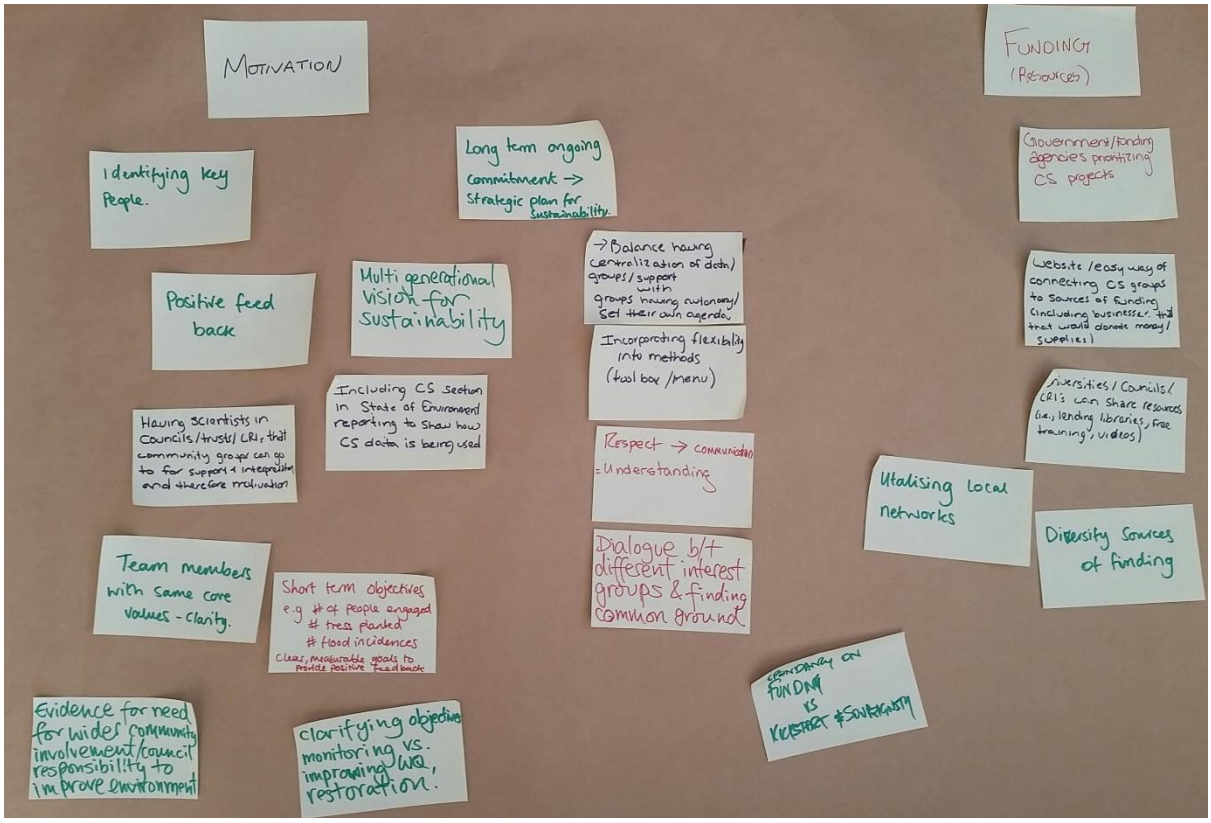
Opportunities: need someone inspirational to lead the project, funding, engaging people with time, creating a story that everyone wants to be a part of that also targeting audience issues – as with the successful #buythisbeach campaign where crowdfunding raised over $2million to purchase Awaroa beach (Abel Tasman) for the public to use and enjoy (www.stuff.co.nz/travel/news/buy-this-beach). Engaging not just with the usual demographic i.e. those with time, money and education, and asking 'how do we get the non-usual to engage?' Every story has a beginning, middle and an end. The 'idea' is the beginning of the story, and the middle is getting the people to do the activities, and the end may be a hub, communicating the project through a website or an app, both for volunteers and new participants who want to be part of the story and to help. Inspirational leaders are needed to follow the story through, collate the data and communicate findings effectively so that participants can understand why they were doing the activities, and what was achieved. Similar to the Green Tinder idea, a philanthropy hub was suggested as a way of connecting with projects. Sally Carson (MM2, Portobello Marine Lab) raised the point that few wananga participants took ownership of the data during the Marine Meter Squared exercise but also highlighted (amid much chuckling) that she also needed to underscore 'The Why' and take greater responsibility for leadership.



5.3 Resources

Starting point: funding and personal resources

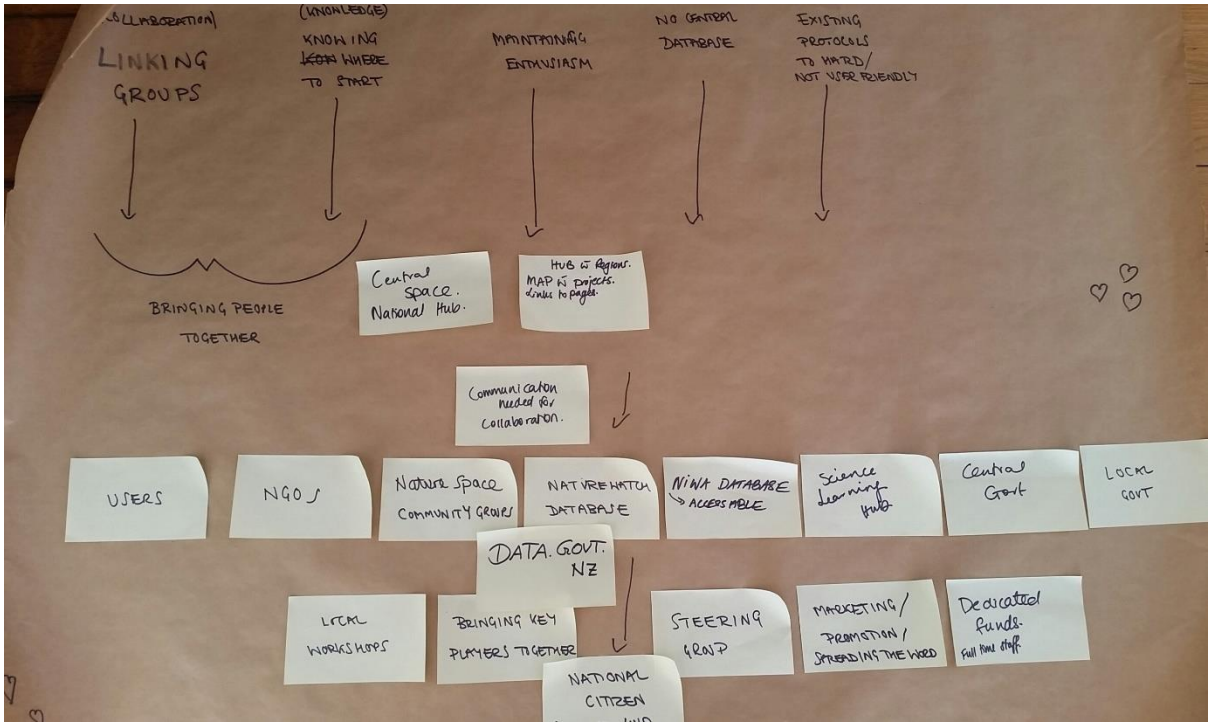
Opportunities: For those who are new to both, useful tools would be a funding roadmap to help with where to go for funding and a resource for managing with volunteers including what works and what doesn't work. What can coordinators get volunteers to do? This has to be meaningful both to volunteers (i.e. giving volunteers a choice; 'lighting their fire or assisting them to light their own') and to funders. Celebrating successes and communicating project and goals well e.g., in the media and collecting evidence to support your application. Optimism: Balance between realistic goals but set long-term objectives that might be blue sky; have a 100-year plan rather than just for the next project. This enables the volunteers and their children to have a pathway into the project. Lack of funding for project coordinators (DOC and MfE are rare examples): advocating for funding to cover time as a collective (i.e. community conservation sector workers). Workshop on writing funding applications e.g., a national funding facilitator – sharing knowledge and expertise given that many wananga participants have been successful with their funding. Although there are workshops happening, it can be difficult to find where the workshops are taking place if you are fairly new to the field.



5.4 Linking motivation to funding

Starting point: Funding and interaction with motivation

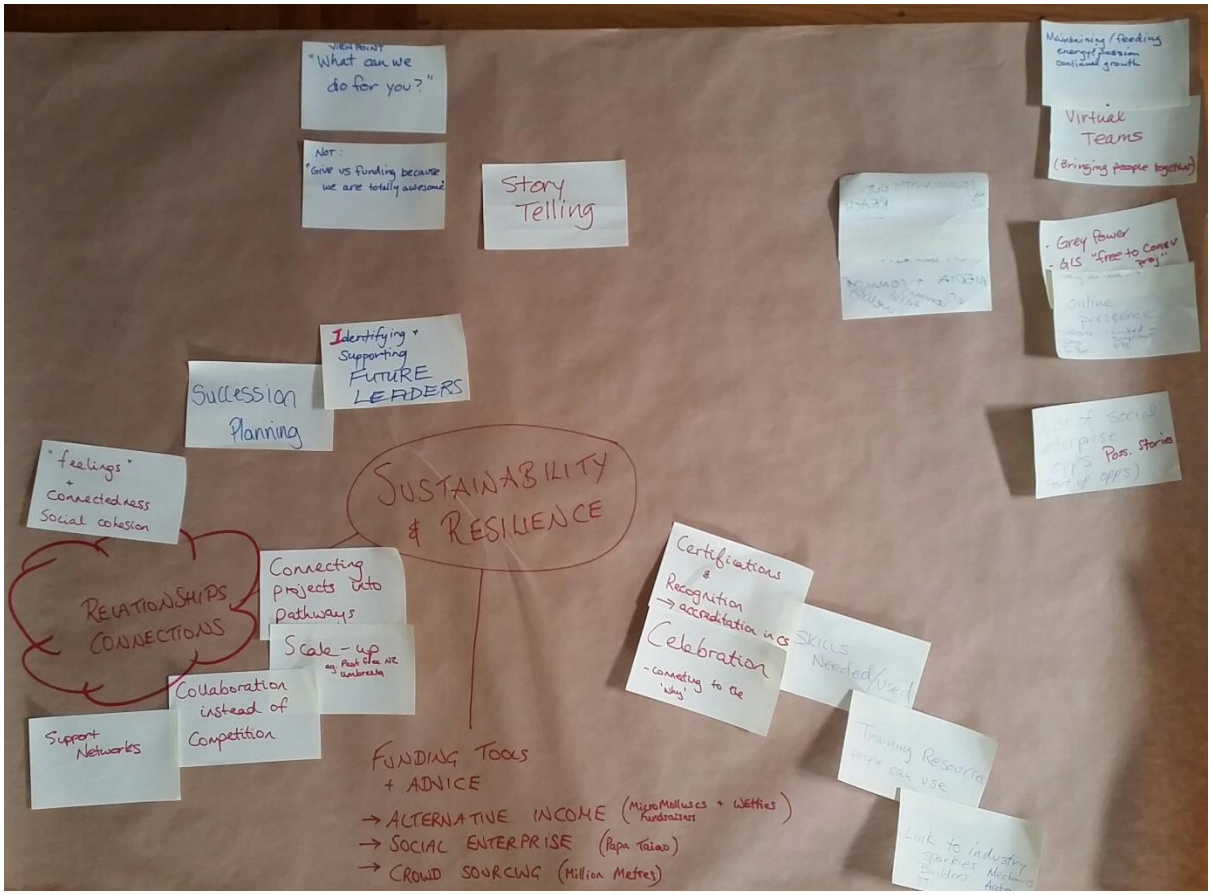
Opportunities: Govt/agencies prioritise projects that have a CS component (as occurs in the US) and include a reward system for applicants. Website to connect CS with potential funders – similar to the Cawthron Foundation (www.radionz.co.nz/news/national/288936/environment-trust-launched-for-clean-rivers), capitalising on business that want brand affiliation to 'green' causes e.g., Mitre10 may want to donate some supplies. Lending libraries (another US example) to enable groups to borrow tech/monitoring equipment, provide free training videos etc. Diversifying funding so that groups aren't restricted to a single source. Motivation: identifying key people to lead and provide positive feedback, particularly when there are set backs. Monitoring results may show negative trends so it's important to have shorter-term goals to maintain motivation e.g., how many volunteers involved; how many trees planted; incidences of flood. An overarching theme was balancing top-down with bottom-up, where community groups still have their sovereignty but also having nationwide databases, frameworks and protocols (e.g., a 'menu' of CS methods) to provide groups with guidance, longevity and stability. Methods that can be standardised and customised to suit different communities. To reach this goal, we need communication between government, iwi, community groups, and scientists in councils/trusts/CRIs that community groups can go to for support and interpretation. Other points were including CS in SOE reporting to show how CS is being used Comments from floor: participatory science breaks the top-down bottom up model because the focus is working together; care when prioritising CS given the need for highly skilled scientist to address issues beyond the scope of CS; funding on merit not just on use of CS term.



5.5 Collaboration

Starting point: Linking groups, knowing where to start i.e. bringing people together

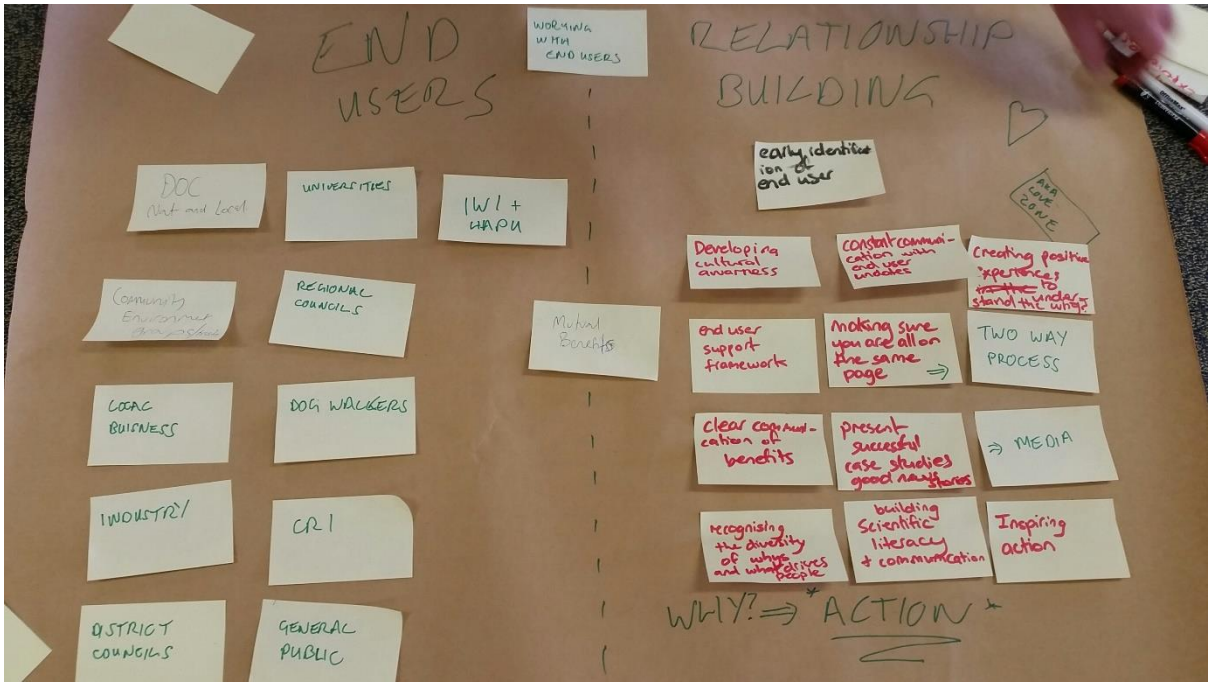
Opportunities: Collaborating and communicating NGOs, endusers, government. Existence of databases e.g., Science Learning Hub (www.sciencelearn.org.nz/), Nature Space (https://www.naturespace.org.nz/), Naturewatch (www.naturewatch.org.nz), data.govt.nz (though currently limited to agency, institute and tertiary education provider data), though many are underused because of a lack of awareness that they exist. A national citizen science hub is needed, that grows from local workshops that bring key players together. The hub needs strong leadership, dedicated funds to support it. The user interface has to be simple.



5.6 Sustainability and resilience

Starting point: began with funding but moved to a broader discussion

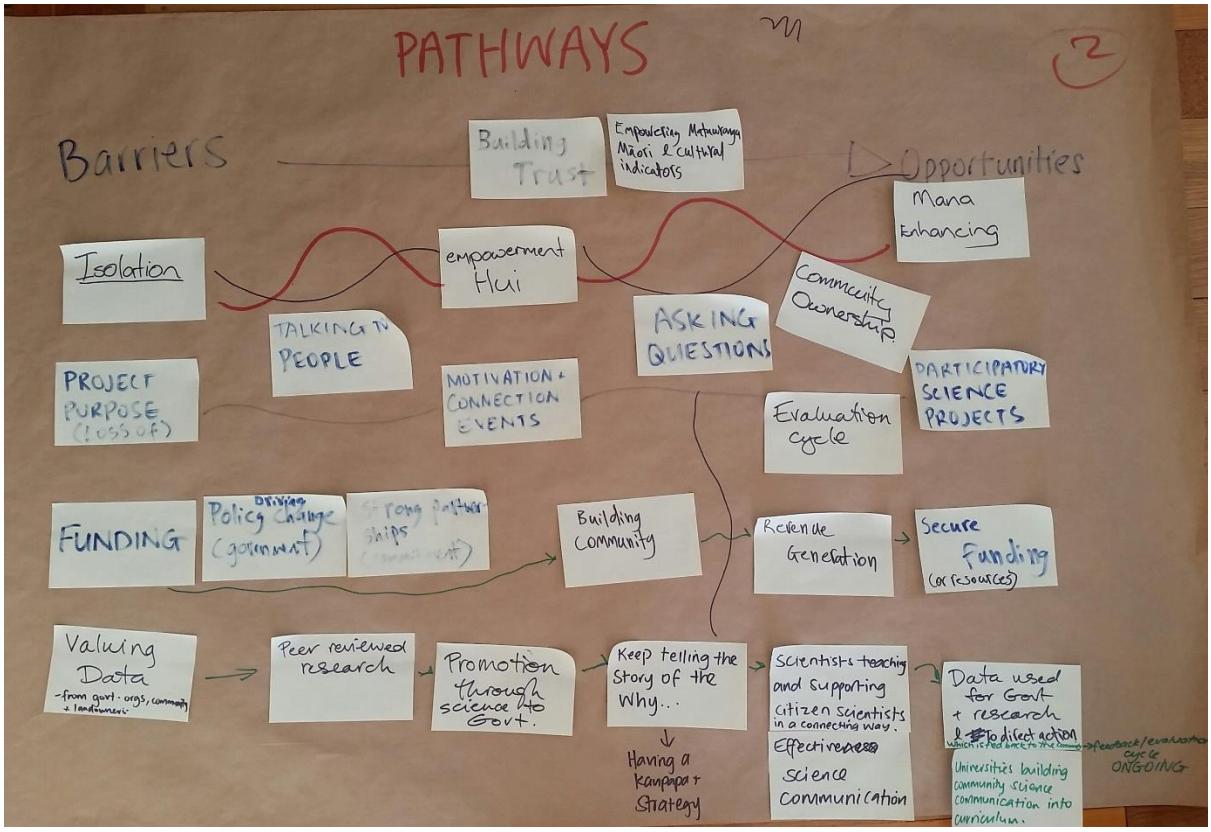
Opportunities: Communication, collaboration, bringing people together. Although still thinking about funding, the viewpoint is 'what can we do for you?' to encourage funding, instead of saying 'give us money because we are completely awesome'. Energy and passion will carry a group only so far, funding is needed, but also looking at alternative income as well as social enterprise. A pathway into social enterprise may be accreditation or certification, introduction from primary (e.g., http://www.doc.govt.nz/get-involved/conservation-education/primary/) and intermediate school level and leading into secondary level. Developing training resources and creating links with industry (e.g., builders, electricians, IT, mechanics) is reliant on… communication, collaboration, motivation. Entrepreneurship: providing a list of opportunities to assist those wanting to get involved – Papa Taiao (www.papataiaoearthcare.nz/) as an example that provides practical conservation training for young adults in Northland. Model of growing recognisable skills and being paid to use the skills as already occurs with some community groups training their own members in lieu of hiring contractors. Identifying weak links such as leadership and including succession planning.



5.7 Relationship building

Starting point: What's you why, and how this is not often linked to data entry ie translating the 'why' into action.

Opportunities: For action occur, end users need to be on board; those who use the data/information you produce. Identifying end users early (e.g., DOC, national and local; universities, councils, local businesses, iwi, hapu, community environmental groups/trusts, dog walkers, industry, CRIs, general public). Clear definition of project why – different projects will have difference why's: developing cultural awareness and an end-user support framework. Ensuring that projects tick policy boxes and that data are usable so that there is evidence to support action. Designing the project as a multiple-way process between those involved. Present successful case studies in news studies; celebrate and show to end users e.g., Port Taranaki promoting orca in the port and DOC rules around vessel proximity to orca; EMR action project on port dredging and Port changed their monitoring as a consequence and have included CS in their assessment of environmental effects. Building scientific literacy into communication; developing marketing skills to 'sell' your CS both for funding purposes and end users – highlighting the mutual benefits. Helen Kettles mentioned how Predator Free NZ serves as a call to arms and how this has captured public imagination: Clear message, definition of project and branding – people can understand the 'why'.



5.8 Empowerment

Starting point: isolation; loss of project purpose, funding/resources, data credibility. Opportunities: overarching pathways include mana enhancing CS projects; participatory science projects, secure resourcing for stability, and that data are eventually used for government research and for directing action. Asking the community which actions they want taken from the data. Building trust with the community and funding agencies trusting the data and the ability to have successful project outcomes. Empowering matauranga maori and cultural indicators by incorporating into projects as many important values are encompassed in this world view. Collective community action. Collaboration, bringing the local community together but walking alongside them to ensure they retain ownership of the project. Building motivation and inspiration about what we want to achieve but also evaluate as project evolves with community input. This serves to re-motivate and adhere to the original project purpose. Securing funding through high level policy change, partnerships with community, corporate and philanthropic sector; social enterprise with groups generating their own revenue. Communities sharing resources, tools, skills, knowledge in a collective spirit. Kaupapa and strategy underpinning the 'why' so that the value is clear. Data use: achievable through peer review; promoting CS to the government and effective science communication to the public. Teaching support by scientists to citizen scientists so that quality data can be generated

6 Prioritising actions

METHOD: Participants numbered off from 1-6 and then joined their respective groups. Each was prioritise actions – note this exercise only lasted 10 minutes. No reporting back at the end of the exercise. Repeated priorities are highlighted.

Achievability			
HIGH	**ACTIONS** • Set up a lending library (uni, CRIs, Councils) • Changing policy	**ACTIONS** • Develop Funding Roadmap • Accurate evaluation & reporting back • EMR action; increase MM2 data input for Nthland • Increase Govt. science spending	**ACTIONS** • National Database • Connect people with the same passion/kaupapa **PRINCIPLES** • Social enterprise = sustainable funding • Community empowerment: iwi & hapu • Get full investment of the end users to ensure projects continue
LOW	**ACTIONS** • Clarify water quality databases online (future plan) • Conduct teacher workshops – from educators	**ACTIONS** • Verification, certification endorsement process for cit scientists • Create a resource 'bank' (X2) • Collaborate with NIWA to dvp a FW database • Develop NCEA CS credits & curriculum • Gurus & scientists train volunteers • Corporate partnership with G Wgtn • Collaboration bw agencies (PCE) • Encourage scientists to share data early to empower citizen scientists • Diversify funding sources • Share methods **PRINCIPLES** • Projects become self-sustaining • Ako, balance, cultural identity • Have Good comms with end-users	**ACTIONS** • Social enterprise • National database/hub for biodiversity/CS (X3) • Set up marine reserves and marine monitoring programmes – collaboration! • National schools environmental monitoring programme • Empowering, mentoring, developing skills • Sharing visions: collaborations of organisations • Raising awareness **PRINCIPLES** • Community connection: social media vs word of mouth

	ACTIONS • Set up CS timebank	**ACTIONS** • ID the end-users • Set up 'Green (Enviro projects) Tinder' • Dvp White Fish ladder 'how to' for citizens • Change school curriculum focus from 'credits' to meaningful, empowering • Change academic culture to get excellent scientists on board **PRINCIPLES** • Mutual level playing field – no hierarchy	**ACTIONS** • Keep telling the story of the 'why' (nation; community specific) (X2), and evaluate (Ongoing) • Build leadership: leaders & followers • Promote inspirational stories using visual media
	LOW PRIORITY	**-** **MEDIUM PRIORITY**	**-** **HIGH PRIORITY**