



UNIVERSITY OF  
BIRMINGHAM

VISUALISATIONS TO SUPPORT ENVIRONMENTAL JUSTICE-LED  
DECISION MAKING IN THE UK WATER SECTOR

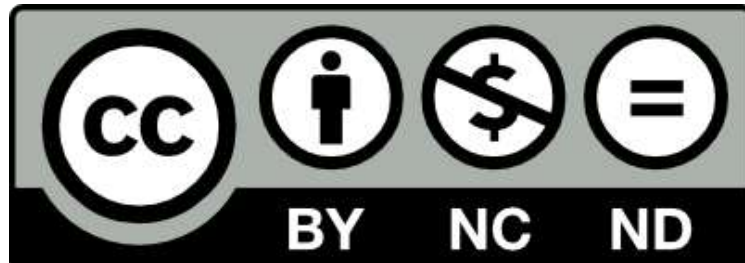
by

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DOCTOR OF PHILOSOPHY

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## APPENDIX E: SEMI-STRUCTURED INTERVIEW TRANSCRIPTS

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All meetings conducted and transcripts recorded using Microsoft Teams. Transcript started after initial introductions and confirmation of recording.

Coding of the transcript has been undertaken using the following colour-coding

Light green - Premise of research

Green - Representation of views (economic, environmental, societal)

Blue - Translation into action plans

Orange - How far to plan into the future

Turquoise - Priorities, views and trust / social trust

Purple - Visualisation

Dark red - Future impacts

### Interview 1

Date of meeting: 18/03/2024

0:0:10.760 --> 0:0:14.460

Interviewer

And OK, so my background, I'll start there.

0:0:14.910 --> 0:0:47.520

Interviewer

And so I used to be a process engineer, so designing sewage works and working on innovation projects, developing new technologies and as part of that work with ##### quite closely, United Utilities looking at integrated catchments and permitting regimes trying to see how we could do things differently to develop, deliver more benefit really and this kind of led to a.

0:0:50.240 --> 0:1:2.190

Interviewer

A feeling that I had that the water industry wasn't doing what it could do to deliver benefits for people and the environment.

0:1:4.340 --> 0:1:12.320

Interviewer

And I think there's various structural barriers for it doing that, but that's basically why I started doing the research.

0:1:14.50 --> 0:1:28.720

Interviewer

So a few years ago I left and started to research into and well initially looking at how we could have a more integrated view within urban areas because we've been looking in rural areas or was looking.

0:1:28.990 --> 0:1:36.730

Interviewer

I live in a city, So what can we do in an urban area to make that more, more, more integrated, more beneficial for people?

0:1:38.430 --> 0:1:38.750

Interviewer

Umm.

0:1:39.710 --> 0:1:51.390

Interviewer

And as is the scientific way and have worked backwards and backwards through the questions and went well, actually at the root of it we don't understand the issues.

0:1:51.400 --> 0:1:58.900

Interviewer

We don't understand the ramifications of those issues and with probably don't understand how they're going to change into the future.

0:2:0.310 --> 0:2:3.540

Interviewer

Because the future is unknown.

0:2:5.120 --> 0:2:9.150

Interviewer

Umm, so the research group on attached to has done a lot of work into.

0:2:11.690 --> 0:2:22.500

Interviewer

Liveable cities and urban regeneration and looking at future scenarios and how you apply those to urban situations.

0:2:23.570 --> 0:2:31.150

Interviewer

So that's where I'm really looking at is how can you use future scenarios?

0:2:31.990 --> 0:2:36.10

Interviewer

Umm, within a water system to make better decisions.

0:2:37.270 --> 0:2:46.540

Interviewer

But to do that, you've got to have a goal of what your decisions trying to achieve, and the goal that I've kind of landed upon is environmental justice.

0:2:46.890 --> 0:2:59.670

Interviewer

So tying together social and environmental justice into a combined aim and using a river system as the bounds of the system.

0:3:0.630 --> 0:3:4.640

Interviewer

So looking at rivers, lakes, everything up until you get to an estuary.

0:3:6.770 --> 0:3:13.510

Interviewer

To capture the interrelationships between Headwaters and urban areas and everything in between.

0:3:15.330 --> 0:3:17.150

Interviewer

So that's why I've got to take uh.

0:3:17.160 --> 0:3:20.530

Interviewer

So what I've been trying to do is generate visualizations.

0:3:20.540 --> 0:3:32.980

Interviewer

So we can look at those relationships into relationships and consequences of our actions and and apply that looking at a future scenarios as well.

0:3:33.650 --> 0:3:49.960

Interviewer

And also looking at indicators, because having worked in Engineering for a long time and having worked with and strategy departments in water companies, I need a number to kind of make a decision against something needs to be quantified at some point.

0:3:50.360 --> 0:3:55.200

Interviewer

But whether that's a qualitative assessment or a quantitative assessment.

0:3:59.90 --> 0:4:5.160

Interviewer

So that's where I've got to and the idea of the questionnaire was to try and draw out.

0:4:7.350 --> 0:4:11.50

Interviewer

Different people's opinions on that from all sectors of.

0:4:13.330 --> 0:4:15.330

Interviewer

All sectors that relate to the water Catchment.

0:4:16.300 --> 0:4:16.680

Participant1

OK.

0:4:21.60 --> 0:4:24.610

Interviewer

I does that make any sense? OK.

0:4:23.450 --> 0:4:24.760

Participant1

No, it does. Absolutely.

0:4:24.770 --> 0:4:28.340

Participant1

It makes sense, you know, and it's your choice.

0:4:28.350 --> 0:4:34.140

Participant1

I mean, and you, you, your, your choices coincide with some other stuff.

0:4:34.150 --> 0:4:38.730

Participant1

So instantly, if I haven't already shared it, I think it's on the Caba website now.

0:4:40.610 --> 0:4:49.10

Participant1

There's a visualization tool which the Environment Agency developed with West Country to as trust, which is a kind of land.

0:4:51.60 --> 0:4:51.260

Interviewer

Yeah.

0:4:49.20 --> 0:4:52.70

Participant1

It's it's about land use choice, but it goes more than that.

0:4:52.80 --> 0:4:52.610

Participant1

Have you seen that?

0:4:53.70 --> 0:4:53.270

Interviewer

Yeah.

0:4:54.460 --> 0:5:2.630

Participant1

So that is absolutely aiming into that space of the conversation about what what's what could the future look like?

0:5:3.250 --> 0:5:3.450

Interviewer

Yeah.

0:5:3.580 --> 0:5:11.360

Participant1

No, that's what it was designed for and is building on the three horizons it here basically.

0:5:14.710 --> 0:5:18.40

Participant1

So that's not surprising.

0:5:18.50 --> 0:5:18.740

Participant1

I mean, I I'm.

0:5:18.750 --> 0:5:25.810

Participant1

I'm just remember I sent you the and the local action project stuff seems to be very relevant to your.

0:5:28.690 --> 0:5:30.780

Participant1

To your framings. I think.

0:5:30.850 --> 0:5:32.530

Participant1

I think that I send you the nature of Hulme.

0:5:34.930 --> 0:5:35.870

Interviewer

Yeah, I think so.

0:5:32.540 --> 0:5:40.800

Participant1

I thought I think you send you the wider stuff, but if you have a look at the nature, there's one called under report from West Country called the nature of Hulme.

0:5:43.130 --> 0:5:57.10

Participant1

And I suppose what I want to talk about then, given what you said is the one and I think you, I think you're talking about you know, it's not just about water as it can't just be about water.

0:5:58.190 --> 0:5:58.390

Interviewer

No.

0:5:59.950 --> 0:6:15.540

Participant1

And in fact, I think when my myself and my colleagues that I work with are sort of increasingly I've come to sort of the view that **if you want integration, you have to focus on places is how integration comes together.**

0:6:16.10 --> 0:6:41.760

Participant1

And we're seeing that in Manchester because it's the mayor there has identified that **Andy Burnhams identified that he wants a an integrated water management strategy for Manchester and it's his requirements of that that are driving the Environment Agency, UU and the City Council to work together more closely.**

0:6:42.310 --> 0:6:42.510

Interviewer

Yeah.

0:6:44.380 --> 0:6:46.750

Participant1

And why does Andy Burnham want that?

0:6:47.160 --> 0:6:54.440

Participant1

And because he understands that the water issues have are socially relevant.

0:6:56.700 --> 0:6:56.860

Interviewer

Yeah.

0:6:56.370 --> 0:6:57.880

Participant1

But socially and economically relevant.

0:6:59.170 --> 0:6:59.460

Participant1

So.

0:7:1.510 --> 0:7:10.360

Participant1

You know I've let's say I've worked on a lot of that stuff for a long time now, but also these days it's about private finance.

0:7:15.280 --> 0:7:18.280

Participant1

And the thing about you know, government, Scott, private finance goals.

0:7:20.650 --> 0:7:30.240

Participant1

But really, when for government to want more private finance, it means that people other than government are paying to deal with environmental issues.

0:7:30.510 --> 0:7:32.760

Participant1

Which government would otherwise previously address?

0:7:33.830 --> 0:7:33.990

Interviewer

Yeah.

0:7:35.730 --> 0:7:42.160

Participant1

And that's really important because it means that we're trying to in practice, what that means must mean is we're trying to mobilize.

0:7:44.180 --> 0:7:54.990

Participant1

Populations and institutions, and we actually, if we put it undergoing a paradigm shift, it's actually what what's going on in the important paradigm shift.

0:7:56.40 --> 0:8:1.780

Participant1

It's not sort of framed in that way, but that's exactly what it is and I think devolution is part of it.

0:8:4.240 --> 0:8:4.650

Participant1

Umm.

0:8:7.80 --> 0:8:18.230

Participant1

And that means that we need to think about capacity and I'm seeing some capacity being developed not just being Manchester and run another really good example of something like this in terms of that capacity developing.

0:8:18.240 --> 0:8:22.560

Participant1

There's a thing called the Norfolk Water Strategy and fund that's just been launched.

0:8:22.570 --> 0:8:36.610

Participant1

Water resources east and that again is a partnership between the institutions that actually what we're what we're beginning to see and want to see is how we get the right institutional frameworks locally to bring all of those issues together.

0:8:40.110 --> 0:8:45.580

Participant1

But the point is then, what do we want to do and how do we want to address it?

0:8:47.640 --> 0:8:54.180

Participant1

Ought we what **the outcomes we want to achieve and you know, we can only the those will be dictated by geography.**

0:8:55.480 --> 0:8:55.660

Interviewer

Yeah.

0:8:58.550 --> 0:9:2.580

Participant1

There's not a one size fits all, which is another good reason for not doing things actually.

0:9:4.490 --> 0:9:5.100

Participant1

And in fact.

0:9:7.790 --> 0:9:26.630

Participant1

It the important part of it is, umm, that that flexibility means that people are doing the integration and the join up and they're beginning to spot the connection between environment and health and well being and all of this sort of social justice things as well.

0:9:29.160 --> 0:9:30.230

Participant1

The Manchester stuff.

0:9:31.870 --> 0:9:45.730

Participant1

I came to the local action project because I have struggled with the way classical economics and that completely rejected the way classical economics deals with.

0:9:47.970 --> 0:9:57.420

Participant1

A lot of this stuff where I've kind of got to with it is things like cost benefit analysis are designed for a particular context, which is centralized, top down, decision making.

0:9:59.170 --> 0:9:59.350

Interviewer

Yeah.

0:10:1.500 --> 0:10:1.770

Participant1

But.

0:10:1.580 --> 0:10:5.860

Interviewer

And I think they're also designed for a a situation where you can monetize everything.

0:10:6.460 --> 0:10:7.330

Participant1

Well it it's his.

0:10:7.340 --> 0:10:11.310

Participant1

But again, the monetization becomes necessary in order to make that system work.

0:10:11.610 --> 0:10:11.770

Interviewer

Yeah.

0:10:11.500 --> 0:10:17.430

Participant1

So things like interesting and there's another one broaden it, that sort of stuff like Duluth pays.

0:10:17.860 --> 0:10:19.450

Participant1

It's about making the old parade.

0:10:19.490 --> 0:10:26.430

Participant1

There's a lot in terms of that which works in the context and the logic of the old paradigm, but doesn't necessarily work in the new context.

0:10:28.580 --> 0:10:28.730

Interviewer

Yeah.

0:10:28.240 --> 0:10:30.630

Participant1

And funny enough, polluter pays might be one of them.

0:10:30.640 --> 0:10:37.900

Participant1

Is one of the things I suggested because polluter pays is about efficiency and internalizing costs so.

0:10:40.240 --> 0:10:42.410

Participant1

Why don't I like classical economics?

0:10:42.420 --> 0:10:58.950

Participant1

Well, one thing we cost benefit analysis is when you're doing that in the centralized state, you, you, you we we just said a little bit earlier that **actually things are varied according to the geography and people tend to talk about quite often talk about value when what they mean is price.**

0:11:1.580 --> 0:11:9.340

Participant1

**But Price follows value and value follows experience and also context.**

0:11:10.50 --> 0:11:14.60

Participant1

So when I saw and so for example, the easy example of that is.

0:11:19.480 --> 0:11:19.620

Interviewer

Yeah.

0:11:16.110 --> 0:11:25.350

Participant1

Until you've been flooded, you don't worry about it and you don't worry about them that you know so much about what would be needed to address it.

0:11:27.450 --> 0:11:32.910

Participant1

And you know, I was seeing in work that had been done for communities that have been flooded.

0:11:32.920 --> 0:11:34.630

Participant1

That's the only conversation you're gonna have with them.

0:11:36.350 --> 0:11:36.510

Interviewer

Yeah.

0:11:36.310 --> 0:11:43.120

Participant1

We're other people talking about the river where they were talking about things that how they look like, the culture and the value and the dog walking.

0:11:43.510 --> 0:11:46.270

Participant1

So one of the ways to think about this is **Maslow's hierarchy**.

0:11:47.850 --> 0:11:55.840

Participant1

So you know, you've gotta deal with those most important safety things first and then at the top and you get into the actualization space.

0:11:57.10 --> 0:11:57.190

Interviewer

Yeah.

0:11:56.890 --> 0:12:3.500

Participant1

But actually probably I've also sort of subsequently realized that generally even.

0:12:5.950 --> 0:12:14.860

Participant1

**Most of the time, all of the layers of that hierarchy are always relevant, even when one of them dominates.**

0:12:15.250 --> 0:12:16.80

Participant1

And what will one?

0:12:16.150 --> 0:12:20.780

Participant1

Also what happens is that things become less relevant.

0:12:21.30 --> 0:12:22.20

Participant1

What's that been addressed?

0:12:23.510 --> 0:12:23.670

Interviewer

Yeah.

0:12:25.520 --> 0:12:37.10

Participant1

And also there's sort of that sort of thing that, you know, the the stuff that he can't economists say, well, we can't monetize it, but it's intangible or so we'll say what it is.

0:12:37.480 --> 0:12:45.60

Participant1

I thought apart from it being a complete cop out, you know, if it's if you're having to do that, that just tells you that the way you're working doesn't work.

0:12:46.30 --> 0:12:46.210

Interviewer

Yeah.

0:12:46.980 --> 0:12:53.810

Participant1

So, the point being that **those cultural values can make or break decisions.**

0:12:57.400 --> 0:13:1.200

Participant1

So it's almost like you could almost think about like brand value.

0:13:16.430 --> 0:13:16.540

Interviewer

Yeah.

0:13:3.510 --> 0:13:17.370

Participant1

You don't just because you can't, but you can see in the market actually the real that in the real world market not not the economic theory brand value has a value you can sell or sell a brand.

0:13:20.0 --> 0:13:27.250

Participant1

So we can't say that those intangible things don't have an important parts plain decision making.

0:13:27.950 --> 0:13:30.430

Participant1

Even if you can't fit them into your old framework.

0:13:32.390 --> 0:13:40.60

Participant1

So I like the **Wheel of Water because I saw a way of having a conversation with the community about what was important to it.**

0:13:41.380 --> 0:13:49.560

Participant1

And yeah, also having a conversation with them about how different options might.

0:13:53.110 --> 0:13:53.520

Participant1

Umm.

0:13:54.930 --> 0:13:58.230

Participant1

Impact on what they said was important.

0:14:1.30 --> 0:14:2.50

Participant1

And that's it for me.

0:14:2.60 --> 0:14:7.360

Participant1

That's important because it if you can do the right things in the right place for people you're buying, you're getting mandate.

0:14:7.470 --> 0:14:8.880

Participant1

You're more likely to find funding.

0:14:9.460 --> 0:14:9.640

Interviewer

Yeah.

0:14:13.20 --> 0:14:18.550

Participant1

But there's also another reason I like that really, which relates to something I've I've forgotten her name.

0:14:19.140 --> 0:14:25.890

Participant1

I'm afraid she used to not watch Research UKR I-1 of the ones those ones used to.

0:14:25.930 --> 0:14:34.110

Participant1

That's a British Asian lady, and she was talking about how, especially in urban communities, the, you know, the.

0:14:36.100 --> 0:14:48.140

Participant1

The mix, the population mix is you know, she was basically saying that people were fleeing rural poverty in the Punjab and they come to live in these places.

0:14:48.430 --> 0:14:49.630

Participant1

So it's a different view.

0:14:50.570 --> 0:14:50.730

Interviewer

Yeah.

0:14:52.440 --> 0:15:6.450

Participant1

But what's common to a lot of those populations in terms of, you know, a focus at the mosque or the temple or indeed as in one case, the church, is that all of those.

0:15:9.10 --> 0:15:15.950

Participant1

Framings have important links to the environment which are the basis of having a conversation.

0:15:19.100 --> 0:15:19.300

Interviewer

Yeah.

0:15:22.920 --> 0:15:24.500

Participant1

And also links with community absolutely.

0:15:21.50 --> 0:15:30.300

Interviewer

And also thanks to community, I think, we've got this strength of community that you can foster and drive through change.

0:15:30.870 --> 0:15:31.690

Participant1

Yeah, absolutely.

0:15:31.700 --> 0:15:37.560

Participant1

So when I when I used to live, I live in Exeter now, but where I used to live in the South East and geshem umm.

0:15:44.260 --> 0:15:44.540

Interviewer

Umm.

0:15:39.900 --> 0:15:45.780

Participant1

Found out it's just found out that that the mosque was paying for tree planting like I was doing tree planting.

0:15:46.980 --> 0:15:55.90

Participant1

So people are active is just actually how you bring that together in the context of place and community and have a shared conversation.

0:15:57.160 --> 0:15:57.320

Interviewer

Yeah.

0:15:56.840 --> 0:15:59.950

Participant1

So we're, we're into the we're into the realms of.

0:16:4.320 --> 0:16:7.300

Participant1

We definitely into the realms of.

0:16:9.540 --> 0:16:10.70

Participant1

Holistic.

0:16:13.110 --> 0:16:16.790

Participant1

Oversaturation about well being.

0:16:16.840 --> 0:16:18.920

Participant1

In fact, I can't recall it.

0:16:18.930 --> 0:16:25.200

Participant1

There was something about this looking at multi assessments of of well being in, in terms of place.

0:16:27.340 --> 0:16:29.150

Participant1

So then that leads us to the World War.

0:16:29.160 --> 0:16:33.750

Participant1

What's the governance or what's the institutional framework that that also facilitates that?

0:16:35.480 --> 0:16:38.290

Participant1

And then there's also the question of what's the job of the water company?

0:16:40.110 --> 0:16:40.310

Interviewer

Yeah.

0:16:44.40 --> 0:16:46.440

Participant1

So where should we go next?

0:16:48.340 --> 0:16:49.360

Interviewer

Well, we've covered quite a lot there.

0:16:55.720 --> 0:16:59.510

Interviewer

I just wanted what are your thoughts on?

0:17:1.940 --> 0:17:3.810

Interviewer

How far ahead we should be looking?

0:17:3.820 --> 0:17:4.580

Interviewer

We're developing plans.

0:17:5.630 --> 0:17:9.630

Participant1

OK, this has been a really interesting area for me.

0:17:11.290 --> 0:17:13.440

Participant1

And there's also the question of scale.

0:17:13.450 --> 0:17:15.380

Participant1

Should we touch on the question of scale as well?

0:17:15.50 --> 0:17:16.50

Interviewer

Yeah, yeah.

0:17:17.160 --> 0:17:17.660

Participant1

Umm.

0:17:21.810 --> 0:17:22.480

Participant1

You will know.

0:17:24.840 --> 0:17:27.160

Participant1

Because you got the background that.

0:17:30.70 --> 0:17:31.320

Participant1

Water resources Management.

0:17:34.170 --> 0:17:36.580

Participant1

That's a forward facing culture.

0:17:42.70 --> 0:17:42.250

Interviewer

Yeah.

0:17:39.190 --> 0:17:42.720

Participant1

We plan for water resources, we try to at least.

0:17:45.30 --> 0:17:45.620

Participant1

Umm.

0:17:46.430 --> 0:17:52.70

Participant1

Whereas both were flood risk management and water quality, it's reactive.

0:17:52.750 --> 0:17:52.950

Interviewer

Yeah.

0:17:55.390 --> 0:18:8.890

Participant1

And so my position and which I've been pushing through where I work is that as much as I can is that the habits of water resources in terms of being forward looking are the things that we need to adopt very widely.

0:18:11.160 --> 0:18:12.250

Participant1

Who bought a Management?

0:18:12.600 --> 0:18:12.950

Participant1

I'm.

0:18:12.960 --> 0:18:20.170

Participant1

I'm talking about water management as well, not just and I'm like I'm, and perhaps let's put a pin in that.

0:18:20.180 --> 0:18:24.160

Participant1

Why talk about water Management rather than thinking about the silos?

0:18:29.270 --> 0:18:30.660

Participant1

And generally speaking.

0:18:32.830 --> 0:18:45.70

Participant1

We talked about in the reason that the plan for water refers to long term Catchment plans is to try and foster that forward looking.

0:18:47.820 --> 0:18:48.320

Participant1

Approach.

0:18:49.890 --> 0:18:52.360

Participant1

We're we're thinking about what's going to happen.

0:18:52.970 --> 0:19:0.550

Participant1

I mean, 25 years, [a rolling moving 25 years is probably what I have in mind](#). Personally.

0:19:0.560 --> 0:19:8.510

Participant1

I mean, there's good reason to say you might want to go even further, but within that, you know, there's been some conversations.

0:19:8.790 --> 0:19:19.430

Participant1

I've been where I've been involved with people, So what we need to do is we need to line up all our planning cycles like flood risk management and period review and everything.

0:19:19.600 --> 0:19:26.210

Participant1

So we all work on the same time table and I've said that's nonsense because we haven't got the resources to do that.

0:19:28.940 --> 0:19:32.480

Interviewer

No, having having worked through many price reviews, we don't have the resources to do that.

0:19:31.980 --> 0:19:36.720

Participant1

This is to do that the only way you can manage it is to [have a long term plan](#).

0:19:37.680 --> 0:19:37.840

Interviewer

Yeah.

0:19:39.780 --> 0:19:52.610

Participant1

[Which the other plans cycle within, but you do need also to maintain those other plans are separate because that's what because they're about specific outcomes and they have specific funding attached.](#)

0:19:53.810 --> 0:19:55.500

Participant1

But you can then get the, but you can then.

0:19:56.880 --> 0:20:2.530

Participant1

Through the integration process around the place, that's how you get the efficiency between plans as well.

0:20:3.920 --> 0:20:10.250

Participant1

So why one of the other reasons about thinking about that long term view is?

0:20:12.520 --> 0:20:22.980

Participant1

And this is to do with nature based solutions and catchment Management more generally is thinking about land use as an asset management process along with Gray infrastructure.

0:20:25.580 --> 0:20:31.630

Participant1

Umm, again, the other thing that water resources readily teaches is that nature based solutions aren't unreliable.

0:20:35.530 --> 0:20:38.110

Participant1

It's that we use it for the highest risk outcomes that we.

0:20:41.360 --> 0:20:43.270

Participant1

Are concerned about which is drinking water.

0:20:43.870 --> 0:20:44.50

Interviewer

Yeah.

0:20:46.370 --> 0:20:47.940

Participant1

And that then teaches, tells us.

0:20:47.950 --> 0:21:7.720

Participant1

Well then actually we need to think about how we're managing our land and the reason we need to think about managing our land is because actually we're thinking about the interaction between land and hydrology and it's understanding the impact of land on hydrology where you get they don't while we need to think about water management rather than thinking about those things separately.

0:21:10.500 --> 0:21:28.640

Participant1

So that the [catchment Management becomes as much land use Management thinking as it is about the river as it were, it's the hydrology we're trying to think about and that becomes increasingly important in the context of climate scale.](#)

0:21:28.830 --> 0:21:36.740

Participant1

So that's not not too things being put up in in the we touched on scale, OK, there's not one single in the same way that the planning time scales.

0:21:38.50 --> 0:21:39.480

Participant1

You know we have.

0:21:39.490 --> 0:21:40.500

Participant1

We have lots of plans.

0:21:40.510 --> 0:21:47.630

Participant1

We just need to learn to live with the complexity and we do that by having that long term view and we have multiple scales.

0:21:49.80 --> 0:21:59.990

Participant1

There's not one single scale that's the right scale, because within the catchment there will be decisions made concerning that catchment, which are appropriate to the.

0:22:1.940 --> 0:22:4.50

Participant1

Functions in the services that are being designed.

0:22:4.60 --> 0:22:11.120

Participant1

So for example, you can't design and deliver water resources within a small Catchment,

0:22:14.60 --> 0:22:19.50

Participant1

So even for just thinking about water, we have to think about multiple scales of planning.

0:22:22.10 --> 0:22:26.830

Participant1

And then you know, but then there are all those other plans as well.

0:22:26.880 --> 0:22:34.90

Participant1

The transport plans and all of those, those other things which have their sort of appropriate scales, transport works at a bigger scale.

0:22:37.920 --> 0:22:38.260

Participant1

So.

0:22:40.280 --> 0:22:41.450

Participant1

How do we join all of this up?

0:22:43.680 --> 0:22:46.220

Participant1

The example I'll give you is that a long time ago.

0:22:47.510 --> 0:22:48.150

Participant1

Uh now.

0:22:51.800 --> 0:22:54.780

Participant1  
1992 or 1993.

0:22:56.320 --> 0:23:2.710

Participant1  
Umm, we in the IT was the NRA then I where I used to work.

0:23:4.860 --> 0:23:7.900

Participant1  
We'd had an argument with government over.

0:23:10.660 --> 0:23:30.750

Participant1  
Of the following [privatization](#), because there were going to be statutory water quality objectives and government water, government and cold on them, and that was difficult for us as environmental regulators because you need to have your objectives in order to determine what actions you gonna take.

0:23:30.820 --> 0:23:34.870

Participant1  
So one of the things I did was we I suggested that we might get.

0:23:34.920 --> 0:23:45.280

Participant1  
So what we need to do by doing a baselining process and that was done, but then within that on the database we use to sort of log the the, the the.

0:23:45.350 --> 0:23:47.240

Participant1  
This is pre Water Framework directive.

0:23:47.330 --> 0:24:2.720

Participant1  
The water status umm I with my colleagues implemented the reasons for failure (System yeah as a prototype but the reason I wanted that was.

0:24:5.390 --> 0:24:6.400

Participant1  
To because.

0:24:8.150 --> 0:24:18.260

Participant1  
I was concerned about those points at that point about different scales, and I thought, well, if we have a diagnostic system that operates at the, then again there would just called river stretches.

0:24:20.960 --> 0:24:21.120

Interviewer  
Yeah.

0:24:18.270 --> 0:24:30.550

Participant1

We didn't call the water bodies, but you know at that scale then and it goes into the database you then you can aggregate that information, it's flow of information which is useful at the different scales of planning.

0:24:32.320 --> 0:24:36.740

Participant1

So you have your local diagnosis, which should be driving what you're doing in the local basis.

0:24:38.500 --> 0:24:52.730

Participant1

And if you've got a regional set of priorities based around what you understand what the pressures are that fits that and the same is true nationally and in fact the plan for water has reflected.

0:24:59.30 --> 0:24:59.190

Interviewer

Yeah.

0:24:54.590 --> 0:25:5.480

Participant1

What are now called the RNAGs reasons for not achieving good, but it's the same process, so it's the flow of information between the different plans that becomes important in terms of the system.

0:25:6.870 --> 0:25:12.190

Participant1

And so OK, then that remains an important information flow which.

0:25:14.510 --> 0:25:15.250

Participant1

Connects things.

0:25:15.500 --> 0:25:17.440

Participant1

So in terms of natural capital planning?

0:25:19.690 --> 0:25:30.440

Participant1

What would then be the similar **flow of information which connects plans and in some ways it's quite easy to envisage that because and natural capital plan must be a map.**

0:25:33.330 --> 0:25:34.390

Participant1

And we used to.

0:25:37.150 --> 0:25:38.540

Participant1

Using maps at different scales.

0:25:40.490 --> 0:25:40.650

Interviewer

Yeah.

0:25:52.990 --> 0:25:53.150

Interviewer

Yeah.

0:25:55.190 --> 0:25:55.380

Interviewer

And.

0:25:59.880 --> 0:26:1.50

Interviewer

On that's a couple of things.

0:26:1.60 --> 0:26:10.890

Interviewer

And yeah, I want to pick up on and so part of my thought process is that.

0:26:12.970 --> 0:26:21.40

Interviewer

Where we're making decisions across the water sector and I mean sector, not water companies, because I think it's broader than that.

0:26:22.870 --> 0:26:23.380

Interviewer

And.

0:26:27.360 --> 0:26:38.430

Interviewer

My view is that those interventions, plans, whatever they may be, need to have adaptability built into them, because when I think of.

0:26:40.730 --> 0:26:44.510

Interviewer

Particularly several structures, so concrete structures that were built in.

0:26:47.110 --> 0:26:53.800

Interviewer

That is not gonna have the same function at the end of its asset life as it has at the start of its asset life.

0:26:54.150 --> 0:26:55.650

Interviewer

I think that's incredibly unlikely.

0:26:56.840 --> 0:27:1.200

Interviewer

They'll be performing in exactly the same way in 60 or 100 years time.

0:27:1.930 --> 0:27:7.470

Participant1

Of that must be true because of the conversations that have arisen around sewage.

0:27:8.370 --> 0:27:8.550

Interviewer

Yeah.

0:27:11.130 --> 0:27:11.440

Interviewer

Umm.

0:27:13.500 --> 0:27:18.330

Interviewer

So so my view is we should be at this point we we're fully aware of those issues.

0:27:18.940 --> 0:27:25.310

Interviewer

So we should be designing things so that they have a forward looking plan which is adaptable.

0:27:26.350 --> 0:27:26.550

Participant1

Yeah.

0:27:26.520 --> 0:27:35.40

Interviewer

So we we're we're not building something to only have one function we can build it to perform in different ways or perform with different.

0:27:39.340 --> 0:27:39.560

Participant1

Yeah.

0:27:37.410 --> 0:27:39.910

Interviewer

Characteristics influence whatever it may be.

0:27:40.490 --> 0:27:41.60

Participant1

Yeah.

0:27:41.110 --> 0:27:45.970

Participant1

So that fits into the context or concept of adaptive risk management.

0:27:46.430 --> 0:27:46.610

Interviewer

Yeah.

0:27:49.720 --> 0:27:49.880

Participant1

Yeah.

0:27:49.620 --> 0:27:51.350

Interviewer

Yeah. OK.

0:27:53.350 --> 0:27:59.980

Participant1

Yeah, and OK, so one of my big, again, I'd like I've got a couple of I I've got.

0:28:0.890 --> 0:28:5.200

Participant1

So I've got sort of some sort of broken record messages.

0:28:5.250 --> 0:28:7.970

Participant1

One of them is that we shouldn't talk about diffuse pollution.

0:28:8.10 --> 0:28:9.810

Participant1

We should only ever talk about cumulative.

0:28:12.320 --> 0:28:12.450

Interviewer

Yeah.

0:28:13.120 --> 0:28:20.460

Participant1

Yeah, because that that's the right framing in terms of what you need to do to actually deal with it.

0:28:21.100 --> 0:28:21.750

Interviewer

Yeah.

0:28:22.0 --> 0:28:22.760

Interviewer

And I think the.

0:28:24.940 --> 0:28:28.980

Interviewer

The impression of the word diffuse pollution or phrase diffuse pollution is that it's.

0:28:31.40 --> 0:28:31.860

Interviewer

It's everywhere.

0:28:31.870 --> 0:28:33.210

Interviewer

We can't possibly control it.

0:28:34.620 --> 0:28:35.120

Participant1

Exactly.

0:28:33.220 --> 0:28:36.310

Interviewer

It's unmanageable, which isn't true.

0:28:37.120 --> 0:28:37.620

Participant1

I.

0:28:36.720 --> 0:28:39.240

Interviewer

It is manageable, but it takes a different approach.

0:28:39.740 --> 0:28:40.750

Participant1

Yeah, exactly.

0:28:40.760 --> 0:28:45.370

Participant1

So I'm I'll have a little campaign going on that and the what catchment was that one?

0:28:45.440 --> 0:28:46.470

Participant1

So what we warned about.

0:28:46.480 --> 0:28:50.70

Participant1

So that was that was just a little note on the side that was that was just like a footnote.

0:28:50.80 --> 0:28:50.550

Participant1

So hang on.

0:28:50.560 --> 0:28:55.610

Participant1

What was what was online of discussion we were talking about?

0:28:55.870 --> 0:28:57.840

Participant1

Oh yeah, the other one. Yeah.

0:28:56.360 --> 0:28:58.120

Interviewer

At risk management, yeah.

0:28:57.880 --> 0:29:1.600

Participant1

So government has got a still, it's still on the books, actually.

0:29:1.610 --> 0:29:2.430

Participant1

You still find it?

0:29:2.440 --> 0:29:8.430

Participant1

There's thing called green leaves 3, which is governments environmental risk management framework.

0:29:11.300 --> 0:29:15.760

Participant1

I'm amazed that people are not.

0:29:18.580 --> 0:29:19.200

Participant1

Made.

0:29:21.70 --> 0:29:22.890

Participant1

To at least read it.

0:29:25.360 --> 0:29:25.920

Participant1

But they're not.

0:29:26.200 --> 0:29:26.880

Interviewer

Yeah, no.

0:29:28.150 --> 0:29:36.340

Participant1

Even though a lot of the principles in it underlies so much of, you know, they might not be declared, but you see them time and time and time again.

0:29:38.790 --> 0:29:44.990

Participant1

All of the stuff and you know which comes then into the discussions with communities about tolerability.

0:29:47.470 --> 0:29:54.220

Participant1

You know, on the tolerability of both sides, you know is this solution and the residual risk and the tolerability of what you're actually gonna do.

0:29:56.630 --> 0:30:0.970

Participant1

You know it's, you know, is the cure worse than the disease sort of thing?

0:30:1.810 --> 0:30:1.990

Interviewer

Yeah.

0:30:6.760 --> 0:30:28.490

Interviewer

Having, yeah, I think a lot of the the conversations I've had, all the I've had around what I'm looking at is it does crossover with risk management because you're managed, you're looking at trying to what I'm trying to lay out what the array of relationships consequences are.

0:30:28.550 --> 0:30:28.640

Interviewer

No.

0:30:29.880 --> 0:30:30.230

Interviewer

Uh.

0:30:30.240 --> 0:30:34.700

Interviewer

Benefits and disbenefits in an uncertain future.

0:30:35.120 --> 0:30:49.10

Interviewer

So that's inherently you're looking at the risks in some form and trying to make decisions to mitigate those risks or at least make them make everyone more aware of them.

0:30:49.570 --> 0:30:50.390

Participant1

Yeah, obviously.

0:30:50.100 --> 0:31:10.480

Interviewer

So it's impossible to mitigate everything, but by looking at all the well, so looking at future scenarios, looking at the extremes of the possible futures, say, well, if our government structures or our our global policies start moving in this direction, these are where the risks are for.

0:31:11.930 --> 0:31:15.460

Interviewer

And social justice, environmental justice.

0:31:15.510 --> 0:31:17.480

Interviewer

Our society and our environment.

0:31:20.360 --> 0:31:20.580

Participant1

Yeah.

0:31:20.250 --> 0:31:21.630

Interviewer

And just making that more apparent.

0:31:22.550 --> 0:31:23.680

Participant1

Yeah, yeah, yeah.

0:31:23.730 --> 0:31:27.670

Participant1

Well, again, that sort of fits to the paradigm shift as well though because.

0:31:29.720 --> 0:31:34.490

Participant1

You know the thing about green finance?

0:31:34.840 --> 0:31:37.410

Participant1

Well, well, I can't think actually.

0:31:37.840 --> 0:31:40.280

Participant1

The finances say that there isn't a thing called green finance.

0:31:40.290 --> 0:31:41.410

Participant1

There's only finance.

0:31:42.160 --> 0:31:45.430

Participant1

What we need to do is to find things that are green, that can be financed.

0:31:46.650 --> 0:31:47.250

Participant1

That's the trick.

0:31:46.690 --> 0:31:47.910

Interviewer

Yeah, yeah.

0:31:50.160 --> 0:31:56.910

Participant1

And then working in this way, it is possible to do that and things like the Norfolk water strategy are an example of exactly that sort of thing.

0:31:56.920 --> 0:31:59.970

Participant1

Where you beginning to, you know, to do it.

0:32:0.620 --> 0:32:7.310

Participant1

But again, all of this fits with a shift to, you know.

0:32:7.320 --> 0:32:12.280

Participant1

Generally we look for risk resilience by building capacity throughout the system.

0:32:14.340 --> 0:32:27.90

Participant1

So the gain, the same shift that we need for, for, for the government's private finance agenda is consistent with the kind of transformational shifts we need to make to risk management for climate climate.

0:32:28.160 --> 0:32:28.320

Interviewer

Yeah.

0:32:29.30 --> 0:32:33.650

Participant1

So all the arrows are pointing in the same direction, but culturally.

0:32:35.560 --> 0:32:36.70

Participant1

I don't know.

0:32:36.80 --> 0:32:36.550

Participant1

It depends.

0:32:36.560 --> 0:32:38.770

Participant1

It'd be interesting to see what an incoming government does.

0:32:38.780 --> 0:32:49.710

Participant1

You know we've there are there has been that kind of devolution going on slowly and steadily, but we're still working out what those structures need to be.

0:32:49.780 --> 0:32:54.920

Participant1

And again, that's what my friends that I work with are quite interested in that question.

0:32:56.400 --> 0:32:56.560

Interviewer

Yeah.

0:33:3.190 --> 0:33:3.420

Interviewer

And.

0:33:5.120 --> 0:33:6.830

Interviewer

And then the other thing I wanted to pick up on.

0:33:8.610 --> 0:33:10.380

Interviewer

Which kind of mentioned.

0:33:13.590 --> 0:33:17.240

Interviewer

Briefly, well touched upon and.

0:33:20.550 --> 0:33:23.610

Interviewer

Talked about how priorities shift and.

0:33:25.410 --> 0:33:25.790

Interviewer

How?

0:33:29.500 --> 0:33:32.450

Interviewer

So there's an interplay between culture and priorities.

0:33:33.640 --> 0:33:33.880

Participant1

Yeah.

0:33:34.680 --> 0:33:40.60

Interviewer

Umm, so one of the things I'm proposing is a series of indicators.

0:33:40.650 --> 0:33:41.290

Interviewer

Not very many.

0:33:42.200 --> 0:33:43.650

Interviewer

So yeah, there is it's it's.

0:33:45.40 --> 0:33:45.430

Interviewer

A.

0:33:45.940 --> 0:34:32.680

Interviewer

A window into the issue rather than telling you everything because you can obviously measure a great many things and but have indicators that cover environmental, social and economic needs for an area as they relate to water (System during our interactions with the water system and my idea of that is that it again it lays it there, it makes it clear well this is catchment as a whole they're doing OK on everything but maybe this part of it's doing really well environment and this part of it's doing really well socially and in terms of social.

0:34:32.810 --> 0:34:33.200

Interviewer

Outputs.

0:34:31.440 --> 0:34:37.160

Participant1

Well, that that would wheel of water was meant to be for that.

0:34:40.380 --> 0:34:40.540

Interviewer

Yeah.

0:34:37.170 --> 0:34:41.210

Participant1

That's exactly what we would we were trailing, we didn't.

0:34:41.320 --> 0:34:43.770

Participant1

So there's another question though, is why don't we do that?

0:34:45.120 --> 0:34:45.920

Participant1

Who would do that?

0:34:47.550 --> 0:34:47.790

Interviewer

Yeah.

0:34:50.420 --> 0:34:51.650

Participant1

You know, so I don't.

0:34:51.660 --> 0:34:59.350

Participant1

So I you know, I think we've kind of already got away, but we don't have a but you know the context is changing.

0:34:59.360 --> 0:35:0.950

Participant1

We've got local nature recovery strategies.

0:35:1.170 --> 0:35:5.430

Participant1

You know they're not mature yet, but they're in that space.

0:35:8.750 --> 0:35:8.940

Interviewer

Yeah.

0:35:9.240 --> 0:35:14.460

Participant1

The because the thing think about the wheel of water stuff is that the spokes are not fit, are not fixed.

0:35:16.960 --> 0:35:23.630

Participant1

The community you, you put a spoke that you put the spokes in that you know like again there will always be top down priorities.

0:35:23.640 --> 0:35:24.970

Participant1

So you might have a couple of spokes.

0:35:25.10 --> 0:35:29.410

Participant1

Folks have spokes that are fixed because that's part of a national thing.

0:35:35.70 --> 0:35:35.250

Interviewer

Yeah.

0:35:29.880 --> 0:35:47.750

Participant1

But you maintain the flexibility in it to have some local indicators as well and then the New Zealand context, the specific one context was that, that was to reflect the IT came from wanting to accommodate First Nation's values and viewpoints in a.

0:35:49.870 --> 0:35:52.440

Participant1

In a in a more sort of western.

0:35:54.40 --> 0:35:54.280

Interviewer

Yeah.

0:35:54.880 --> 0:35:55.230

Participant1

Yeah.

0:35:55.240 --> 0:35:57.710

Participant1

So it it absolutely did that.

0:35:57.720 --> 0:35:59.810

Participant1

And so there were environmental characteristics.

0:36:0.460 --> 0:36:4.610

Participant1

One example was so couple of thoughts.

0:36:4.620 --> 0:36:7.680

Participant1

Swimming ability is one of the things that quite often came up swimming ability of a river.

0:36:12.50 --> 0:36:24.470

Participant1

Interestingly, naturalness, but there wasn't called that this is part of the first sort of nation of the Mari Mari view was the rivers in New Zealand tends to be flashy, so you don't have the rocks don't have Rolling Stones.

0:36:24.530 --> 0:36:27.150

Participant1

Moss that you know they don't have stuff growing on them.

0:36:27.990 --> 0:36:37.920

Participant1

So that was a characteristic actually that the that the that there was chosen and then there was another one about actual cover for.

0:36:40.270 --> 0:36:42.180

Participant1

Vegetation round the banks of the river.

0:36:42.710 --> 0:36:45.940

Participant1

Which culturally is to do with hunting.

0:36:46.980 --> 0:36:47.160

Interviewer

Yeah.

0:36:49.440 --> 0:36:50.620

Participant1

But it's part of a naturalness.

0:36:52.770 --> 0:36:52.950

Interviewer

Yeah.

0:37:18.0 --> 0:37:18.180

Interviewer

Yeah.

0:37:22.620 --> 0:37:22.850

Interviewer

Umm.

0:36:54.240 --> 0:37:23.550

Participant1

And then but and the reason but the because the other thing about that as as we tried it was that which I think is the neat thing which was **translator is trusted as well**, which was built on stuff that would had been going with Ciria in terms of Suds was if you if you you've seen those diagrams that sort of and you get a plot in different wards that's I see that's a useful bridge into planning as well with council.

0:37:25.270 --> 0:37:33.230

Participant1

But a in terms of a menu of options, different options deliver different profiles of benefit.

0:37:34.460 --> 0:37:39.820

Participant1

So then there's an an opportunity to say, well, look, if we did this thing, the profile of benefits.

0:37:43.80 --> 0:37:45.990

Participant1

Delivers in an area where we where we got a big shortfall.

0:37:47.840 --> 0:37:48.0

Interviewer

Yeah.

0:37:50.800 --> 0:37:54.360

Participant1

If there is, you know, in terms of the things that you're interested about, but.

0:37:57.30 --> 0:38:0.260

Participant1

Umm my sort of point was if you.

0:38:2.760 --> 0:38:4.450

Participant1

Trouble with calling on it from a.

0:38:4.960 --> 0:38:7.290

Participant1

And again, This is why you can't just think about the environment.

0:38:7.380 --> 0:38:12.220

Participant1

It's kind of a very arrogant thing to go to a community and insist on talking to them about.

0:38:13.750 --> 0:38:16.760

Participant1

Water quality when they're just worried about where they're going to be stabbed.

0:38:17.780 --> 0:38:17.940

Interviewer

Yeah.

0:38:20.160 --> 0:38:21.230

Participant1

You can't do that.

0:38:21.580 --> 0:38:23.750

Participant1

So you gotta have the conversation.

0:38:23.900 --> 0:38:25.680

Participant1

You gotta have the conversation that's live.

0:38:26.880 --> 0:38:27.110

Interviewer

Yeah.

0:38:29.540 --> 0:38:30.780

Interviewer

Yeah, and even.

0:38:33.490 --> 0:38:41.350

Interviewer

Even folks in the conversation on the on the issue, that's even if it's an environmental issue, one that's that matters more.

0:38:41.440 --> 0:38:50.960

Interviewer

So that's what we've and I worked on the Petteril Catchment work for that's what we found there was just after Storm Desmond and.

0:38:51.890 --> 0:39:7.470

Interviewer

As United Utilities, we had a driver to remove phosphorus from the river and got the £10 million scheme to it to remove phosphorus from the river and all of the local land owners, the farmers, the residents, the operators.

0:39:8.450 --> 0:39:9.60

Participant1

Too funny.

0:39:7.480 --> 0:39:9.190

Interviewer

When are you talking about?

0:39:9.200 --> 0:39:10.790

Interviewer

We need to stop flooding, Carlisle.

0:39:11.100 --> 0:39:12.420

Interviewer

That is the issue at hand.

0:39:22.570 --> 0:39:23.580

Participant1

It was interesting.

0:39:23.750 --> 0:39:25.220

Participant1

OK people, agent.

0:39:14.640 --> 0:39:29.410

Interviewer

At which it which then develops into an integrated scheme to address both concerns in new

ways, but without having those local conversations, we would never have known that that was the concern.

0:39:26.900 --> 0:39:30.620

Participant1

I'm just going to, yeah.

0:39:30.380 --> 0:39:32.740

Interviewer

Say yeah, completely agree.

0:39:32.750 --> 0:39:36.870

Interviewer

It can't just be topped down and it can't be topped down agenda driven either.

0:39:37.0 --> 0:39:43.980

Interviewer

It needs to be that needs to be, uh, a combination of ground up and top down.

0:39:44.450 --> 0:39:45.700

Participant1

Yeah, absolutely.

0:39:46.150 --> 0:39:57.320

Participant1

So, and that's sort of takes us into other places about this thing called the missing middle, you know, but it's something that but the missing middle also just isn't just one thing.

0:39:57.910 --> 0:40:1.670

Participant1

It's not like there's a particular, it's a combination of things in my view.

0:40:2.570 --> 0:40:3.40

Participant1

Umm.

0:40:4.540 --> 0:40:13.60

Participant1

But water resources East you know quite often what I say about the what they're doing is they're walking like a duck and they're quacking like a duck.

0:40:15.810 --> 0:40:17.460

Participant1

There might be a duck, you know.

0:40:20.40 --> 0:40:25.820

Participant1

But actually I think the reason it's not just water, it's it's to do with that regional development.

0:40:26.490 --> 0:40:26.670

Interviewer

Yeah.

0:40:26.20 --> 0:40:35.600

Participant1

It's to do with that you know where it's actually fitting in natural investment in natural capital, along with the other sort of infrastructure investment.

0:40:37.490 --> 0:40:37.670

Interviewer

Yeah.

0:40:40.170 --> 0:40:41.120

Interviewer

Yeah, needs to be a.

0:40:41.170 --> 0:40:42.400

Interviewer

A compliant approach, doesn't it?

0:40:43.700 --> 0:40:59.600

Interviewer

And so one of the one of the things I'm considering is when looking at these, I'm indicators across the different viewpoints is to have a locally driven health check at that data.

0:41:0.610 --> 0:41:9.700

Interviewer

So you've got centrally derived data that we couldn't we can get for across the country, but how much is that believed?

0:41:9.710 --> 0:41:10.790

Interviewer

How much is that?

0:41:11.370 --> 0:41:17.580

Interviewer

How much does it match up with local knowledge of how the world was used or?

0:41:17.650 --> 0:41:35.880

Participant1

Uh, OK, well that's interesting because I never well, because I'm thinking of doing something some research myself around this, not the not in this particular multiply with value and paradigm shift actually.

0:41:36.390 --> 0:41:41.680

Participant1

But there's something in some of the references in the UM.

0:41:43.610 --> 0:41:47.660

Participant1

To put that that neck, you did the what resource that the was continued.

0:41:48.380 --> 0:41:48.560

Interviewer

Yeah.

0:41:47.670 --> 0:41:50.490

Participant1

It's just stuff on lap about learning.

0:41:52.630 --> 0:41:54.360

Participant1

Because that's the other part of it, isn't it?

0:41:54.370 --> 0:41:55.260

Participant1

Actually is.

0:41:55.270 --> 0:41:56.950

Participant1

Is that social learning part of it?

0:41:57.350 --> 0:41:57.540

Interviewer

Yeah.

0:41:59.70 --> 0:42:0.750

Participant1

And that was evident.

0:42:0.820 --> 0:42:16.470

Participant1

You know, I I talked to one of the groups in and the Eden catchment where they got active because their community had been flooded and there were two small to qualify for any kind of flood dress Management scheme.

0:42:18.250 --> 0:42:21.980

Participant1

And in the and in the light of storm Desmond, what they did and you, you might be around.

0:42:21.990 --> 0:42:22.880

Participant1

What is happening?

0:42:23.10 --> 0:42:27.150

Participant1

Their their first instinct was to go and to clear all the trees and take all the wood out of the river.

0:42:29.650 --> 0:42:29.830

Interviewer

Yeah.

0:42:32.120 --> 0:42:36.100

Participant1

And it took them a while to sort of realize that actually that wasn't necessarily the right thing to do.

0:42:39.10 --> 0:42:42.90

Participant1

So there's a social **there's a social learning part of this.**

0:42:42.170 --> 0:42:42.370

Interviewer

Yeah.

0:42:45.400 --> 0:42:45.580

Interviewer

Yeah.

0:42:46.890 --> 0:42:53.510

Interviewer

And then some of the the research I've been, I've reading and following up on is that there's.

0:42:56.860 --> 0:42:59.520

Interviewer

This combination of kind of social contract.

0:43:0.750 --> 0:43:4.650

Interviewer

So if you have trust, then you have greater cooperation.

0:43:15.620 --> 0:43:16.390

Participant1

Well, yeah.

0:43:4.940 --> 0:43:16.560

Interviewer

You have more likely to to carry out actions which are for and wider good, and then that itself builds trust again and but.

0:43:16.400 --> 0:43:17.740

Participant1

And they then it's a Commons then.

0:43:16.610 --> 0:43:20.450

Interviewer

But if you've yeah, and if.

0:43:22.550 --> 0:43:29.470

Interviewer

If decisions are made based on data and that data isn't trusted by the local community, you've instantly lost that connection.

0:43:30.340 --> 0:43:34.870

Participant1

While the trust is most importantly, funny enough, we having a conversation where I work about.

0:43:36.260 --> 0:43:37.280

Participant1

Actually it's about bullying.

0:43:38.150 --> 0:43:38.470

Interviewer

Could.

0:43:39.310 --> 0:43:42.450

Participant1

And but one of the points that I've made is.

0:43:44.760 --> 0:43:46.280

Participant1

It is in relation to feedback.

0:43:47.790 --> 0:43:50.210

Participant1

You can't take feedback from someone you don't trust.

0:43:51.230 --> 0:43:51.420

Interviewer

Like.

0:43:55.80 --> 0:43:59.580

Participant1

Said **the trust is absolutely critical to actually the making this the whole thing work.**

0:44:1.90 --> 0:44:4.660

Participant1

And again went to things like social laws, and we just touched on it.

0:44:4.670 --> 0:44:5.40

Participant1

But I'm.

0:44:5.50 --> 0:44:5.280

Participant1

I'm.

0:44:9.780 --> 0:44:9.960

Interviewer

Yeah.

0:44:5.350 --> 0:44:17.50

Participant1

I'm sure you connected it with the the Elinor Ostrom's work on Commons and the way that

all of that works because that's, you know that that is really kind of what we're talking about talking about constructing that.

0:44:18.400 --> 0:44:18.560

Interviewer

Yeah.

0:44:31.250 --> 0:44:37.710

Interviewer

And I think we've pretty much covered everything that I I wanted to go through.

0:44:38.120 --> 0:44:38.430

Interviewer

Yeah.

0:44:38.440 --> 0:44:41.400

Interviewer

Is there anything else you'd want to you want to share or add to?

0:44:41.980 --> 0:44:47.50

Participant1

No, no, that's that's really interesting, I.

0:44:49.750 --> 0:44:52.960

Participant1

Just to let you know what I'm interested in, which has cause it kind of does have a bearing.

0:44:55.460 --> 0:45:1.180

Participant1

I'm interested in value or I'm interested in their interaction between value.

0:45:3.640 --> 0:45:4.160

Participant1

Umm.

0:45:8.270 --> 0:45:8.820

Participant1

What's?

0:45:8.830 --> 0:45:10.910

Participant1

What's social norms and technology?

0:45:15.780 --> 0:45:15.940

Interviewer

Yeah.

0:45:17.480 --> 0:45:18.460

Interviewer

Yeah, it's an interesting area.

0:45:21.230 --> 0:45:26.700

Participant1

Was that affects, you know on on my sort of and the reason imaged in that is that?

0:45:28.750 --> 0:45:32.310

Participant1

Umm, it's partly comforted.

0:45:32.320 --> 0:45:37.650

Participant1

That's quite an anthropological framing, actually, and it's part of.

0:45:37.660 --> 0:45:39.610

Participant1

It's an anthropological frame because there's.

0:45:41.620 --> 0:45:44.880

Participant1

In terms of every environment humans have encountered.

0:45:46.920 --> 0:45:51.960

Participant1

Those three things come together in terms of what's becomes an adaptive way of living in that environment.

0:45:53.350 --> 0:45:53.510

Interviewer

Yeah.

0:45:57.220 --> 0:45:58.80

Participant1

So I'll just say this.

0:45:59.750 --> 0:46:2.750

Participant1

So it sort of fits within that sort of framework we've been talking about.

0:46:5.640 --> 0:46:6.230

Interviewer

Yeah.

0:46:6.640 --> 0:46:6.870

Interviewer

Yeah.

0:46:6.880 --> 0:46:28.670

Interviewer

And actually, so I'm writing a paper at the moment, but that is one the research is around the system maps I've been developing for this and trying to marry up all these issues and they are the three areas that kind of shine out as the core and cycles of interaction across the system.

0:46:38.500 --> 0:46:38.740

Interviewer

OK.

0:46:29.700 --> 0:46:38.860

Participant1

Well, then I'll be very grateful if you let me, because I'm thinking of, you know that that's, you know, I'm I'm looking to see if I might do a (PhD on that myself.

0:46:40.720 --> 0:46:46.880

Participant1

Umm and expand some of it, and especially for the stuff around because it gets it.

0:46:46.890 --> 0:46:49.720

Participant1

It is interesting because you get into things like what do you call it.

0:46:52.610 --> 0:46:54.720

Participant1

Ohh, you know early adopters.

0:46:54.770 --> 0:46:55.880

Participant1

I keep thinking what it's called.

0:46:58.760 --> 0:47:0.860

Participant1

The where is it?

0:47:4.630 --> 0:47:5.500

Participant1

Was that how?

0:47:5.510 --> 0:47:7.740

Participant1

Can't find the Moon presentation that I've got this.

0:47:8.10 --> 0:47:8.930

Participant1

I've got a little sort of.

0:47:17.70 --> 0:47:18.910

Participant1

Uh, let's see if it's here.

0:47:23.480 --> 0:47:24.310

Participant1

If it's here.

0:47:26.850 --> 0:47:27.670

Participant1

No, it's not.

0:47:27.990 --> 0:47:30.260

Participant1

Anyway, I think I won't keep you any longer.

0:47:30.270 --> 0:47:31.820

Participant1

It's, but yeah, it's that it.

0:47:31.830 --> 0:47:40.500

Participant1

It's in that length, early adopters and all of that stuff with the social stuff and the technology's gotta be, uh, technology has got to be.

0:47:42.160 --> 0:47:44.350

Participant1

Affordable, available and reliable.

0:47:44.360 --> 0:47:46.30

Participant1

You know, it's just sort of breaking it out.

0:47:46.410 --> 0:47:46.590

Interviewer

Yeah.

0:47:46.480 --> 0:47:54.630

Participant1

So I'm I'm kind of thinking that maybe there's a kind of almost like a there's almost like a useful guide or.

0:48:1.80 --> 0:48:1.270

Interviewer

Yeah.

0:47:58.320 --> 0:48:1.690

Participant1

Thinking framework to develop, yeah.

0:48:2.550 --> 0:48:4.770

Interviewer

Yeah, there's, there's also my supervisor. Right.

0:48:4.990 --> 0:48:21.560

Interviewer

I'm paper few few years ago and the briefly touched on on this area and he was looking at in that domestic water saving devices.

0:48:22.750 --> 0:48:23.780

Participant1

Yeah, well, that's exactly.

0:48:23.520 --> 0:48:31.970

Interviewer

And and the behavioural change that came about as a result of having them installed, which meant that actually people use more water.

0:48:33.330 --> 0:48:36.460

Participant1

Well, gosh, yes, I'm that I'm OK.

0:48:36.470 --> 0:48:41.360

Participant1

I've got a few little examples that I've sort of got, and seatbelts is another great one, isn't it?

0:48:42.210 --> 0:48:42.330

Interviewer

Yeah.

0:48:41.810 --> 0:48:47.550

Participant1

So you can see if you think about seatbelts the way that played out against all the three different corners of that triangle.

0:48:48.650 --> 0:48:51.440

Participant1

And once it starts spotting one, you start spotting lots.

0:48:51.950 --> 0:48:52.100

Interviewer

Yeah.

0:48:54.950 --> 0:48:55.620

Participant1

That's cool.

0:48:55.630 --> 0:48:55.980

Participant1

OK.

0:48:56.150 --> 0:48:56.270

Interviewer

Yeah.

0:48:55.990 --> 0:49:0.270

Participant1

No, that's anything you can send me which might sort of help me frame things.

0:49:0.280 --> 0:49:1.270

Participant1

Would be very grateful for.

0:49:1.390 --> 0:49:1.860

Interviewer

Yeah.

0:49:1.910 --> 0:49:2.220

Interviewer

Yeah.

0:49:2.230 --> 0:49:3.700

Interviewer

Well, it be, yeah.

0:49:3.710 --> 0:49:5.180

Interviewer

Couple months, probably until it's published.

0:49:5.190 --> 0:49:6.980

Interviewer

But when it is on, definitely share it with you.

0:49:7.310 --> 0:49:7.660

Participant1

Cool.

0:49:7.710 --> 0:49:8.260

Participant1

OK.

0:49:8.520 --> 0:49:8.680

Interviewer

OK.

0:49:8.550 --> 0:49:9.220

Participant1

Well, nice to talk.

0:49:9.780 --> 0:49:10.50

Interviewer

Yeah.

0:49:10.60 --> 0:49:12.580

Interviewer

And thanks very much for your time and all your insights since been.

0:49:12.700 --> 0:49:13.400

Interviewer

Yeah, very useful.

0:49:14.470 --> 0:49:15.120

Participant1

Well, good luck.

0:49:15.150 --> 0:49:16.470

Participant1

I'd be interested to see where you get.

## **Interview 2**

Date of meeting: 24/03/2024

0:0:0.0 --> 0:0:4.590

Interviewer

So and you know the purpose of this.

0:0:5.340 --> 0:0:18.880

Interviewer

And so we're just gonna have a a chat around some of the topics in the questionnaire and to to just have a more in depth conversation and try and get your views on a few of them in a bit more detail if that's OK.

0:0:19.350 --> 0:0:19.570

Participant2

Yep.

0:0:21.130 --> 0:0:33.420

Interviewer

And so I know we're all spoken about it before, but do you do you know the and main thrust of the research that I'm doing?

0:0:34.390 --> 0:0:36.950

Participant2

Uh, it I could do it a reminder.

0:0:37.420 --> 0:0:37.780

Interviewer

OK.

0:0:38.770 --> 0:0:38.910

Participant2

Yeah.

0:0:39.670 --> 0:0:40.550

Interviewer

And so.

0:0:42.660 --> 0:0:43.750

Interviewer

I'll take you back to the petrol.

0:0:44.510 --> 0:0:44.740

Participant2

Yep.

0:0:45.560 --> 0:0:53.40

Interviewer

And and the idea of kind of Intuit catchments looking at things from a wider perspective started then and I started looking for.

0:0:54.790 --> 0:0:56.680

Interviewer

Research opportunities.

0:1:0.360 --> 0:1:0.630

Participant2

Mm-hmm.

0:0:56.850 --> 0:1:12.780

Interviewer

Looking at that in a more urban context and trying to look at it from trying to create a way that we could look at multiple issues and probably looking at nature based solutions within those issues.

0:1:13.680 --> 0:1:21.750

Interviewer

And but in an urban context, and then as a scientist started asking, well, why, why would you assume that?

0:1:21.920 --> 0:1:23.370

Interviewer

Let's take away all the assumptions.

0:1:23.440 --> 0:1:47.910

Interviewer

Go back to basics and ended up where I am now, which is looking at system mapping of a river catchment from multiple perspectives to try and understand and then visualize in a simplified form the on those underlying relationships which have impacts across environment and society and economy.

0:1:50.90 --> 0:2:5.60

Interviewer

And then taking that into future scenarios, So what could happen in alternative futures is that 100 years from now, if we had different global trends and different policy initiatives and how would that change those relationships?

0:2:5.130 --> 0:2:6.190

Interviewer

Which ones would be strengthened?

0:2:6.200 --> 0:2:7.300

Interviewer

Which ones would be weakened?

0:2:7.750 --> 0:2:18.350

Interviewer

And then also looking at indicators and how could we quantify any of those and requirements that we have, but all of this from a justice perspective?

0:2:19.470 --> 0:2:19.630

Participant2

Yeah.

0:2:21.950 --> 0:2:23.820

Interviewer

Then so.

0:2:27.820 --> 0:2:34.310

Interviewer

In your kind of view and experience, when we're looking at issues with an attachment.

0:2:36.380 --> 0:2:41.310

Interviewer

Do we tend to focus on issues from a certain perspective?

0:2:51.930 --> 0:3:43.480

Participant2

So I think the problem we have is everybody just looks at it from their own perspective and in urban context is even harder because the sort of a local authority boundaries tend to be much more respected if you like, than the natural boundaries of the catchment and now we're kind of wanting to think much more beyond catchment landscape scale, but still constraining ourselves from a planning perspective in particular to local authority boundaries, umm, which makes it really difficult to plan to really think about the what impact we want to see across all parties all.

0:3:43.530 --> 0:3:51.800

Participant2

Parts of catchment in you know all the sort of risks that we need to think about now, especially with climate change and population growth and all of that.

0:3:52.310 --> 0:3:53.460

Participant2

So it's difficult.

0:3:55.300 --> 0:3:58.80

Participant2

And I don't, I don't think people actually.

0:3:59.220 --> 0:4:4.480

Participant2

I'm it's cultural as well, so it's so institutionalized that it's really difficult to breakthrough that.

0:4:5.800 --> 0:4:6.20

Interviewer

Yeah.

0:4:7.50 --> 0:4:19.0

Participant2

So we we're in a silo mode at the moment and it's the tendency is the, the more the crisis deepens, the more we tend to stay within our people are like that, aren't they just you stay within your silos.

0:4:18.770 --> 0:4:21.10

Interviewer

Yeah, in in trench and with what you know.

0:4:20.990 --> 0:4:21.520

Participant2

Yeah.

0:4:21.710 --> 0:4:23.60

Participant2

Yeah, it's.

0:4:23.170 --> 0:4:24.200

Participant2

It's what you know.

0:4:24.210 --> 0:4:25.340

Participant2

It's comfort zone.

0:4:25.550 --> 0:4:30.20

Participant2

So and comfort zone, unfortunately is not gonna get us out of the challenges we've got.

0:4:30.460 --> 0:4:35.220

Participant2

And so I think that's the it's a huge challenge, which is cultural.

0:4:35.550 --> 0:4:40.720

Participant2

It's what we know is comfort zone and I've been in order for us to think integrated catchment.

0:4:40.720 --> 0:4:41.920

Participant2

We're gonna have to get out of that.

0:5:2.710 --> 0:5:2.910

Interviewer

Yeah.

0:4:42.410 --> 0:5:5.750

Participant2

We're going to have to break away from some of the political boundaries and start to think about much bigger scale in terms of catchments, not just in terms of the small stretches of catchments there may run through a city, but also think about the operational catchment in the around the landscape that relies on that on on that.

0:5:5.760 --> 0:5:8.800

Participant2

And then you're gonna start to see differences, things like.

0:5:9.570 --> 0:5:19.440

Participant2

You know, putting much more value around rivers that have been converted, that have disappeared from sight, but we desperately need them to come back for all sorts of reasons now.

0:5:20.490 --> 0:5:21.780

Participant2

But it's just not going to be easy.

0:5:23.920 --> 0:5:25.470

Interviewer

No, and it's.

0:5:36.490 --> 0:5:37.30

Participant2

Yeah.

0:5:28.310 --> 0:5:38.510

Interviewer

Uh, so I was working with some people in America and like they just talk about catchment scale, but you got a catchment which is the Mississippi and it's the size of England.

0:5:38.940 --> 0:5:39.940

Participant2

Exactly, yeah.

0:5:54.470 --> 0:5:55.450

Participant2

Yeah, yeah.

0:5:40.300 --> 0:5:56.960

Interviewer

And and yes, some of our catchments are are so tiny, but it's held do you, but within that even a small catchment, you'll have rural areas, you'll have agriculture, you have uplands, you have cities, you have St) areas.

0:5:57.190 --> 0:6:4.840

Interviewer

So you still got all the nuances of those different requirements, but they're just compressed into a smaller geographic area.

0:6:5.990 --> 0:6:6.110

Participant2

Yeah.

0:6:6.70 --> 0:6:9.320

Interviewer

So I don't know if that creates more conflict, yeah.

0:6:8.370 --> 0:6:10.630

Participant2

It does so in.

0:6:12.510 --> 0:6:15.220

Participant2

In the states they used to the idea of scale.

0:6:15.230 --> 0:6:19.120

Participant2

So I like the way they've done in New York, the policy New York is likely changing.

0:6:19.910 --> 0:6:22.160

Participant2

Well, it's totally changing.

0:6:22.370 --> 0:6:26.440

Participant2

At least you had in the last few years and they don't think city of New York now.

0:6:26.450 --> 0:6:38.40

Participant2

They think the watershed of New York, they think the the the basin and they think way, way, uplands as well as the downstream urban area which is forever expanding.

0:6:39.40 --> 0:6:39.240

Interviewer

Yeah.

0:6:38.990 --> 0:6:43.630

Participant2

And so I I love the work that and that's changing the policy.

0:6:44.160 --> 0:6:50.100

Participant2

That means the the, the Council or whatever they call them there, what do they call them?

They.

0:6:51.910 --> 0:6:52.300

Participant2

I don't know.

0:6:52.310 --> 0:6:52.590

Participant2

They don't.

0:6:52.230 --> 0:6:53.940

Interviewer

Uh, yeah.

0:6:54.740 --> 0:6:56.240

Participant2

They have called them council, do they?

0:6:56.350 --> 0:6:56.540

Interviewer

No.

0:6:56.310 --> 0:6:56.920

Participant2

They're sitting.

0:6:58.720 --> 0:7:10.300

Participant2

The local authorities basically need to break away from their own comfort zones from their own political boundaries and think geographically and when.

0:7:22.950 --> 0:7:23.210

Interviewer

Here.

0:7:10.360 --> 0:7:37.770

Participant2

When I say geographically, they thinking about the watershed, that's changed the way they're defining policy for the urban areas it you know, they're starting to prioritize water recovery, for example, water efficiency and they starting to think about more holistically and and in the integrated way about how do you recover, how do you do rainwater Management, they help us to recover the water, they start even they're modeling capabilities.

0:7:37.780 --> 0:7:47.710

Participant2

And now starting to look at the value of that water once he's recovered in terms of treatment works in terms of not having to abstract as much.

0:7:47.780 --> 0:8:4.480

Participant2

So obviously over there, they've already crossed that sacred boundary that in the UK thou shall not cross, which is water recovery and some water companies may use the PR trick of saying calling treatment works well as they call them and.

0:8:5.980 --> 0:8:7.160

Participant2

Recycling centers?

0:8:7.480 --> 0:8:7.740

Interviewer

Yeah.

0:8:7.170 --> 0:8:8.150

Participant2

Well, they're not, are they?

0:8:8.220 --> 0:8:8.810

Participant2

They're not.

0:8:9.430 --> 0:8:24.750

Participant2

And because the biggest, the biggest resource that you can recycle is the water itself, it isn't necessarily the sludge or the metals, or the nitrate or whatever they they want to squeeze out of that water is the water itself.

0:8:24.940 --> 0:8:28.690

Participant2

So I like what they're doing in New York, where they crossing the boundaries.

0:8:28.700 --> 0:8:38.470

Participant2

So think about the city and the the resources, particularly the water resource, which is one of the things that they they've identified as one of their top risks really is the water resources.

0:8:38.920 --> 0:8:45.760

Participant2

They're thinking of the boundaries of the water resources in terms of the New York State going way upstream.

0:8:46.480 --> 0:8:50.800

Participant2

And into the rivers and the watersheds.

0:8:51.340 --> 0:9:0.210

Participant2

And when I started in this sort of area coming from a biochemistry background, I used to think catchments in watershed with the same thing.

0:9:0.420 --> 0:9:1.30

Participant2

They're not.

0:9:1.120 --> 0:9:3.10

Participant2

They've nuances in it.

0:9:3.350 --> 0:9:3.530

Interviewer

Yeah.

0:9:3.460 --> 0:9:12.970

Participant2

They they're not exactly the same thing, and I think the way in the states in particularly places like New York, the way they're redefining that is really important.

0:9:13.540 --> 0:9:18.590

Participant2

And they know they're gonna be hugely, hugely water stressed in the next few years.

0:9:19.0 --> 0:9:20.590

Participant2

For them, that's visible now.

0:9:20.600 --> 0:9:21.920

Participant2

They can see it coming.

0:9:23.510 --> 0:9:43.50

Participant2

They've got a population that's booming and they did a study recently looking at rainwater management from the point of where do we need to capture the water and make sure that it flows in the right places so it doesn't flood, but also it doesn't.

0:9:43.600 --> 0:9:45.310

Participant2

It doesn't get stuck somewhere.

0:9:45.640 --> 0:9:50.90

Participant2

How that means you have to think of the water, the flow of the water itself.

0:9:50.220 --> 0:9:56.350

Participant2

Water butts connecting to the network connecting to rivers, which means the rivers need to come back to life.

0:9:56.470 --> 0:9:56.660

Participant2

Yes.

0:9:57.350 --> 0:10:10.400

Participant2

And and then taking it somewhere where you actually can recover that water and they would just looking Briony at at commercial properties and there's over a million commercial properties in New York City.

0:10:10.830 --> 0:10:11.720

Participant2

It's bonkers.

0:10:12.50 --> 0:10:12.270

Interviewer

Yeah.

0:10:11.810 --> 0:10:17.340

Participant2

It's just huge and and this doesn't include a small a small scale stuff.

0:10:17.350 --> 0:10:21.800

Participant2

The small businesses, he was big enough that you could own a whole building, for example.

0:10:22.290 --> 0:10:34.110

Participant2

It's huge and and but they think that they bought if they could put water butts and connect some of those to the network and then at the other end recovered our water to recycle it.

0:10:34.840 --> 0:10:39.830

Participant2

I, even if it is just for Gray water recycling, they could make huge savings.

0:10:40.100 --> 0:10:52.210

Participant2

They could recharge aquifers and actually incentivize, and you know, the service charges to be reduced because if you put a water bath and we're recovering your water, you're gonna get less.

0:10:54.280 --> 0:10:54.480

Interviewer

Yeah.

0:10:52.660 --> 0:10:54.650

Participant2

Your bills are gonna go down and water.

0:10:54.660 --> 0:10:55.960

Participant2

There's more expensive than here.

0:10:56.660 --> 0:11:7.530

Participant2

Umm the the whole model just works and then they start to think about the multiple benefits and then they start to think about the suds and the green roofs.

0:11:7.540 --> 0:11:11.110

Participant2

And you know the permeable pavements.

0:11:11.120 --> 0:11:16.680

Participant2

And then suddenly, you know, New York City itself becomes part of the watershed itself.

0:11:16.690 --> 0:11:17.370

Participant2

You see what I mean?

0:11:17.920 --> 0:11:32.260

Participant2

It's brilliant, but it does require substantial investment and they know that they've done the modeling in the billions of dollars, but they reckon that that in itself is going to save trillions in the future.

0:11:33.720 --> 0:11:41.670

Participant2

But outside of New York and maybe, you know, Amsterdam and maybe Singapore, there's just nobody's doing that sort of thinking.

0:11:41.680 --> 0:11:50.510

Participant2

And it **as soon as you get to the problem of to save that, to restore the watershed in an integrated catchment approach is gonna require billions of dollars.**

0:11:50.520 --> 0:11:51.610

Participant2

That's where people stop.

0:11:52.0 --> 0:11:52.400

Interviewer

Yes.

0:11:51.620 --> 0:11:53.140

Participant2

**Then it becomes a money problem.**

0:11:56.400 --> 0:11:56.990

Interviewer

Yeah.

0:11:57.40 --> 0:11:57.470

Interviewer

Yeah, it is.

0:11:56.390 --> 0:12:14.540

Participant2

So I tried for example you you when we're doing the advanced winapp, the rainwater Management and kind of stealing some of those ideas in York, so did a lot of reading up on what they doing and I'm what benefit though that they did the proper analysis in terms of the multiple capitals and the water recovery itself.

0:12:14.990 --> 0:12:25.190

Participant2

I mean it stands on its own as a business case, but you know when you try to enforce some of those ideas here and I do understand they're gonna need policy changes and that's what they're looking for over there.

0:12:25.200 --> 0:12:36.740

Participant2

The modeling of the moment and the academic studies are to inform policy in the first instance, which again here we don't do and it, you know, engineers just look at me like I've got 2 heads.

0:12:37.970 --> 0:12:50.340

Participant2

Even the good engineers who've done projects around SUDS and have done planning projects where they've had to restore blue and green infrastructure, even they this is a stretch of the imagination.

0:12:50.350 --> 0:13:5.150

Participant2

Is it just a leap of the imagination that it's really difficult, which recently I've come to realize that it isn't just about money, it's skills, the ability and the capability to have the capability on the ground that is able to think that way.

0:13:5.960 --> 0:13:15.970

Participant2

And maybe that's what you know, the shift needs to be, is the people that are starting to think about these things come from different skill sets rather than the traditional skill set?

0:13:16.860 --> 0:13:19.560

Participant2

Maybe that's that's one of the things I didn't actually look at.

0:13:19.570 --> 0:13:27.30

Participant2

The New York case studies, and they might be that it might just be that now we need to think about planners and civil engineers and others.

0:13:27.40 --> 0:13:32.810

Participant2

They're actually think like landscape architects and like NBS practitioners.

0:13:36.820 --> 0:13:36.980

Interviewer

Yeah.

0:13:39.900 --> 0:13:40.150

Interviewer

Yeah.

0:13:32.820 --> 0:13:47.130

Participant2

And as policymakers who want to tackle climate change and see what I mean, we may need different skill sets as well as, obviously, investment and the breaking away from silos and breaking away from sort of political boundaries into watersheds.

0:13:48.530 --> 0:13:51.820

Interviewer

But it's a completely different way of thinking about things.

0:13:51.700 --> 0:13:52.40

Participant2

Hmm.

0:14:4.940 --> 0:14:5.100

Participant2

Yeah.

0:13:52.210 --> 0:14:5.760

Interviewer

So if you think back to kind of ancient civilizations, we've always had the structure and the our infrastructure basis has been get the water away from people, get the waste water away from people, doesn't matter how.

0:14:5.830 --> 0:14:12.760

Interviewer

Just move it away from where people are, whereas now the OR the more future thinking.

0:14:22.990 --> 0:14:23.230

Participant2

Yeah.

0:14:14.500 --> 0:14:27.490

Interviewer

Parts of urban planning and it's and Urban Development are, well, how do we integrate our cities to be a natural environment that we have to live amongst and that's it's it's turning it on its head.

0:14:27.540 --> 0:14:28.660

Interviewer

It's such a different mindset.

0:14:29.350 --> 0:14:29.540

Participant2

Yeah.

0:14:36.860 --> 0:14:37.10

Participant2

Yeah.

0:14:29.620 --> 0:14:39.350

Interviewer

The IT there's no way to go back to what I've done before because we haven't done this for thousands of years.

0:14:40.250 --> 0:14:41.40

Participant2

We were so.

0:14:43.10 --> 0:14:44.600

Participant2

And yet he's so old.

0:14:39.560 --> 0:14:44.730

Interviewer

So it's it's something very new and and that means it's risky.

0:14:45.290 --> 0:14:45.970

Participant2

Yeah.

0:14:46.30 --> 0:14:50.820

Participant2

So the I don't can't remember his name, professor, one or another.

0:14:55.170 --> 0:14:57.810

Interviewer

Sponge cities, yeah.

0:14:51.270 --> 0:14:59.160

Participant2

And in China, basically the the the person who inspired, yeah, the movement around sponge cities.

0:14:59.470 --> 0:15:1.480

Participant2

And he says this time and time again.

0:15:2.860 --> 0:15:5.630

Participant2

We need to reinvent the old.

0:15:6.860 --> 0:15:7.50

Interviewer

Yeah.

0:15:5.680 --> 0:15:10.690

Participant2

Basically, we need to bring it back and adapt it to what the need that is.

0:15:10.700 --> 0:15:18.470

Participant2

So, you know, recharging over aquifers or working and living with water is something that we used to do.

0:15:18.520 --> 0:15:21.190

Participant2

And then suddenly we became conurbations.

0:15:21.200 --> 0:15:23.30

Participant2

And then we it was like what you're saying?

0:15:23.40 --> 0:15:24.310

Participant2

Get the water away from here.

0:15:24.880 --> 0:15:32.90

Participant2

Water is something pretty for us to look at, you know, and go passing in a river or whatever, but other than that, you know, I may wanna live.

0:15:30.840 --> 0:15:32.530

Interviewer

Yeah, but you don't want it on your doorstep.

0:15:32.770 --> 0:15:33.510

Participant2

You don't want to.

0:15:32.570 --> 0:15:33.980

Interviewer

You want it away from you.

0:15:33.630 --> 0:15:34.960

Participant2

Yeah, exactly.

0:15:34.970 --> 0:15:39.700

Participant2

You may wanna live by the waterfront because it's beautiful, but you really don't want the water coming into your house.

0:15:40.110 --> 0:15:45.840

Participant2

So and he says that we need to reinvent the old and which is this?

0:15:45.850 --> 0:15:47.40

Participant2

There's no reinventing than you.

0:15:47.50 --> 0:15:51.180

Participant2

It's not creating the new, it's bringing the old and adapt it, you know?

0:15:53.100 --> 0:15:53.320

Interviewer

Yeah.

0:15:52.130 --> 0:15:54.880

Participant2

So they do a lot of that in China.

0:15:54.890 --> 0:16:16.230

Participant2

You know, looking at how do they recognize that the, the cities that are coming around to this idea that ohh gosh, you know, we've just gone for new and and shiny and you know, 21st century cities that are just not resilient at all whereas it what's gonna make us resilient is bringing the old back and integrating that in the city.

0:16:16.300 --> 0:16:17.650

Participant2

And that means bringing the water back.

0:16:18.240 --> 0:16:18.440

Interviewer

Yeah.

0:16:21.960 --> 0:16:22.340

Interviewer

Yeah.

0:16:25.30 --> 0:16:27.350

Participant2

Yep, yeah, yeah.

0:16:22.350 --> 0:16:31.320

Interviewer

And it aligns with things like 15 minutes cities and having a more localised and the environment and changes to work practices.

0:16:31.370 --> 0:16:35.140

Interviewer

So people aren't living in suburbs, so you have heard talk about right.

0:16:35.150 --> 0:16:38.260

Interviewer

Suburbia is gonna disappear, basically.

0:16:38.340 --> 0:16:38.910

Interviewer

And you'll have.

0:16:41.460 --> 0:16:43.110

Participant2

So get get rid of the the.

0:16:41.340 --> 0:16:44.110

Interviewer

Village towns and city centres.

0:16:44.770 --> 0:16:47.920

Participant2

Yeah, get rid of the yeah.

0:16:45.50 --> 0:16:51.610

Interviewer

And because people can either travel further in the same amount of time, or they don't need to travel as frequently because you've got hybrid working.

0:16:52.100 --> 0:16:52.730

Participant2

Exactly.

0:16:53.320 --> 0:16:53.590

Interviewer

It's.

0:16:52.740 --> 0:16:55.500

Participant2

So get rid of the the sort of a, you know.

0:16:57.600 --> 0:17:0.870

Participant2

The the suburbs altogether, really, you know.

0:17:1.0 --> 0:17:9.480

Participant2

And but then there's been quite an interesting pushback on the 15 minute city cause people seem to think that they is.

0:17:11.640 --> 0:17:11.840

Interviewer

Yeah.

0:17:14.610 --> 0:17:15.30

Interviewer

This is a.

0:17:9.490 --> 0:17:20.660

Participant2

It's Big Brother trying to limit people to their own their own cages, which the mind boggles because if you think about it, that's how people used to live.

0:17:27.250 --> 0:17:27.520

Interviewer

It.

0:17:20.670 --> 0:17:40.200

Participant2

You could go for decades, you know, years and years without going to the next village, you know, because we have everything at your door step, your family, your community, your work, your food, everything you know, water just on your doorstep.

0:17:40.310 --> 0:17:43.400

Participant2

Travelling was a treat, and maybe that's the way.

0:17:43.410 --> 0:17:48.110

Participant2

We need to think about, but in the world of globalization, people see that as a prison now.

0:17:54.890 --> 0:17:55.120

Participant2

Umm.

0:17:59.500 --> 0:18:0.160

Participant2

Yeah, it's this.

0:17:48.930 --> 0:18:4.80

Interviewer

Yeah, but again, is that change of mindset and people have been brought up with a certain aspiration and it's it's challenging that as an aspiration and that it it hits at the heart of people doesn't have.

0:18:4.320 --> 0:18:8.0

Participant2

Yeah, *it's cultural now is very cultural*, yeah.

0:18:9.400 --> 0:18:12.360

Interviewer

Umm, so pretending us.

0:18:14.250 --> 0:18:16.400

Interviewer

Back to questions.

0:18:17.700 --> 0:18:18.0

Participant2

OK.

0:18:16.410 --> 0:18:18.630

Interviewer

Rather than rambles and.

0:18:21.830 --> 0:18:27.320

Interviewer

So I I asked him around how do we translate needs into action plans and is that affective?

0:18:27.990 --> 0:18:31.290

Interviewer

Have you got any thoughts on that and I know you do.

0:18:30.960 --> 0:18:31.330

Participant2

Hmm.

0:18:34.240 --> 0:18:36.290

Participant2

I let me try to organize my thoughts on that.

0:18:37.60 --> 0:18:40.270

Participant2

How do you translate needs into action plans?

0:18:41.160 --> 0:18:44.520

Interviewer

It's more around is that process effective currently?

0:18:45.310 --> 0:18:46.520

Participant2

No, of course not.

0:18:47.650 --> 0:18:49.670

Participant2

And it depends on what you mean by needs.

0:18:50.250 --> 0:18:50.450

Interviewer

Yeah.

0:18:49.870 --> 0:18:50.660

Participant2

Needs of whom?

0:18:51.130 --> 0:18:51.840

Participant2

Who? Who?

0:18:51.910 --> 0:18:53.290

Participant2

Who's the audience of those needs?

0:18:53.860 --> 0:18:54.220

Interviewer

Yeah.

0:18:54.260 --> 0:19:1.840

Interviewer

Well, that that takes me back to to my kind of initial premise of the research because a lot of it is around sustainability.

0:19:1.890 --> 0:19:6.140

Interviewer

A lot of our regulation and stops at the idea of sustainability.

0:19:7.510 --> 0:19:14.600

Interviewer

That said, sustainability as a goal raises a question of sustainability, or what, and for whom?

0:19:15.80 --> 0:19:16.110

Participant2

Yep, yeah.

0:19:15.700 --> 0:19:18.910

Interviewer

And it doesn't remove those and.

0:19:20.550 --> 0:19:33.100

Interviewer

Barriers that we have, which are justice linked, which mean that there are portions of the population which are disadvantaged because of barriers which are put in in place in terms of their relationship with water.

0:19:35.440 --> 0:19:35.740

Interviewer

Umm.

0:19:35.340 --> 0:19:48.640

Participant2

So yeah, and I think that's the main question the needs of whom basically are we thinking about and now we asking that particular audience what their needs are or just second guessing.

0:19:49.580 --> 0:19:49.760

Interviewer

Yeah.

0:19:50.880 --> 0:20:0.550

Participant2

I don't think the needs of the communities of society are being shaped with society, so this goes back to that participatory model.

0:20:0.840 --> 0:20:5.270

Participant2

So people talk about social inclusion, but really it's just a ticking.

0:20:5.320 --> 0:20:19.210

Participant2

Take the box exercise and there's no such thing as social justice or social inclusion at the moment, provided it looks great on your organization's HR targets and your strategy documents.

0:20:19.670 --> 0:20:20.290

Participant2

That's it.

0:20:20.300 --> 0:20:22.220

Participant2

Really it doesn't.

0:20:22.230 --> 0:20:26.630

Participant2

And in the environment sector, which is where I'm putting water as well, it's even worse actually.

0:20:27.480 --> 0:20:50.750

Participant2

And deprived communities, inner city communities, young people, old people, they're, you know, and I think underrepresented in the environmental sector and they have to lump with action plans of the well-meaning branded as sustainability, as you say that really don't deliver for that society.

0:20:51.60 --> 0:20:52.910

Participant2

So is the needs.

0:20:52.920 --> 0:20:55.170

Participant2

Of whom do we need to ask them first?

0:20:55.180 --> 0:20:58.150

Participant2

What do they need before defining what those plans are?

0:20:58.260 --> 0:21:21.390

Participant2

And I think it's a bit akin to water companies business plans because the guidance is made by the regulators is imposed is delivered by the water companies and the customer pays for it, but has very little in in intervention or participation or collaboration in terms of what they actually paying for.

0:21:22.320 --> 0:21:22.540

Interviewer

Yeah.

0:21:22.650 --> 0:21:27.990

Participant2

So I think definitely the process isn't working the way it should be working.

0:21:29.280 --> 0:21:35.790

Participant2

We know the power of the collective CSO's, which is the example Bryony that I'm using constantly at the moment.

0:21:36.710 --> 0:21:36.910

Interviewer

Yeah.

0:21:37.130 --> 0:21:48.690

Participant2

Uh is a good example of that £96 billion plan for five years now, the water industry is gonna have to deliver is the biggest anywhere in the world, right?

0:21:49.120 --> 0:21:51.650

Participant2

And it was driven by society.

0:21:52.20 --> 0:21:52.430

Participant2

Yes.

0:21:52.440 --> 0:21:55.10

Participant2

And we were just thinking about this a few days ago.

0:21:55.20 --> 0:21:56.350

Participant2

The Rivers Trust started kicked.

0:21:56.360 --> 0:22:1.370

Participant2

It kicked this off with a few £1000 from Patagonia to build the sewage map.

0:22:2.870 --> 0:22:3.780

Participant2

The sewage mouth.

0:22:5.10 --> 0:22:5.210

Interviewer

Yeah.

0:22:3.790 --> 0:22:9.320

Participant2

Bryony, which kicked off the whole movement around Csos because suddenly information was explained.

0:22:9.330 --> 0:22:10.660

Participant2

It was humanized.

0:22:10.690 --> 0:22:10.950

Interviewer

Yeah.

0:22:10.960 --> 0:22:14.440

Interviewer

And you can see it is accessible and you can see her.

0:22:10.810 --> 0:22:14.600

Participant2

It was explained, yeah, it was explained to people.

0:22:14.970 --> 0:22:19.950

Participant2

Yeah, in an accessible interactive way that they could understand, they could see it.

0:22:20.680 --> 0:22:29.930

Participant2

And I know that sewage has got the yuck factor, which makes it easier for people to revolt against, but that doesn't matter because plastic it was.

0:22:29.940 --> 0:22:32.180

Participant2

I call it a David Attenborough effect.

0:22:33.210 --> 0:22:33.880

Participant2

You put a.

0:22:33.930 --> 0:22:40.640

Participant2

You know, you film a piece of plastic around the Dolphins nose and suddenly you're creating a movement.

0:22:40.820 --> 0:22:41.910

Participant2

So this was the same.

0:22:41.920 --> 0:22:43.330

Participant2

So I I'm I'm not kidding.

0:22:43.340 --> 0:22:54.920

Participant2

We're talking less than 50K and that's the river trust use probably a few three to five grand to initially to build that sewage map that was accessible.

0:22:55.330 --> 0:23:1.690

Participant2

It was visible to all, and that created a movement which had an impact on the £96 billion [planned investment].

0:23:1.700 --> 0:23:14.460

Participant2

So CSO are going to constitute £11 billion from a few £1000 to £11 billion because suddenly people society have a thing or two to say about it.

0:23:15.970 --> 0:23:16.150

Interviewer

Yeah.

0:23:15.970 --> 0:23:21.20

Participant2

Now that that is the sort of model you need to solve, a lot of these problems.

0:23:22.580 --> 0:23:23.490

Participant2

When do you stop though?

0:23:23.500 --> 0:23:23.900

Participant2

I'm not sure.

0:23:24.730 --> 0:23:26.560

Participant2

And and then how to keep it going?

0:23:26.570 --> 0:23:30.760

Participant2

I'm not sure because we've ganged up on the problem, as Mark liked to say.

0:23:31.110 --> 0:23:34.580

Participant2

Now we need to gang up on the solutions people demanded.

0:23:34.640 --> 0:23:41.710

Participant2

They were heard because the politicians didn't have much of a choice because they think about voters and you, we saw millions of people.

0:23:43.40 --> 0:23:43.920

Participant2

Millions.

0:23:43.980 --> 0:23:45.330

Participant2

It was unbelievable.

0:23:45.340 --> 0:23:48.250

Participant2

I know because I was on the two sides of the fence.

0:23:48.700 --> 0:23:51.90

Participant2

So which meant that I was probably in the middle in the crossfire.

0:23:51.340 --> 0:23:56.390

Participant2

So you know, it's as a social movement is unbelievable.

0:23:56.400 --> 0:24:2.50

Participant2

It's unprecedented, really, especially in the UK where people don't tend to take the pitchforks out to the street to do.

0:24:2.60 --> 0:24:8.90

Participant2

They nanny state and all that, but it was unbelievable and he continues to be unbelievable.

0:24:9.80 --> 0:24:10.610

Participant2

I mean, it went worldwide.

0:24:12.310 --> 0:24:15.420

Participant2

So and everybody's saying, ohh, the Brits are dumping sewage in the river.

0:24:15.430 --> 0:24:20.150

Participant2

He kind of think, gosh, this comes from everywhere in the world who also have combined systems.

0:24:21.0 --> 0:24:21.200

Interviewer

Yeah.

0:24:21.310 --> 0:24:23.840

Participant2

But it became a social movement.

0:24:25.40 --> 0:24:26.730

Participant2

Can we can continue to do that?

0:24:27.60 --> 0:24:28.120

Interviewer

Umm but that?

0:24:27.0 --> 0:24:29.310

Participant2

That's the sort of reaction we need people to have.

0:24:29.620 --> 0:24:31.930

Interviewer

Yeah, but people also need to be.

0:24:36.570 --> 0:24:37.480

Participant2

Exactly.

0:24:37.590 --> 0:24:38.330

Participant2

So it's now.

0:24:33.990 --> 0:24:49.50

Interviewer

Have some control over what the solution to that is, because if the solution to that problem

doesn't provide multiple benefits and it doesn't provide benefits to across society, then it will have failed as a movement.

0:24:49.150 --> 0:24:49.940

Participant2

Exactly.

0:24:50.80 --> 0:24:58.500

Participant2

So I said this and we were having this conversation the exact this week, which I said we all ganged up on the problem and we created a movement.

0:24:58.510 --> 0:25:0.170

Participant2

That ganged up on the problem?

0:25:0.740 --> 0:25:12.620

Participant2

Yes, the poster child may have been Fergal Sharkey, but the date and the evidence and the accessibility to that data was created by the Refresh Trust and then SAS picked it up and then he was a wildfire.

0:25:13.540 --> 0:25:17.50

Participant2

Now, so now we need to gang up on the solutions.

0:25:17.100 --> 0:25:28.300

Participant2

What are the people, the the people I've spoken and I know I'm something a bit socialist here, but the people I've spoken and stay voices have created an £11 billion investment.

0:25:29.380 --> 0:25:33.630

Participant2

Now they need to gang up on the solutions they're going to deliver that they're going to be delivered to that investment.

0:25:33.860 --> 0:25:35.310

Participant2

Are those the right solutions I get?

0:25:35.320 --> 0:25:36.670

Participant2

Are they gonna get what they want?

0:25:36.860 --> 0:25:38.210

Participant2

And that's my concern Bryony.

0:25:38.220 --> 0:25:43.200

Participant2

So I kind of said this campaign needs to continue, but now it isn't about the problem.

0:25:43.210 --> 0:25:44.230

Participant2

Now is about.

0:25:44.240 --> 0:25:47.10

Participant2

What am I paying for with my £11 billion?

0:25:47.240 --> 0:25:48.450

Participant2

We need scrutinize it.

0:25:48.460 --> 0:25:57.60

Participant2

We need to make the solutions accessible to the people who made all of this noise the same way that the river trust made sewage map the problem accessible to all.

0:25:57.400 --> 0:25:59.450

Participant2

They need to make the solutions accessible to all.

0:25:59.460 --> 0:26:0.560

Participant2

It needs to be transparent.

0:26:0.910 --> 0:26:2.120

Participant2

It needs to be collaborative.

0:26:2.170 --> 0:26:9.110

Participant2

It needs to be participatory and people need to be able to scrutinize what the hell are they gonna get the £11 billion.

0:26:9.780 --> 0:26:9.980

Interviewer

Yeah.

0:26:14.760 --> 0:26:14.910

Interviewer

But.

0:26:13.330 --> 0:26:25.720

Participant2

So, but you take back model if you could apply it to how our cities are designed, plans delivered managed, I mean it could be quite a unique approach, isn't it?

0:26:26.50 --> 0:26:26.250

Interviewer

Yeah.

0:26:25.730 --> 0:26:27.970

Participant2

Because politicians, they only listen to that.

0:26:30.310 --> 0:26:30.720

Interviewer

The day.

0:26:32.90 --> 0:26:32.270

Interviewer

Yeah.

0:26:40.30 --> 0:26:40.170

Participant2

Yeah.

0:26:33.500 --> 0:26:50.590

Interviewer

And that's the approach of the liveable cities methodologies which also have this participatory involved process to mean that the solutions are delivering against the aspirations of that community.

0:26:52.340 --> 0:26:59.30

Participant2

So do do the needs of the right needs driving that the right action plans probably not.

0:26:59.80 --> 0:27:0.670

Participant2

But we know there's ways to.

0:27:0.680 --> 0:27:7.630

Participant2

There's leavers like there's sewage math, driving £11 billion of investment through a social movement.

0:27:20.190 --> 0:27:20.370

Interviewer

Yeah.

0:27:8.820 --> 0:27:23.810

Participant2

Umm, I think there are levers and tools we can use to make the you know, real problems accessible to people because it's being done to them and they are just completely oblivious to what's being done to them.

0:27:25.210 --> 0:27:25.400

Interviewer

Yeah.

0:27:25.0 --> 0:27:26.250

Participant2

And then morass, isn't it?

0:27:26.300 --> 0:27:27.100

Participant2

It's all of us.

0:27:28.880 --> 0:27:31.100

Interviewer

Yeah, and it it plays into this.

0:27:32.940 --> 0:27:35.490

Interviewer

Idea of the water sector being a silent industry.

0:27:36.240 --> 0:27:37.450

Participant2

Hmm yeah.

0:27:36.80 --> 0:27:48.70

Interviewer

It's something that most people five years ago, most people on the road when you were past them, didn't know who their water company was, didn't know what they did, didn't know what happens to their sewage once.

0:27:48.140 --> 0:27:49.170

Interviewer

they finished with their water.

0:27:49.180 --> 0:27:51.990

Interviewer

Didn't really know what happened to the water before it reached their tap.

0:27:52.40 --> 0:27:55.90

Interviewer

Just knew that it did, and if it didn't, there was a problem.

0:27:55.100 --> 0:27:56.230

Interviewer

And they could complain to someone.

0:27:57.970 --> 0:27:59.810

Interviewer

Was there's there's more ownership.

0:27:57.440 --> 0:28:2.160

Participant2

And The funny thing was that ignorance was a the ignorance was a measure of success.

0:28:2.920 --> 0:28:3.140

Interviewer

Yeah.

0:28:3.980 --> 0:28:4.290

Participant2

OK.

0:28:4.30 --> 0:28:4.430

Interviewer

Yeah.

0:28:13.420 --> 0:28:13.700

Participant2

Umm.

0:28:4.440 --> 0:28:13.890

Interviewer

And it's it's still is to a certain extent and the idea of a silent customer is a happy customer, I think prevails.

0:28:15.710 --> 0:28:16.830

Interviewer

But now there is.

0:28:18.700 --> 0:28:27.40

Interviewer

I think the CSO issue has raised the communities do care and they do wanna be involved and they do wanna know what's happening.

0:28:27.610 --> 0:28:36.360

Interviewer

But our regulatory processes, all the water industry regulatory processes don't really support that as a method.

0:28:39.690 --> 0:28:39.890

Participant2

Yeah.

0:28:44.370 --> 0:28:45.150

Participant2

Yeah, yeah.

0:28:37.470 --> 0:28:47.620

Interviewer

So it's turned the process on its head because there's been all of this public outcry, which has luckily coincided with the price review.

0:28:48.290 --> 0:28:49.300

Participant2

Hmm yeah.

0:28:49.10 --> 0:29:5.690

Interviewer

If it had happened just after a price review, but I think you gotta ask question of whether that would have continued for the three years it would have needed to in order to enact change

in the next price review or something else would have had both the regulators that have had to step in in another way.

0:29:7.650 --> 0:29:9.860

Interviewer

So I just wonder if now we've got a.

0:29:11.830 --> 0:29:15.220

Interviewer

A A case of.

0:29:17.330 --> 0:29:18.320

Interviewer

Community response.

0:29:18.330 --> 0:29:26.330

Interviewer

Public response leading to action but a a requirement for more ownership over what that actually entails.

0:29:30.440 --> 0:29:30.660

Participant2

No.

0:29:26.500 --> 0:29:31.580

Interviewer

But we still don't have a regulatory structure that really supports that happening in the future.

0:29:32.180 --> 0:29:35.770

Participant2

So I think **there was a bit of a Black Swan to all of this as well.**

0:29:36.40 --> 0:29:36.870

Participant2

A pandemic?

0:29:37.500 --> 0:29:37.720

Interviewer

Yeah.

0:29:36.880 --> 0:29:44.630

Participant2

That gosh never happened before and people paying more attention, just slowing down enough to care umm.

0:29:45.60 --> 0:29:48.250

Participant2

And then you write the right time just before.

0:29:50.270 --> 0:29:52.740

Participant2

Just before the the the price review.

0:29:52.780 --> 0:29:57.960

Participant2

So there was a bit of a A right time, right moment that perhaps we're we're not gonna see again.

0:29:58.580 --> 0:30:1.750

Participant2

Umm, because there was a bit of a Black Swan, really, wasn't it?

0:30:1.980 --> 0:30:2.570

Interviewer

Yeah.

0:30:2.330 --> 0:30:3.890

Participant2

And but now we've got momentum.

0:30:2.940 --> 0:30:7.40

Interviewer

It's just whether it's enough to be a catalyst for for change. Yeah.

0:30:5.930 --> 0:30:7.720

Participant2

Well, yeah, yeah.

0:30:8.50 --> 0:30:15.970

Participant2

Now we've commented is, **how do we keep the momentum going when things have kind of gone back to normal and you can't wait for another Black Swan?**

0:30:16.270 --> 0:30:17.780

Participant2

**Otherwise you'll lose that momentum.**

0:30:18.190 --> 0:30:18.370

Interviewer

Yeah.

0:30:18.30 --> 0:30:20.420

Participant2

So what can we do to keep this going?

0:30:20.670 --> 0:30:23.140

Participant2

Some people are thinking, but they did, didn't they?

0:30:23.150 --> 0:30:24.160

Participant2

For the last three years.

0:30:24.170 --> 0:30:25.100

Participant2

Or you'll die out.

0:30:25.150 --> 0:30:26.600

Participant2

It'll die out and he didn't.

0:30:26.990 --> 0:30:28.720

Participant2

He just kept going up and up and up.

0:30:29.130 --> 0:30:33.720

Participant2

So this is a really interesting period.

0:30:34.430 --> 0:30:42.520

Participant2

How do we keep the momentum going and how do we use the momentum to change the rules so that the regulators themselves?

0:30:42.570 --> 0:30:52.330

Participant2

I think the next big thing needs to be regulatory reform, otherwise all of this they will squeeze this into the the.

0:30:53.30 --> 0:30:57.320

Participant2

And and the usual business as usual as they like to describe it.

0:30:57.480 --> 0:30:59.60

Participant2

And nothing will change Bryony.

0:30:59.500 --> 0:30:59.680

Interviewer

Yeah.

0:31:0.0 --> 0:31:2.130

Participant2

So it was a blip.

0:31:2.180 --> 0:31:9.370

Participant2

It was an outlier, and let's just now go back to quality and I don't think people want to go back to normality.

0:31:9.660 --> 0:31:11.930

Participant2

But you know, other things will take priority.

0:31:12.380 --> 0:31:15.230

Participant2

So how do we keep this momentum?

0:31:15.480 --> 0:31:23.480

Participant2

How do we make sure that this momentum now turns into the right solutions, the right action, the right action plan is you were asking and I don't have the answers.

0:31:24.560 --> 0:31:26.370

Participant2

Maybe it's for social scientists?

0:31:26.380 --> 0:31:26.720

Participant2

I don't know.

0:31:27.510 --> 0:31:27.710

Interviewer

Yeah.

0:31:30.100 --> 0:31:43.990

Interviewer

I'm and related to that and how far ahead do we think we should be looking so previous price reviews have been looking five years into the future, we've now got 25 year plan.

0:31:45.150 --> 0:32:1.540

Interviewer

I guess in your view is a 25 year plan working is as in is it pushing water companies to to look further ahead and or is there still a a focus on five years from now?

0:32:4.150 --> 0:32:5.160

Participant2

No. I'll answer your question.

0:32:5.170 --> 0:32:8.110

Participant2

You understand about enough about the winep to know what I mean.

0:32:8.180 --> 0:32:11.890

Participant2

And the 25 year plan, there are drivers to deliver those in the winep.

0:32:11.900 --> 0:32:12.950

Participant2

They're nonstatutory.

0:32:14.250 --> 0:32:15.100

Participant2

So what does that tell you?

0:32:16.480 --> 0:32:18.320

Interviewer

You know, I think that tells us everything we need to know.

0:32:18.330 --> 0:32:18.800

Interviewer

It does. Doesn't it.

0:32:18.830 --> 0:32:19.440

Participant2

Yeah.

0:32:19.530 --> 0:32:19.630

Participant2

Yeah.

0:32:20.510 --> 0:32:30.440

Participant2

So it's not important not to the regulator who designed them is nonstatutory and not of the water companies because delivering non statutory requirements is a nice to have.

0:32:30.590 --> 0:32:30.770

Interviewer

Yeah.

0:32:30.630 --> 0:32:32.600

Participant2

If I have time and resources to do it.

0:32:32.890 --> 0:32:34.170

Participant2

If I don't, I won't.

0:32:36.650 --> 0:32:48.560

Participant2

So it's very much five years and the sort of headless chicken modes that we've seen them running around as at the moment shows that it's all trying to squeeze it into five years.

0:32:49.100 --> 0:32:49.300

Interviewer

Yeah.

0:32:48.830 --> 0:32:51.680

Participant2

Anything beyond that is starts to become too vague.

0:32:51.750 --> 0:32:54.660

Participant2

Now there are some changes.

0:32:54.710 --> 0:33:3.770

Participant2

If if you wanna call them that, but again they they might be the the exception to the rule and they're not, they might not be adopted as business as usual.

0:33:3.780 --> 0:33:17.840

Participant2

Things like the advanced winep being 10 years and that sort of thing and but yeah, the 25 year environment plan means nothing to decision makers, including the very decision makers that brought it in.

0:33:19.220 --> 0:33:19.880

Interviewer

Yeah.

0:33:20.320 --> 0:33:23.60

Interviewer

And in your view, should we be looking further ahead?

0:33:23.970 --> 0:33:25.30

Participant2

Yes. Yeah.

0:33:24.980 --> 0:33:25.920

Interviewer

Slightly loaded question.

0:33:27.400 --> 0:33:28.300

Participant2

Well, yes, we should.

0:33:32.20 --> 0:33:32.230

Interviewer

Yeah.

0:33:29.750 --> 0:33:32.800

Participant2

So then we don't make the same mistakes that we've we've made.

0:33:32.810 --> 0:33:33.130

Participant2

Yeah.

0:33:33.140 --> 0:33:37.980

Participant2

The short termism is the worst thing that we could, and the 20th century was.

0:33:38.470 --> 0:33:42.440

Participant2

It was faster, you know, keep going faster.

0:33:42.530 --> 0:33:43.660

Participant2

Keep going shorter.

0:33:43.670 --> 0:33:44.980

Participant2

Keep doing it quicker.

0:33:45.430 --> 0:33:49.240

Participant2

Nobody thought that they probably be alive in another 100 years.

0:33:49.250 --> 0:33:51.600

Participant2

Maybe because it was all.

0:33:51.610 --> 0:33:55.300

Participant2

It's the century that defined short termism, and we're still stuck in it.

0:33:56.30 --> 0:33:57.660

Interviewer

Yeah, yeah.

0:33:57.670 --> 0:34:12.120

Interviewer

I mean the thing that that struck me from the moment I started working for water company where actually yeah, in the water industry was that I would go to sites and I'd see abandoned assets that were not at the end of their asset life.

0:34:12.440 --> 0:34:13.760

Participant2

Hmm mothballs.

0:34:12.560 --> 0:34:15.271

Interviewer

And I'd see or you, you'd go to.

0:34:17.750 --> 0:34:18.470

Interviewer

Sites where.

0:34:20.610 --> 0:34:25.320

Interviewer

They so we'd reviewed the project in AMP 4 and about.

0:34:29.260 --> 0:34:29.480

Participant2

Yep.

0:34:25.330 --> 0:34:34.70

Interviewer

They're in at 5 and then in 6 there was another plan about that site and that these constant disruption for the operations team.

0:34:35.180 --> 0:34:40.320

Interviewer

It means you're constantly constructing, so that's disruption for the local residents as well.

0:34:44.900 --> 0:34:46.780

Participant2

No, the world being reinvented.

0:34:41.870 --> 0:34:51.700

Interviewer

But that's just shows that there's no long term plan because you construct in one project, knowing that you're gonna be constructing, be planning something else in the next two years.

0:34:56.570 --> 0:34:56.770

Interviewer

Yeah.

0:34:52.390 --> 0:34:58.940

Participant2

Yeah, the the, [they're incentivized to think to do that way because the world's is reinvented every five years.](#)

0:34:59.230 --> 0:35:3.690

Participant2

The organization restructures the schemes are the same.

0:35:3.910 --> 0:35:9.120

Participant2

You know, you just wipe, wipe out the previous amp and redo the next one.

0:35:9.890 --> 0:35:11.460

Participant2

So that is a problem.

0:35:12.440 --> 0:35:21.390

Participant2

That is a huge problem, so if you think about before the 20th century and are before privatization, Bazalgette designed a system.

0:35:21.480 --> 0:35:23.170

Participant2

Combined or not, it doesn't matter.

0:35:23.460 --> 0:35:26.160

Participant2

That was a pipe system that was meant to network.

0:35:28.500 --> 0:35:28.770

Interviewer

Umm.

0:35:26.170 --> 0:35:29.120

Participant2

There was meant to last for 1000 years.

0:35:31.190 --> 0:35:36.320

Participant2

Who in the 20th century designed pipeline for the 1000 years?

0:35:38.40 --> 0:35:38.270

Interviewer

No.

0:35:36.370 --> 0:35:38.910

Participant2

No one, no one.

0:35:41.100 --> 0:35:41.680

Participant2

So there you go.

0:35:44.20 --> 0:35:46.200

Participant2

That's the sort of thinking process.

0:35:46.210 --> 0:35:50.580

Participant2

That's the, you know, influence engineers, decision makers, regulators, the government.

0:35:51.410 --> 0:35:56.140

Participant2

And because you know politically, politicians could really be the game changes.

0:35:56.450 --> 0:36:0.390

Participant2

But why would they, when they themselves are stuck in this 4-5 year cycle?

0:36:1.140 --> 0:36:1.320

Interviewer

Yeah.

0:36:3.40 --> 0:36:9.630

Interviewer

But then when you think of like net zero targets, we've gotta get out of that cycle of constantly building.

0:36:9.820 --> 0:36:18.50

Interviewer

We've gotta get out that cycle of renew it every five years because we've got to think more long term and if we don't, we'll never meet net zero.

0:36:19.290 --> 0:36:20.150

Participant2

And let's let's.

0:36:19.410 --> 0:36:23.100

Interviewer

We carry on constructing at the at the rate we're currently constructing the water industry.

0:36:26.870 --> 0:36:27.70

Interviewer

Yeah.

0:36:22.890 --> 0:36:37.880

Participant2

Well, and if you think about the £96 billion investment plan with very little room for manoeuvre in there, in fact the mandate from for the Environment Agency and the regulators is make it harder on the industry.

0:36:38.490 --> 0:36:40.240

Participant2

Now I've seen some of those plans.

0:36:40.710 --> 0:36:45.20

Participant2

The colossal amount of carbon is scary.

0:36:46.410 --> 0:36:46.640

Interviewer

Umm.

0:36:47.510 --> 0:36:48.420

Participant2

Absolutely scary.

0:36:50.200 --> 0:36:55.890

Participant2

And then you think about 2030 where the industry have committed to achieving net zero, you rethink less.

0:36:56.890 --> 0:36:57.390

Interviewer

In six years.

0:36:55.980 --> 0:37:0.100

Participant2

We're gonna be having this conversation 2030, where it's gonna be going.

0:37:2.640 --> 0:37:2.820

Interviewer

Yeah.

0:37:0.110 --> 0:37:3.620

Participant2

The trend is gonna be going the opposite to what they should be doing.

0:37:4.980 --> 0:37:6.160

Participant2

It's it's disastrous.

0:37:11.230 --> 0:37:12.750

Interviewer

Yeah, I'm glad we both agree on that.

0:37:13.120 --> 0:37:14.390

Participant2

Yes, completely.

0:37:14.580 --> 0:37:15.350

Participant2

Well, we know we do.

0:37:15.730 --> 0:37:15.870

Interviewer

Yeah.

0:37:18.850 --> 0:37:19.300

Interviewer

UM.

0:37:21.860 --> 0:37:26.920

Interviewer

Then that's what we're saying earlier about priorities and how do we prioritize things.

0:37:29.940 --> 0:37:30.140

Participant2

Yeah.

0:37:30.500 --> 0:37:31.730

Interviewer

We we know that.

0:37:31.740 --> 0:37:33.610

Interviewer

Sorry, there's some pauses here.

0:37:33.620 --> 0:37:34.0

Interviewer

Well, I think.

0:37:34.70 --> 0:37:34.790

Participant2

Yep, OK.

0:37:37.820 --> 0:37:53.370

Interviewer

We know that we need to respond to Community aspirations, societal challenges and societal views, but those change overtime and they change as and peoples policy level changes as well and.

0:37:55.420 --> 0:38:3.40

Interviewer

Different levels of affluence within the Community will have different priorities because you have the Maslow's hierarchy plays into that.

0:38:4.300 --> 0:38:4.440

Participant2

Yeah.

0:38:5.510 --> 0:38:5.910

Interviewer

But also.

0:38:8.510 --> 0:38:8.830

Interviewer

And.

0:38:10.730 --> 0:38:10.960

Interviewer

Yes.

0:38:10.970 --> 0:38:11.230

Interviewer

So.

0:38:11.340 --> 0:38:17.610

Interviewer

So there's a question of how to deal with those changing aspirations and how to reflect those in in a.

0:38:19.400 --> 0:38:20.660

Interviewer

Man and integrated plan.

0:38:22.550 --> 0:38:25.380

Interviewer

And yeah, have you got any views on that to start with?

0:38:26.810 --> 0:38:40.20

Participant2

Umm, again, if we think long term, but if you build flexibility within the long term plan so

these are real and if somebody's done some thinking and suggestions around this whether we agree with him or not.

0:38:40.260 --> 0:38:45.990

Participant2

But plans need to be done in the long term, but they need review periods, right?

0:38:46.460 --> 0:38:46.640

Interviewer

Yeah.

0:38:46.240 --> 0:38:56.800

Participant2

So that we can adapt to changes in in in people's priorities in, in landscapes, in, in risks we need, we need review periods.

0:38:57.840 --> 0:39:5.730

Participant2

Now that's very different from all the currently the industry does, because there's no price review, there's only price, isn't it?

0:39:6.30 --> 0:39:9.750

Participant2

Every time every five years is a new plan is not review of the previous plan.

0:39:10.200 --> 0:39:10.420

Interviewer

Yeah.

0:39:10.60 --> 0:39:13.640

Participant2

So what we need is set out long term plans.

0:39:15.670 --> 0:39:41.810

Participant2

Which is what is right for the cities, because obviously this in the urban context, how would we make sure that when we think about that, we think that the long term in terms of what's sustainable for the long term, but actually priorities change, things change and therefore we need to include in that review periods and a good way to do that could be, you know election times every time there's an election.

0:39:42.60 --> 0:40:8.260

Participant2

Well, if they not in the current example where you get Prime Minister every time you sneeze, but what I'm saying is if every, every every time there's an election every 4-5 years or so, it could also trigger a review of that plan, which then would allow new government, new new people to review, readjust and make it better.

0:40:9.240 --> 0:40:9.480

Interviewer

Umm.

0:40:8.330 --> 0:40:14.940

Participant2

Hopefully there's got to be scrutiny, scrutiny around this and the scrutiny needs to sit outside of government outside of political boundaries.

0:40:15.760 --> 0:40:20.350

Participant2

But there is something around creating long term integrated plans.

0:40:21.310 --> 0:40:28.860

Participant2

Be realistic about what's achievable in the short term versus the long term, but kind of use the political boundaries themselves.

0:40:28.870 --> 0:40:44.360

Participant2

I either 5 year election periods to do a review and know make that responsibility for new mayors and new prime ministers and new government first thing you need to do is Commission an independent review of the plan.

0:40:47.960 --> 0:40:49.640

Participant2

Exactly, yeah.

0:40:45.200 --> 0:40:51.470

Interviewer

Yeah, just let me do for education and NHS and all of these other essential public services.

0:40:53.360 --> 0:40:53.560

Interviewer

Yeah.

0:40:52.150 --> 0:40:54.760

Participant2

Yeah, but for some reason it doesn't seem to happen.

0:40:54.770 --> 0:40:55.490

Participant2

Financial resources.

0:40:58.660 --> 0:40:59.860

Participant2

Yeah. So.

0:41:4.370 --> 0:41:4.510

Participant2

Yeah.

0:41:7.360 --> 0:41:7.690

Participant2

But.

0:40:56.350 --> 0:41:12.720

Interviewer

No, because they're perhaps privatised they're viewed as separate from being public resources or public goods, even though yeah, they sit in this kind of weird position between being a public good and a economic good.

0:41:13.190 --> 0:41:13.350

Participant2

Yeah.

0:41:13.30 --> 0:41:17.880

Interviewer

They have both roles and it creates a lot of confusion in how they managed I think.

0:41:18.690 --> 0:41:19.670

Participant2

Yes, that's true.

0:41:19.600 --> 0:41:21.220

Interviewer

But I could talk about that for a lot longer.

0:41:21.880 --> 0:41:23.190

Participant2

Very true, very true.

0:41:27.310 --> 0:41:27.510

Interviewer

Yeah.

0:41:23.200 --> 0:41:36.200

Participant2

But I think there is that about how we value these public goods as well, which are also, I mean if without water and I'm putting soil and in land, now without nature, we basically cannot eat and drink.

0:41:37.780 --> 0:41:37.960

Interviewer

Yeah.

0:41:37.640 --> 0:41:43.470

Participant2

So Maslow's hierarchy of needs gets top topsy turvy.

0:41:43.480 --> 0:41:44.330

Participant2

Doesn't it really?

0:41:44.640 --> 0:41:51.230

Participant2

So if you don't look after those basic needs and value them in the right way, and that's where we're going wrong, isn't it?

0:41:51.280 --> 0:41:56.990

Participant2

Then education and even health to a certain degree, the secondary to those basic needs.

0:41:57.240 --> 0:41:57.420

Interviewer

Yeah.

0:41:57.60 --> 0:42:7.610

Participant2

But we don't see water and food as the most important thing, the most essential thing that we need to protect and plan and review and really be.

0:42:8.300 --> 0:42:13.520

Participant2

I'm pushing ourselves to make sure that we we're driving in the right behaviors and there's always seems to.

0:42:12.230 --> 0:42:14.730

Interviewer

No, possibly because it's been a given for so long.

0:42:16.200 --> 0:42:17.880

Participant2

Well, yeah, so abundant, isn't it?

0:42:18.930 --> 0:42:19.550

Participant2

Yeah, but.

0:42:18.140 --> 0:42:24.610

Interviewer

Yeah, but most people in this country will have never contemplated not turning on a tap and having fresh water.

0:42:24.840 --> 0:42:25.430

Participant2

Yeah.

0:42:26.270 --> 0:42:27.150

Interviewer

So yeah.

0:42:25.500 --> 0:42:29.470

Participant2

Yeah, but I'm wondering if in other countries these are priority.

0:42:29.480 --> 0:42:34.180

Participant2

It isn't really nowhere, even where it's desperately needed.

0:42:34.190 --> 0:42:34.800

Participant2

It's not a priority.

0:42:35.540 --> 0:42:40.230

Interviewer

No, and actually where there's very high water scarcity.

0:42:42.150 --> 0:42:43.240

Participant2

Yeah, exactly.

0:42:40.240 --> 0:42:45.260

Interviewer

There's also very high consumption of water and it's very, very, very, very cheap.

0:42:47.510 --> 0:42:47.730

Interviewer

Yeah.

0:42:43.400 --> 0:42:51.320

Participant2

Which is bonkers really very, very bonkers I mean, southern Europe is a good example of that.

0:42:52.410 --> 0:42:52.570

Interviewer

Yeah.

0:42:54.240 --> 0:42:54.830

Interviewer

And the Middle East.

0:42:58.860 --> 0:42:59.120

Interviewer

Umm.

0:42:55.530 --> 0:43:4.90

Participant2

And the Middle East, I mean the consumption of water in Dubai, the green lush looking golf courses in Dubai.

0:43:5.530 --> 0:43:5.980

Interviewer

And its desert

0:43:5.810 --> 0:43:9.380

Participant2

I ohhh ohh it's just yeah.

0:43:9.450 --> 0:43:11.300

Participant2

Anyway, thing on.

0:43:10.500 --> 0:43:12.790

Interviewer

Yeah, and.

0:43:17.880 --> 0:43:29.770

Interviewer

I'd like to have a conversation about trust, so I think trust plays into how and our priorities are represented in plans.

0:43:30.450 --> 0:43:33.470

Interviewer

I think if I think currently we're in a situation where.

0:43:35.320 --> 0:43:50.300

Interviewer

Large swaths of society don't feel that that they can trust the water company to do their duty, and which is led to this public outcry and, and I think if if we expect people to.

0:43:52.370 --> 0:43:58.380

Interviewer

Trust the how water is managed is is done well.

0:43:58.550 --> 0:44:4.570

Interviewer

It is done for public good, then trust plays into that conversation.

0:44:4.810 --> 0:44:5.430

Interviewer

They have to.

0:44:5.700 --> 0:44:15.720

Interviewer

There has to be a level of trust between all parties in that and and also enabled being able to share views, needs and aspirations.

0:44:17.410 --> 0:44:17.680

Interviewer

And.

0:44:19.660 --> 0:44:25.540

Interviewer

But currently, a lot of our plans are based on data points and.

0:44:27.580 --> 0:44:31.930

Interviewer

Data which is firstly often hidden from the general public.

0:44:34.470 --> 0:44:35.810

Interviewer

Or and isn't made transparent.

0:44:37.330 --> 0:44:41.60

Interviewer

Also may not be as accurate as it might first appear.

0:44:43.570 --> 0:44:49.660

Interviewer

So I think there's there's an issue of of trust in the data and public trust of data.

0:44:49.670 --> 0:44:53.630

Interviewer

Because I think currently there's those of you that there's a lot of information hidden.

0:44:54.940 --> 0:45:0.700

Interviewer

And, but from a objective plan making point of view.

0:45:2.350 --> 0:45:8.220

Interviewer

Indicators and and comparative measures are very useful.

0:45:11.830 --> 0:45:12.150

Interviewer

So.

0:45:15.360 --> 0:45:22.420

Interviewer

What I'm thinking and proposing is including a sort of health check on that data.

0:45:23.410 --> 0:45:32.690

Interviewer

So you have the data points which is they made more open and transparent but you have community voices able and to.

0:45:35.240 --> 0:45:41.990

Interviewer

Give by the opinion on whether that data or that data point reflects their understanding of it.

0:45:45.250 --> 0:45:46.110

Interviewer

You got any views on that?

0:45:48.50 --> 0:45:52.40

Participant2

Well, I don't know how useful this is, but **I don't think people want data.**

0:45:52.330 --> 0:45:53.460

Participant2

**I think people want information.**

0:45:54.320 --> 0:45:54.500

Interviewer

Yeah.

0:45:55.630 --> 0:46:0.280

Participant2

The issue with transparency and trust wasn't created by data.

0:46:0.770 --> 0:46:4.100

Participant2

It was created by information, so we were talking about the sewage map.

0:46:5.130 --> 0:46:6.120

Participant2

It wasn't data.

0:46:10.170 --> 0:46:13.290

Interviewer

Yeah, it's the translation of data into information.

0:46:6.130 --> 0:46:14.340

Participant2

It was information that they could understand that people could understand could could sort of process, yes.

0:46:14.690 --> 0:46:17.200

Participant2

So and that therein lies the problem.

0:46:19.250 --> 0:46:19.450

Interviewer

Yeah.

0:46:17.210 --> 0:46:31.150

Participant2

Bryony doesn't matter if the water companies through put out there the most trusted data ever, the most accurate data ever real time, which they are about to publish.

0:46:31.150 --> 0:46:35.0

Participant2

the EDM data and nobody will trust it.

0:46:35.80 --> 0:46:36.900

Participant2

There will always be the naysayers.

0:46:37.340 --> 0:46:38.870

Participant2

The trust is broken.

0:46:39.560 --> 0:46:49.640

Participant2

So what we need is again going back to the independent scrutiny, we need mediators because once trust is broken into a little bit like a divorce, isn't it really?

0:46:50.350 --> 0:47:3.240

Participant2

I'm you need, not that I know I haven't got experience of it and hopefully never will, but the the I then immediately you need third parties to come in and build rebuild our trust.

0:47:3.600 --> 0:47:3.810

Interviewer

Yeah.

0:47:3.250 --> 0:47:7.220

Participant2

It cannot be done by the the sort of the sparring partners.

0:47:7.230 --> 0:47:8.180

Participant2

Can it really?

0:47:8.230 --> 0:47:8.490

Interviewer

No.

0:47:8.390 --> 0:47:11.400

Participant2

So the public and water companies are at odds.

0:47:11.670 --> 0:47:17.160

Participant2

They don't trust each other and this is having a ripple effect on investors, markets, politicians and others.

0:47:17.430 --> 0:47:20.60

Participant2

So trust is completely broken.

0:47:20.650 --> 0:47:22.590

Participant2

So how do you repair that?

0:47:22.600 --> 0:47:23.750

Participant2

You need mediators.

0:47:23.840 --> 0:47:30.510

Participant2

You need those that can come in as third parties who don't have skin in the game and can start to rebuild those bridges.

0:47:30.860 --> 0:47:38.290

Participant2

Basically, the messengers that don't need to be shot down, but come with gravitas come with respectability.

0:47:38.460 --> 0:47:39.40

Participant2

Come with.

0:47:40.260 --> 0:47:46.110

Participant2

Understanding, but they are respected in their own right for being independent, being critical friends.

0:47:46.410 --> 0:47:50.330

Participant2

So organizations like the River Trust, CIWEM, but academics as well.

0:47:50.540 --> 0:48:2.340

Participant2

I've got a role to play now as this **third party mediation role, but also not just mediating, but scrutinizing, providing independency and making sure they're not representing anybody.**

0:48:2.450 --> 0:48:12.280

Participant2

And then therefore **not representing anybody means you're representing everybody and more importantly to be able to take that data and make it into accessible information.**

0:48:12.810 --> 0:48:12.990

Interviewer

Yeah.

0:48:12.990 --> 0:48:25.790

Participant2

Now, if that third party provides that role and it's not one organization fits all, obviously it's a part of society, then the mediators can rebuild that trust.

0:48:27.260 --> 0:48:32.980

Participant2

But they made the danger is they may have to provide that role or fulfill that role for a very long time.

0:48:33.810 --> 0:48:35.600

Participant2

Cos trust takes ages to build.

0:48:35.950 --> 0:48:36.350

Interviewer

It does.

0:48:35.750 --> 0:48:42.770

Participant2

Takes very short time to to to break, but it takes a long time to rebuild, so that's where we are at the moment.

0:48:43.570 --> 0:48:44.200

Participant2

Umm.

0:48:44.400 --> 0:49:2.590

Participant2

And I think it's empowering those third parties, your academics and your rivers trusts and others to be able to have access to, to make the data accessible to them so that they can translate that into accessible information to everybody else.

0:49:5.80 --> 0:49:8.250

Participant2

And you know, takes away the green washing takes away the.

0:49:9.250 --> 0:49:19.290

Participant2

Umm, the sort of misinterpretation as well, but then they require themselves the ability to be able to function as translators.

0:49:19.300 --> 0:49:28.220

Participant2

Because academics, I mean, let's face it, they can make a very simple subject into a very technical and this and subject, but everybody trusts them.

0:49:29.450 --> 0:49:39.820

Participant2

And so I think it's making sure that we've got that third party mediation going on, that it's open transparent, it's democratic.

0:49:40.270 --> 0:49:46.280

Participant2

So it needs to be able to then democratize the data in the way it makes it accessible, but it needs to be able to translate that.

0:49:46.290 --> 0:49:54.560

Participant2

So it reaches out to everybody spreadsheets with data points that nobody understands without some protocols put in place.

0:49:54.830 --> 0:49:55.760

Participant2

Well, forget it.

0:49:56.70 --> 0:49:56.260

Interviewer

Yeah.

0:49:55.850 --> 0:50:5.0

Participant2

But if all the companies suggest the role of translating the data, people think they're manipulating, so translation is a funny one is a dangerous place as well.

0:50:5.510 --> 0:50:13.780

Participant2

If a untrusted party wants to do it, the immediately well, translation becomes manipulation, isn't it really?

0:50:14.650 --> 0:50:14.850

Interviewer

Yeah.

0:50:14.360 --> 0:50:31.510

Participant2

And so I think that's where we could potentially see the sort of creation of these mediating organizations that come in the middle between the sort of nobody trusts the politicians, nobody trusts the water companies, nobody trusts the regulators.

0:50:31.680 --> 0:50:49.280

Participant2

It's a whole bunch of them that the trust has been broken and on the other side you've got society, society desperate to have access to information, not data and not wanting to be, you know, cannon fodder for all sorts of manipulators out there.

0:50:49.290 --> 0:50:59.960

Participant2

There are using have their own soapbox and their own agendas and are trying to use a misinterpretation as their tool so they're fooling people by any other name.

0:51:0.290 --> 0:51:21.240

Participant2

So creating these critical thirds independent third parties, they don't have a soapbox, don't have skin in the game, they're they're whole purpose is to put the data out there in a way that is accessible and informative and that they don't get shot down by either party and that they are.

0:51:21.250 --> 0:51:22.640

Participant2

They remain independent.

0:51:22.650 --> 0:51:25.870

Participant2

Is really, really important, but it's difficult as well.

0:51:26.610 --> 0:51:26.810

Interviewer

Yeah.

0:51:30.260 --> 0:51:30.790

Interviewer

Yeah.

0:51:30.800 --> 0:51:32.510

Interviewer

So I know I'm planning to.

0:51:34.470 --> 0:51:35.920

Interviewer

Match up and.

0:51:37.940 --> 0:51:41.340

Interviewer

Summary Graphics of indicators with.

0:51:43.440 --> 0:52:1.280

Interviewer

Catchment maps or some kind of visualization tool so we can look at it transparently and say, well, where are the environmental issues, where the social issues, where the economic issues within the catchment and use that as a starting point for discussion?

0:52:2.730 --> 0:52:4.80

Participant2

Do you wanna go to an ofwat innovation fund with that?

0:52:5.390 --> 0:52:7.80

Participant2

Or do you wanna join forces with Castco?

0:52:8.710 --> 0:52:9.560

Participant2

Because it sounds brilliant.

0:52:8.820 --> 0:52:11.730

Interviewer

At well, that's that's kind of the output of my PhD.

0:52:12.480 --> 0:52:13.790

Participant2

OK, fair enough.

0:52:13.250 --> 0:52:16.570

Interviewer

Hopefully if I manage it in the next month.

0:52:14.180 --> 0:52:21.10

Participant2

Yeah, but then I mean, with all due respect, it cannot be just the output of a (PhD.

0:52:21.20 --> 0:52:27.790

Participant2

And this is the problem with (PhD having done one myself and written lots and lots of papers, that is the problem.

0:52:28.300 --> 0:52:28.460

Interviewer

Yeah.

0:52:28.100 --> 0:52:31.930

Participant2

It is not made to be accept and accessible tool to all.

0:52:32.120 --> 0:52:35.490

Participant2

It's not the democratized, and therein lies the problem.

0:52:35.730 --> 0:52:51.180

Participant2

So how do you take a very a theoretical idea that somebody very clever like you has been able to write in 300 pages and make it into something that actually becomes what is intent to do, you know.

0:52:51.360 --> 0:52:51.580

Interviewer

Yeah.

0:52:52.20 --> 0:52:52.510

Participant2

Umm.

0:52:52.580 --> 0:52:53.520

Participant2

And tells the story.

0:52:52.700 --> 0:52:58.750

Interviewer

Yeah, it's more the PhD is creating the building blocks to enable it to happen.

0:53:1.330 --> 0:53:3.880

Interviewer

Hopefully actually.

0:53:1.330 --> 0:53:7.290

Participant2

OK, hopefully yeah, because I think that's important is the sort of how do you tell a story?

0:53:7.300 --> 0:53:12.590

Participant2

How do you by you know the click of a button know exactly what's going on in your area?

0:53:12.640 --> 0:53:18.490

Participant2

How do you make it accessible to local people, to people that potentially don't have a lot of literacy skills?

0:53:19.490 --> 0:53:19.710

Interviewer

Yeah.

0:53:18.500 --> 0:53:28.430

Participant2

Do you mean mathematical skills but want to be involved or actually don't know that they want to be involved or don't know they're gonna be outraged by what they see?

0:53:28.580 --> 0:53:36.390

Participant2

You know, everybody's demanding peoples attention these days and Tik T.O.K does a damn good job of it for you.

0:53:36.400 --> 0:53:40.210

Participant2

Have a lot of people's time and you feed them nothing.

0:53:40.220 --> 0:53:41.670

Participant2

It's a bit like white bread.

0:53:42.120 --> 0:53:42.920

Participant2

Empty calories.

0:53:43.940 --> 0:53:47.390

Participant2

Empty brains with nothing in them.

0:53:47.650 --> 0:53:59.970

Participant2

So if we can change that narrative a little bit, if we can use the same tools, I love the dualingo model, which is they use gamification and they use the same approach as social media to get interested in learning a new language.

0:54:0.660 --> 0:54:0.860

Interviewer

Yeah.

0:54:2.100 --> 0:54:9.760

Participant2

And now they know they're never gonna match Facebook or Tik T.O.K or whatever other horrendous.

0:54:10.290 --> 0:54:23.680

Participant2

I'm social platform is out there, but they use the same skills to demand some of that attention for the greater good, for personal development, for personal growth, because that's what a learning a new language also stimulate your brain.

0:54:23.910 --> 0:54:25.500

Participant2

So could you use the same approaches?

0:54:25.510 --> 0:54:29.620

Participant2

I'm learning so much now with things like AI and gamification.

0:54:34.700 --> 0:54:34.900

Interviewer

Yeah.

0:54:29.630 --> 0:54:39.20

Participant2

As you know, we use some of those tricks when we were trying to put together the acceleration of the mainstreaming database solutions project, which has gone into deaf ears with the likes of Granville and others.

0:54:39.470 --> 0:54:41.810

Participant2

Unfortunately umm.

0:54:42.220 --> 0:54:45.870

Participant2

So, but I think Innovation's got a huge role to play here.

0:54:46.850 --> 0:54:47.10

Interviewer

Yeah.

0:54:59.650 --> 0:54:59.850

Interviewer

Yeah.

0:54:46.880 --> 0:55:1.590

Participant2

How do you get people so think of that when you're doing your thesis, when you're writing up the building blocks, how does innovation become your and secret weapon, as it were, to capture people's imagination?

0:55:1.600 --> 0:55:4.60

Participant2

Tell a story that can create a movement.

0:55:7.640 --> 0:55:9.80

Participant2

But also publish papers.

0:55:9.90 --> 0:55:14.750

Participant2

You know, this is the sort of long language that, you know, both the research paper once or whatever.

0:55:14.920 --> 0:55:20.570

Participant2

That's fine, but being able to extract the goodness out of it, and I think that's why people think I'm very clever.

0:55:32.170 --> 0:55:32.360

Interviewer

Yeah.

0:55:20.900 --> 0:55:34.240

Participant2

Actually, I'm very good at reading and writing research papers, but what I'm good at doing as well is extracting the knowledge from those papers into a practical application, which is unfortunately we don't do enough of.

0:55:35.710 --> 0:55:36.0

Interviewer

Yeah.

0:55:36.10 --> 0:55:40.430

Interviewer

So from the the detail gets stuck in the detail and the the meaning gets lost.

0:55:39.240 --> 0:55:41.870

Participant2

Umm yeah, exactly.

0:55:43.780 --> 0:55:44.60

Interviewer

But.

0:55:43.360 --> 0:55:47.880

Participant2

Wouldn't it be great if all those fantastic papers were converted into applications? Bryony.

0:55:48.180 --> 0:55:48.440

Interviewer

Yeah.

0:55:49.590 --> 0:55:50.390

Interviewer

Yeah, it would.

0:55:53.300 --> 0:55:57.880

Interviewer

And I've come to the end of my list of questions, but is there anything else you'd like to say?

0:55:59.350 --> 0:56:20.210

Participant2

I think this is a fantastic thesis and I think when I have to say it because I remember when we first had the conversation, I remember thinking, oh gosh, I wish I'd done this beauty instead

of being stuck in a sewage works and trying to figure out what the hell is going on with the with the biological treatment.

0:56:20.300 --> 0:56:22.530

Participant2

So I think it's brilliant.

0:56:22.880 --> 0:56:25.110

Participant2

It's quite innovative in its own right.

0:56:25.170 --> 0:56:32.10

Participant2

It's hinting or looking at things that are not common practice at the moment and I have to understand this is the whole point of (PhD).

0:56:32.180 --> 0:56:38.40

Participant2

For example, a lot of my recommendations, 10 years on only now I starting to be thought of.

0:56:38.400 --> 0:56:38.580

Interviewer

Yeah.

0:56:38.750 --> 0:56:42.320

Participant2

I I still get people like Amanda Lake and others chasing me for.

0:56:42.440 --> 0:56:44.220

Participant2

Do you wanna talk about your, your thesis?

0:56:44.230 --> 0:56:44.480

Participant2

Go.

0:56:44.490 --> 0:56:45.700

Participant2

Gosh, I have to have to read it again.

0:56:45.710 --> 0:57:0.960

Participant2

It's been a good nine years since I've last read it, so I think it's quite forward thinking and much needed in the current climate of things and and it touches on something that I'm really passionate about, which is urban environment.

0:57:1.440 --> 0:57:9.660

Participant2

I think we could completely transform the way we live in cities, which is where the majority of the human population is gonna be living by 2050.

0:57:11.750 --> 0:57:11.970

Interviewer

Umm.

0:57:9.670 --> 0:57:14.690

Participant2

In our lifetimes, Bryony, we may be a couple of pensioners by then, or quite not.

0:57:14.700 --> 0:57:17.670

Participant2

Not quite, you know, not quite.

0:57:18.20 --> 0:57:27.470

Participant2

It's not that far away, actually, and and God knows when we'll be able to be pensioners, because at this rate it might be working into our 90s.

0:57:27.760 --> 0:57:32.400

Participant2

So, but what I'm saying is it's within our lifetime that most of us are gonna be living in cities.

0:57:33.390 --> 0:57:33.590

Interviewer

Yeah.

0:57:34.490 --> 0:57:38.740

Participant2

They're not geared up for that for this kind of social transformation.

0:57:39.810 --> 0:57:45.280

Participant2

And so this (PhD helps the think about those bigger questions and nobody's thinking about.

0:57:45.630 --> 0:57:52.440

Participant2

But my challenge back to you is what are you going to do when you finally put that final stop on your final sentence?

0:57:52.450 --> 0:57:58.450

Participant2

And believe me, it's what a wonderful feeling when you finally know there's no more edits.

0:57:58.640 --> 0:58:6.790

Participant2

Why is it all that stands between you and that damn thing becoming somebody else's problem is pressed submit.

0:58:7.440 --> 0:58:9.750

Participant2

So what are you gonna do after you submit?

0:58:10.240 --> 0:58:12.630

Participant2

And of course, you've gotta go to your Viva and everything else.

0:58:12.980 --> 0:58:14.50

Participant2

Where you going to do after?

0:58:14.580 --> 0:58:22.520

Participant2

How do you extract that knowledge that you've accumulated over the last few years and make it into something that can really change the way people live in cities?

0:58:23.260 --> 0:58:23.440

Interviewer

Yeah.

0:58:25.920 --> 0:58:27.680

Interviewer

Yeah, that's that's the challenge for another day.

0:58:28.470 --> 0:58:28.610

Participant2

Yeah.

0:58:36.500 --> 0:58:37.290

Participant2

I can imagine, yeah.

0:58:28.920 --> 0:58:41.350

Interviewer

And yeah, I I think I'm I'm lucky in that I haven't got bored of my research topic in the last 3 1/2 years and I still really enjoy it.

0:58:41.360 --> 0:58:48.710

Interviewer

I still really enjoy reading about it, thinking about it writing about it, so I'm not gonna give up on it.

0:58:49.370 --> 0:58:53.920

Participant2

Don't give up on it because it's such a worthy cause more than a (PhD).

0:58:54.300 --> 0:58:54.540

Interviewer

Yeah.

0:59:0.300 --> 0:59:0.500

Interviewer

Yeah.

0:58:54.10 --> 0:59:2.170

Participant2

So once you're a, you're a doctor is you become the expert on something that there aren't a lot of experts on is how do you apply that knowledge?

0:59:2.410 --> 0:59:6.140

Participant2

Basically, how do you make it useful to the world?

0:59:7.850 --> 0:59:10.100

Participant2

And we'll have this conversation when we go out.

0:59:10.110 --> 0:59:13.40

Participant2

Celebrate you're passing your Viva is what now?

0:59:13.910 --> 0:59:14.150

Interviewer

Umm.

0:59:14.890 --> 0:59:16.980

Participant2

So you're going through to your thesis.

0:59:16.990 --> 0:59:17.260

Participant2

It's the.

0:59:17.270 --> 0:59:20.210

Participant2

So what at the moment, and I know it's hard, I've been there.

0:59:20.940 --> 0:59:24.880

Participant2

Umm, the next few months are not gonna be how long have you got before you submit, by the way.

0:59:25.560 --> 0:59:28.20

Interviewer

And July four months.

0:59:29.160 --> 0:59:29.510

Participant2

No.

0:59:29.700 --> 0:59:31.390

Participant2

Ohh, it's the final stretch, Brian.

0:59:32.30 --> 0:59:32.420

Interviewer

It's.

0:59:31.400 --> 0:59:35.530

Participant2

It's the final stretch, and I know it's not gonna be easy.

0:59:35.660 --> 0:59:37.290

Participant2

So anything you need from me, let me know.

0:59:37.300 --> 0:59:37.900

Participant2

Give me a shout.

0:59:38.530 --> 0:59:38.770

Interviewer

OK.

0:59:39.180 --> 0:59:49.950

Participant2

I'll give you the advice that that beacon of knowledge Bruce Jefferson gave me, which is when you sit down to finally write it all up, because at the moment you're kind of pulling the methods together, etcetera.

0:59:50.170 --> 0:59:55.650

Participant2

But when you sit down to do the final stretch of write up, think one paragraph at a time.

0:59:55.720 --> 0:59:57.70

Participant2

Don't think about the next paragraph.

1:0:0.0 --> 1:0:0.200

Interviewer

Yeah.

0:59:57.80 --> 1:0:2.420

Participant2

Don't think about the next chapter, one paragraph at a time that served me hugely.

1:0:4.320 --> 1:0:10.660

Participant2

It's because your focus is all in that one paragraph, and then you move to the next one.

1:0:10.670 --> 1:0:11.520

Participant2

Don't go back.

1:0:11.570 --> 1:0:15.80

Participant2

Move to the next one, one paragraph at a time, he said.

1:0:15.150 --> 1:0:18.990

Participant2

If you don't do this in piece meals, he said, some people don't do a paragraph.

1:0:19.40 --> 1:0:20.880

Participant2

Some people do one page at a time.

1:0:21.330 --> 1:0:24.780

Participant2

If you don't do this in peace meals, you're gonna drive yourself bonkers.

1:0:25.200 --> 1:0:25.380

Interviewer

Yeah.

1:0:25.390 --> 1:0:27.60

Participant2

And it was really good advice.

1:0:27.70 --> 1:0:28.980

Participant2

Briony well done, Bruce, forgiving me.

1:0:28.990 --> 1:0:29.980

Participant2

That piece of advice?

1:0:30.190 --> 1:0:32.290

Participant2

Not Gabby with, you know, shooting.

1:0:32.330 --> 1:0:33.150

Participant2

And on all fronts.

1:0:33.810 --> 1:0:37.30

Participant2

And so that's my advice to you.

1:0:37.100 --> 1:0:44.170

Participant2

But I think when we go for that drink to celebrate, which you will pass because you're brilliant, it will be so.

1:0:44.180 --> 1:0:44.750

Participant2

What now?

1:0:45.90 --> 1:0:50.20

Participant2

What do we do now with all of that knowledge that is so valuable?

1:0:51.110 --> 1:0:52.120

Participant2

What you want to do with it now?

1:0:52.720 --> 1:0:52.920

Interviewer

Yeah.

1:0:54.840 --> 1:0:55.330

Participant2

And he can't.

1:0:55.340 --> 1:0:59.220

Participant2

The answer can't just be, you know, more papers.

1:0:59.390 --> 1:1:0.730

Participant2

Papers always felt Bryony.

1:0:59.600 --> 1:1:2.450

Interviewer

No, I'll put it on a shelf somewhere.

1:1:3.120 --> 1:1:3.280

Participant2

Yes.

1:1:4.380 --> 1:1:6.470

Participant2

Umm, what do you do with them?

1:1:7.640 --> 1:1:7.820

Interviewer

Yeah.

1:1:7.240 --> 1:1:8.730

Participant2

Is the next question, yeah.

1:1:10.900 --> 1:1:13.70

Participant2

This has been really thought stimulating.

1:1:13.80 --> 1:1:15.250

Participant2

I've got a hungry husband now giving me the looks.

1:1:15.680 --> 1:1:16.570

Participant2

So do you need?

1:1:18.70 --> 1:1:19.280

Interviewer

No, I don't thank you very much.

1:1:16.580 --> 1:1:19.460

Participant2

Do you have any more questions or yeah.

### **Interview 3**

Date of meeting: 28/03/2024

0:0:0.0 --> 0:0:0.410

Interviewer

OK.

0:0:0.600 --> 0:0:8.840

Interviewer

Would you like a brief introduction to the research to start with, or do you want me to just kick off with astronauts?

0:0:10.180 --> 0:0:11.140

Participant3

Uh, yeah, go on.

0:0:13.860 --> 0:0:15.310

Interviewer

It's been a very long time.

0:0:11.150 --> 0:0:15.730

Participant3

Give us one I should know it, but it's a long time since I had to read that paper brief.

0:0:16.800 --> 0:0:20.530

Interviewer

I yeah, the original brief was very vague.

0:0:20.860 --> 0:0:22.180

Interviewer

So I've changed it quite a lot.

0:0:23.310 --> 0:0:23.930

Participant3

Fair enough.

0:0:23.940 --> 0:0:24.220

Participant3

Yeah.

0:0:24.230 --> 0:0:24.920

Participant3

No, that would be good.

0:0:25.580 --> 0:0:42.890

Interviewer

And so my thought process kind of started to help with the work we did in the Petteril and integrated catchments and the need to not just look at end of pipe solutions as an industry, we needs to look broader than that and and look more holistically.

0:0:44.630 --> 0:0:47.60

Interviewer

So when I started to do the research

0:0:47.170 --> 0:0:54.460

Interviewer

I was thinking, well, how could we apply that the the idea of integrated catchments, to an urban environment?

0:0:56.500 --> 0:1:8.890

Interviewer

And then started asking more and more questions about the fundamentals of what we're trying to achieve and came to the conclusion that where the research needed to go was identifying requirements.

0:1:9.890 --> 0:1:22.510

Interviewer

What have identified their needs and how they would change and be modified by external factors that as a water company you'd have no control over.

0:1:23.650 --> 0:1:27.160

Interviewer

And as society, we have limited control over.

0:1:28.310 --> 0:1:33.460

Interviewer

So that's sort of where it where the research question ends up being.

0:1:33.970 --> 0:1:54.890

Interviewer

So through doing that I've used system mapping systems thinking tools to look at the relationships we have across the water system and looked to future scenarios as a way of transporting ourselves from now to sort of 100 years into the future.

0:1:55.20 --> 0:2:4.430

Interviewer

And what could that look like in various extremes to to see how the relationships we have with the water system may change?

0:2:6.280 --> 0:2:19.680

Interviewer

And then also looks at a number of indicators to support how we can translate that into usable information in terms of making decisions that makes sense.

0:2:21.530 --> 0:2:23.160

Participant3

Yeah, that makes sense.

0:2:23.210 --> 0:2:23.590

Participant3

Got that

0:2:23.450 --> 0:2:23.870

Interviewer

Excellent.

0:2:25.100 --> 0:2:39.150

Interviewer

And so kind of all of that thinking boiled down into the the questionnaire I sent to you and really now would like to explore some of those questions in a bit more detail through through our conversation.

0:2:41.730 --> 0:2:42.500

Participant3

Yeah, that sounds good.

0:2:41.80 --> 0:2:59.640

Interviewer

So starting off and start off we I was asking about the issues that we have within a a water system and umm so I'm I'm saying water system because I think it's broader than just the water industry.

0:3:0.810 --> 0:3:12.480

Interviewer

It's broader than water company assets and so it when I say water system, what I mean is everything from headwaters to the estuary, so rivers, lakes and the surface waters.

0:3:13.10 --> 0:3:15.620

Interviewer

So I'm not really touching on groundwater.

0:3:16.0 --> 0:3:17.360

Interviewer

That's that's a whole other

0:3:18.510 --> 0:3:23.160

Interviewer

System that needs to be looked at, but yeah, everything's surface waters.

0:3:25.900 --> 0:3:26.180

Participant3

OK.

0:3:26.190 --> 0:3:26.700

Participant3

Yeah, got that.

0:3:26.50 --> 0:3:31.60

Interviewer

So and yeah, I don't know if you could expand a little bit on your.

0:3:34.40 --> 0:3:42.800

Interviewer

What you think our understanding is or your understanding is of issues within a catchment across kind of environmental, social and economic?

0:3:45.560 --> 0:3:46.150

Interviewer

Have viewpoints.

0:3:49.190 --> 0:3:55.610

Participant3

So essentially, what are all the issues that could potentially exist in the catchment across those viewpoints?

0:3:56.440 --> 0:3:56.750

Interviewer

No.

0:3:59.550 --> 0:4:0.120

Participant3

Oh, right, OK.

0:3:56.760 --> 0:4:2.320

Interviewer

What's our level of understanding to how well do you think like you?

0:4:2.330 --> 0:4:12.230

Interviewer

Or are you, as a representative of what water company, understand those issues and how well do you think that they are understood more broadly as well?

0:4:14.190 --> 0:4:14.460

Participant3

OK.

0:4:14.470 --> 0:4:15.120

Participant3

Yeah, sure.

0:4:15.250 --> 0:4:26.290

Participant3

So I mean, I think it probably depends to an extent on the catchment and how much kind of activities gone on there and where we've gone.

0:4:26.300 --> 0:4:46.800

Participant3

But we've obviously got as a kind of water company and reasonable models through tools like SimCat, SAGIS to understand from a water quality perspective where different kind of key parameters are what the impact of the different kind of potential sources are within that.

0:4:48.390 --> 0:4:52.880

Participant3

However, I guess I would caveat that with the data is kind of old.

0:4:53.10 --> 0:4:57.920

Participant3

Although it's getting does get refreshed a bit and it's and.

0:5:0.130 --> 0:5:5.290

Participant3

Yeah, not based on huge amounts of kind of ongoing monitoring.

0:5:5.410 --> 0:5:12.640

Participant3

And as those budgets have been cut, so we don't necessarily have that full picture to a high level of granularity.

0:5:12.870 --> 0:5:18.940

Participant3

And also I think we have you know it's quite good with point sources that understanding exactly what's going on.

0:5:18.980 --> 0:5:25.520

Participant3

But in terms of diffuse sources, there's probably not enough sample density to really understand exactly where those coming from.

0:5:25.530 --> 0:5:29.530

Participant3

So you end up with some fairly high level assumptions sociated to those.

0:5:30.190 --> 0:5:37.320

Participant3

And so I don't think we've necessarily got great understanding from that point of view.

0:5:37.370 --> 0:5:50.10

Participant3

But there is, you know, enough to know, certainly from a water company perspective, some of the impacts that are asset based is potentially having from that kind of kind of side.

0:5:50.470 --> 0:6:18.330

Participant3

I think in terms of kind of other challenges around like quantity elements and yeah, but I'm not sure there's necessarily a huge amount of knowledge as to how the full system interacts and particularly how kind of that natural system interacts with the more Man made (System.

0:6:18.340 --> 0:6:26.890

Participant3

So guess I'm particularly be looking at how NFM potentially impacts sewer flows, and all of those sorts of considerations.

0:6:26.960 --> 0:6:29.950

Participant3

It's actually really hard to link that through.

0:6:30.520 --> 0:6:38.800

Participant3

You can kind of do modeling activity around the, like fluvial flood risk associated with upland catchment intervention, but at.

0:6:42.860 --> 0:6:46.840

Participant3

in terms of how that then interacts the water company network is really difficult.

0:6:49.190 --> 0:6:49.410

Interviewer

OK.

0:6:56.80 --> 0:7:1.390

Interviewer

And so in terms of quantity, you're talking about flow levels in the river.

0:7:10.690 --> 0:7:10.910

Interviewer

Yeah.

0:7:5.30 --> 0:7:12.120

Participant3

So levels in the river, but also like land like water held back in land, right.

0:7:12.420 --> 0:7:13.560

Participant3

You know soil.

0:7:14.560 --> 0:7:15.890

Participant3

Yeah, like water retention.

0:7:15.970 --> 0:7:18.360

Participant3

Well, both wetlands and within soil structures.

0:7:18.990 --> 0:7:19.210

Interviewer

Yeah.

0:7:21.430 --> 0:7:21.680

Interviewer

And.

0:7:24.630 --> 0:7:25.510

Interviewer

And in terms of?

0:7:28.60 --> 0:7:32.50

Interviewer

How much is taken out of the system?

0:7:33.30 --> 0:7:36.320

Interviewer

Umm, because yeah, there's two sides of that on there.

0:7:36.330 --> 0:7:45.850

Interviewer

There's there's a how much is held within the soil and how much is held in NFM measures, and how much is flowing through the river.

0:7:45.860 --> 0:7:55.890

Interviewer

But we're also abstracting from the rivers and from water sources that there is points, and that was not only done by the water companies, it's done by others as well.

0:7:56.250 --> 0:7:59.90

Interviewer

So do you think that is kind of transparently?

0:8:1.20 --> 0:8:3.300

Interviewer

Ah, available information.

0:8:8.550 --> 0:8:10.860

Participant3

Not sure how transparent is I.

0:8:10.950 --> 0:8:27.170

Participant3

I I'm not particularly close to that side of things, but from some of the work that we have done that I am aware of, I think there are some challenges with and I mean water company abstractions pretty clearly kind of marked obviously the way abstraction licence works.

0:8:27.840 --> 0:8:41.410

Participant3

You know you don't need one up to a certain point, so you've got potential for alteration of a significant amount of small abstractions going on and then equally kind of other abstractors kind of non water company.

0:8:41.420 --> 0:8:44.20

Participant3

So relatively small, but still are a big enough level.

0:8:44.780 --> 0:8:45.660

Participant3

I'm yeah.

0:8:45.670 --> 0:8:56.150

Participant3

I'm not convinced that that data [quantity] is massively understood, even by the people that need it for fundamental decision making, let alone be in that visibly available to other people.

0:8:56.280 --> 0:8:57.520

Participant3

Kind of outside of that sphere.

0:8:58.240 --> 0:8:58.440

Interviewer

Yeah.

0:9:1.650 --> 0:9:1.910

Interviewer

OK.

0:9:1.920 --> 0:9:6.50

Interviewer

So that's kind of covered the the water quality water quantity side of things.

0:9:7.150 --> 0:9:15.250

Interviewer

What about and how that then impacts on ecology and then the wider impacts across society?

0:9:20.430 --> 0:9:22.530

Participant3

Uh, so how well do we understand them?

0:9:23.50 --> 0:9:23.820

Interviewer

Yeah, yeah.

0:9:31.700 --> 0:9:41.720

Participant3

So just from an ecology point of view, I mean potentially OK, it's a bit better, but it it probably depends on the specifics of the individual locations.

0:9:41.730 --> 0:10:2.600

Participant3

So like obviously we've got some areas of our catchments where we've got pretty good understanding of what's going on from kind of the quake ecology just purely based on the

fact that we've got kind of SSSIs SACs and there's very specific needs of very specific creatures that are driving huge amounts of investment.

0:10:3.270 --> 0:10:3.500

Interviewer

Yeah.

0:10:2.900 --> 0:10:11.770

Participant3

And so kind of driving how that links through in those locations, you've got a pretty big a pretty thorough and good understanding.

0:10:12.100 --> 0:10:18.740

Participant3

I guess when you get into the more generic rivers where there's less of that really specifics.

0:10:20.570 --> 0:10:26.480

Participant3

Yeah, I'm not sure that there's necessarily a huge link through to the kind of ecology that's going on.

0:10:26.550 --> 0:10:35.720

Participant3

It's almost like there's, you know, you've got the physicochemical standards that are established and you you're kind of monitoring against that and understanding it.

0:10:35.730 --> 0:10:38.360

Participant3

And theoretically, there's link through to why?

0:10:38.410 --> 0:10:39.560

Participant3

Why those exist?

0:10:39.570 --> 0:10:41.430

Participant3

But it's not always.

0:10:43.880 --> 0:10:52.880

Participant3

OK, this is clearly linked through and then in terms of kind of the socioeconomic factors that that.

0:10:55.160 --> 0:10:55.870

Participant3

Goes through too.

0:10:55.880 --> 0:10:56.620

Participant3

I guess it probably.

0:10:59.350 --> 0:11:2.410

Participant3

And you got some benefit.

0:11:5.570 --> 0:11:43.40

Participant3

Kind of linking established through like Eng webs type approaches to try and understand how some of that flows through, but it's probably quite opaque and not overly clear to the majority of people that are working in that I think would probably question some of the valuations and how those work and web didn't too bad, but a lot of the stuff around, you know like the the wider environmental outcomes go more broadly that were used to assess value through price review or don't think really captured the true value of of kind of how that impacts.

0:11:43.330 --> 0:11:58.70

Participant3

And then I think coming through to a more quantity focus bit, there's probably a bit of a kind of overarching point that probably is relevant here, but is probably far more broad in terms of just a general societal approach to.

0:11:59.40 --> 0:12:17.940

Participant3

And that kind of value of resilience and how you how those kind of water (System factors impact on that resilience and therefore kind of what the value is of driving better performance from that perspective.

0:12:18.30 --> 0:12:25.380

Participant3

And the thing you know, just generally speaking societally, we probably don't value that as highly as we probably should.

0:12:26.720 --> 0:12:30.80

Interviewer

Yeah, yeah, I completely agree.

0:12:30.810 --> 0:12:41.710

Interviewer

And do you think the the movement towards recognising multiple capitals and a a multi capitals approach is?

0:12:44.360 --> 0:12:57.410

Interviewer

Is changing that conversation around value at all, and do you think it's mature enough to be able to to kind of quantify non monetary value?

0:12:57.450 --> 0:13:3.330

Interviewer

Because I think quite often people conflate value and price together, or value and monetary value.

0:13:4.650 --> 0:13:5.10

Participant3

Yeah, yeah.

0:13:4.110 --> 0:13:12.640

Interviewer

And there's obviously multi capitals is broader than that, but it's very hard to then assign value to something that's subjective.

0:13:14.390 --> 0:13:18.780

Participant3

Well, so I think, I guess there's definitely that issue.

0:13:18.890 --> 0:13:21.220

Participant3

I guess the other issue you've got is also the.

0:13:24.0 --> 0:13:30.720

Participant3

Kind of differential between market, monetary value and theoretical monetary value.

0:13:31.330 --> 0:13:31.530

Interviewer

Yeah.

0:13:31.260 --> 0:13:55.820

Participant3

So you've got some of those monetizable NBS type of values that you can deliver that are very there's a clear market, it's easier to, you know, clearly demonstrate that that exists and also you can relatively simply, you know monetize that benefit that's being delivered and and it and that's relatively simple.

0:13:56.270 --> 0:13:57.70

Participant3

You've then got.

0:13:57.820 --> 0:14:1.200

Participant3

They are the ones that are potentially do have or not.

0:14:1.210 --> 0:14:12.960

Participant3

Potentially they do have and there's, you know, evidence based valuation to demonstrate that they have real value, but there's not necessarily a market mechanism to realize that.

0:14:13.400 --> 0:14:18.400

Participant3

So it I guess it leaves it open more to challenge and less scrutiny.

0:14:18.410 --> 0:14:24.10

Participant3

People are less willing to accept it, and probably an element of that is cause.

0:14:24.20 --> 0:14:36.430

Participant3

Actually, the true beneficiaries of it aren't necessarily always gonna be the people you asking to pay because the market mechanism doesn't exist to do that, and therefore kind of utilizing that value potentially says, well, it's a good thing to do that recreation or whatever.

0:14:36.530 --> 0:14:46.410

Participant3

But fundamentally, the way I fund it doesn't necessarily mean the beneficiary is actually playing for the benefit that they are benefiting from, and therefore that is a bit of a challenge.

0:14:47.60 --> 0:14:54.70

Participant3

And I think the move generally speaking towards them is definitely positive, but kind of how we.

0:14:57.840 --> 0:15:15.330

Participant3

I guess get over that differential between those two mechanisms and challenges is is key and then yeah, the other bit definitely kind of how you consider those non monetizable benefits is also a real challenge.

0:15:15.590 --> 0:15:19.730

Participant3

And I don't think it's done particularly well at the moment.

0:15:19.740 --> 0:15:31.680

Participant3

I think it's kind of like calculate all your money, you do your valuation assessment, you cost benefit and then there's a few other things that you essentially just take a bit of a guess as to whether the additional benefit is worth whatever that additional cost may be.

0:15:34.60 --> 0:15:34.280

Interviewer

Yeah.

0:15:33.760 --> 0:15:42.390

Participant3

It's not really standardised in that approach I'm, but equally I mean yeah, I have to know your bit on the fence as to what way we do it.

0:15:42.400 --> 0:15:54.710

Participant3

I kind of accept the argument that you don't necessarily wanna put a price on anything, but I do also think that you kind of need a common unit to be able to really understand that and you gonna use a common unit.

0:15:57.460 --> 0:15:57.740

Interviewer

Yeah.

0:15:54.720 --> 0:15:59.510

Participant3

Pounds is as good a unit as any, but probably better because most people understand it.

0:15:59.750 --> 0:16:0.0

Interviewer

Yeah.

0:16:1.360 --> 0:16:4.870

Interviewer

Yeah, let's not create a whole other unit, but no one understands at all.

0:16:5.630 --> 0:16:18.720

Interviewer

And yeah, I mean that that was how I I felt quite often that you you that the the decision was almost made on cost benefit with monetizable values.

0:16:18.950 --> 0:16:28.210

Interviewer

Obviously this was a few years ago and and then all those additional values were well, if that pulls on their heartstrings enough that they wanna take a risk.

0:16:34.440 --> 0:16:34.580

Participant3

Yeah.

0:16:28.400 --> 0:16:36.340

Interviewer

If it's close, then that's kind of that's your added bonus rather than the core reason for doing things.

0:16:37.330 --> 0:16:37.550

Participant3

Yeah.

0:16:37.560 --> 0:16:38.260

Participant3

Yeah, absolutely.

0:16:38.270 --> 0:16:39.130

Participant3

That's still the case now.

0:16:38.180 --> 0:16:52.120

Interviewer

But but yeah it but that is so intrinsically linked to the facts that you're trying to assign value to something that, yeah, isn't marketable or doesn't have a market value.

0:16:53.630 --> 0:16:54.180

Interviewer

All that's.

0:16:53.940 --> 0:16:54.220

Participant3

Yeah, yeah.

0:16:55.300 --> 0:17:5.540

Interviewer

Yes, as you say, the market mechanisms also and immature or indirect the they become almost invisible.

0:17:8.330 --> 0:17:9.250

Participant3

Yeah, yeah, absolutely.

0:17:10.890 --> 0:17:11.290

Interviewer

Right.

0:17:11.340 --> 0:17:20.160

Interviewer

So moving on and so we've got some understanding of issues, some with more confidence than others.

0:17:20.670 --> 0:17:22.180

Interviewer

And what is it?

0:17:22.230 --> 0:17:30.180

Interviewer

What's your view on how well they're then translated into action plans, business plans, any kind of activity?

0:17:34.810 --> 0:17:49.920

Participant3

Umm, I mean, I think probably the challenge there exists around some of it happens pretty effectively to an extent in the I guess some of those challenges have very specific roots for how they can be resolved.

0:17:50.390 --> 0:18:3.140

Participant3

And so you look at like elements of the water quality challenge can be driven through when it and that's pretty effective mechanism at getting things to happen.

0:18:3.550 --> 0:18:18.380

Participant3

I think what doesn't happen is that holistic approach across that whole system to address all of those challenges and therefore you kind of get this slightly warped system where you do a hell of a lot of stuff to address 1 bit.

0:18:18.940 --> 0:18:23.630

Participant3

But because the whole system doesn't recover, you don't really get much benefit.

0:18:24.630 --> 0:18:24.850

Interviewer

Yeah.

0:18:28.170 --> 0:18:43.260

Participant3

And I think that's just a fundamental challenge that the way, because the system's pretty fractured in where the responsibility and ownership etcetera sits, there are more effective mechanisms to get parts of that system to address the challenges that need to be addressed.

0:18:43.350 --> 0:18:44.240

Participant3

Then there are others.

0:18:45.210 --> 0:19:2.140

Participant3

A before we kind of just pursuing the easy bits at the moment and actually probably need to unite that whole system more effectively to address what the system needs in the round, and that would help you drive those outcomes way more effectively.

0:19:3.180 --> 0:19:4.890

Interviewer

Yeah, yeah.

0:19:22.360 --> 0:19:22.890

Participant3

Absolutely.

0:19:4.900 --> 0:19:26.140

Interviewer

So it's still is an easier way of doing things if it's a more output driven approach, so it's easier to do something on a treatment works that has an outflow that we as monitored then is to look at the system as a whole and do something that might.

0:19:28.450 --> 0:19:35.380

Interviewer

Address more issues or address the issues more holistically than umm, than the treatment solution.

0:19:36.600 --> 0:19:36.950

Participant3

Yeah.

0:19:36.960 --> 0:19:40.70

Participant3

Because like I guess there's a couple of reasons for that, isn't there?

0:19:40.80 --> 0:19:53.220

Participant3

1 is that like it's really hard to just do that actual environmental planning across multiple

organizations and bringing all of those people together and driving collaboration and all those things is physically hard.

0:19:53.560 --> 0:19:53.760

Interviewer

Yeah.

0:19:54.190 --> 0:19:56.720

Participant3

But that's probably reasonably surmountable.

0:19:56.730 --> 0:19:57.780

Participant3

I think you could do it.

0:19:58.990 --> 0:20:8.80

Participant3

The big challenge is that actually, you know, you kind of always get into that situation where you talk about some really exciting and interesting opportunities.

0:20:8.140 --> 0:20:10.540

Participant3

And then it's like, yeah, but how do I regulate it?

0:20:10.900 --> 0:20:18.110

Participant3

Because like, it's really hard to regulate that whole system because you got 10 people that are all having a little impact on it.

0:20:18.160 --> 0:20:22.920

Participant3

Well, if you don't get what you're expecting, which one of the 10 are you giving a kicking to?

0:20:23.620 --> 0:20:23.820

Interviewer

Yeah.

0:20:25.220 --> 0:20:36.300

Participant3

And and we need to really innovate in how that gets kind of that process gets managed in order to allow us to work in that collaborative way.

0:20:36.740 --> 0:20:41.20

Participant3

And at the moment we're kinda seem a little bit stuck in the well.

0:20:41.30 --> 0:20:42.890

Participant3

This is how regulation works.

0:20:42.970 --> 0:20:51.790

Participant3

Therefore, any action that we come up with has to be able to be regulated in the way that regulation works, as opposed to kind of thinking.

0:20:51.800 --> 0:20:53.180

Participant3

Well, this is what needs to happen.

0:20:53.190 --> 0:20:57.570

Participant3

So let's think of a way we can regulate what the way that we need to actually work.

0:20:58.340 --> 0:20:58.560

Interviewer

Yeah.

0:21:4.920 --> 0:21:5.800

Interviewer

Yeah, it it.

0:21:5.860 --> 0:21:8.460

Interviewer

It comes down to the polluter pays principle, doesn't it?

0:21:8.470 --> 0:21:17.590

Interviewer

Between polluter pays as a as a driving principle and how you create holistic partnership action.

0:21:19.280 --> 0:21:21.140

Participant3

Yeah, yeah, absolutely.

0:21:20.520 --> 0:21:30.890

Interviewer

Because if if you had all those parties working together in in a consortium or in in a partnership, and I took collective responsibility for it.

0:21:33.480 --> 0:21:33.680

Participant3

Yeah.

0:21:33.490 --> 0:21:35.180

Interviewer

And that is one way round it.

0:21:35.190 --> 0:21:41.880

Interviewer

But you still got the issue that if one party stops doing there, their part and how does the?

0:21:44.130 --> 0:21:48.50

Interviewer

How does polluter pays principle and fall into that?

0:21:49.390 --> 0:21:50.480

Participant3

Yeah, absolutely.

0:21:50.690 --> 0:21:58.920

Participant3

And [the current, like political climate really doesn't help in trying to drive to that situation cause like it's not.](#)

0:22:1.380 --> 0:22:7.980

Participant3

[People are just paranoid about being tough on individual polluters or whatever.](#)

0:22:8.50 --> 0:22:16.600

Participant3

[So actually trying to drive a kind of collaborative approach that's working jointly to do it just.](#)

0:22:18.670 --> 0:22:29.660

Participant3

Feels like, you know, I think particularly from the EA point of view, they're very reluctant to get themselves into a position that could be perceived as being soft on polluters.

0:22:32.260 --> 0:22:32.470

Participant3

And.

0:22:30.630 --> 0:22:36.160

Interviewer

Yeah, well, it it could very easily seem from the outside as well. They're they're shirking their duty and trying to partner up with others in order to share what they what. X should be doing anyway.

0:22:47.690 --> 0:22:48.790

Participant3

Yeah, yeah, absolutely.

0:22:49.560 --> 0:22:49.760

Interviewer

Yeah.

0:22:51.330 --> 0:22:51.760

Interviewer

OK.

0:22:52.30 --> 0:22:52.370

Interviewer

Thank you.

0:22:53.650 --> 0:22:55.350

Interviewer

And related to that.

0:22:57.240 --> 0:22:58.250

Interviewer

And how?

0:22:58.670 --> 0:23:3.630

Interviewer

How far ahead do you think we currently look and how far ahead do you think we should look?

0:23:6.510 --> 0:23:16.620

Participant3

So I mean historically we've been probably far more short term the latest kind of from a water company perspective position with the winep is 25 year time horizon.

0:23:16.950 --> 0:23:19.500

Participant3

However, that is very different depending on where it is.

0:23:19.510 --> 0:23:26.10

Participant3

So like, I don't really have a full plan for what, 25 years times wineps gonna look like.

0:23:26.260 --> 0:23:28.280

Participant3

But I probably know some of it.

0:23:28.990 --> 0:23:31.490

Participant3

Uh, which is probably a better place than we have been previously.

0:23:34.440 --> 0:23:34.840

Participant3

I think.

0:23:37.460 --> 0:23:44.160

Participant3

If you know looking, then in the from a water resources perspective, they're looking even further ahead into the into the future.

0:23:46.310 --> 0:23:48.520

Participant3

And I think that's probably positive.

0:23:50.250 --> 0:24:0.70

Participant3

I know I kind of think actually from water resources perspective, it's certainly beneficial to look into the future that you know to that sort of 100 year horizon where they're looking.

0:24:0.730 --> 0:24:8.160

Participant3

I think that obviously then has has an impact from a water quality perspective and how all of those side of things are progressing.

0:24:8.230 --> 0:24:13.990

Participant3

So there's an element of linking into that, but I guess it's quite hard in reality.

0:24:15.930 --> 0:24:16.970

Participant3

like your plans.

0:24:16.980 --> 0:24:24.980

Participant3

Not ever gonna be cause you look at the kind of current move towards like you know PFAS and PFOS starting to become a real issue.

0:24:24.990 --> 0:24:25.920

Participant3

Microplastics.

0:24:25.930 --> 0:24:29.320

Participant3

Where you know, ten years ago, nobody could really have all seen those things happening.

0:24:29.470 --> 0:24:36.850

Participant3

There are emerging pollutants coming through all the time, so actually, you know, there's an element of the plans always gonna change.

0:24:38.100 --> 0:24:45.920

Participant3

That being said, there are some kind of stuff you could probably plan for far more effectively over that long term period.

0:24:46.80 --> 0:24:50.410

Participant3

So I think having that long term plan is good.

0:24:50.770 --> 0:25:0.190

Participant3

I think probably having a far better understanding of what was likely to be needed over that 25 year horizon and going into that and a lot more detail would be beneficial.

0:25:0.490 --> 0:25:19.70

Participant3

But also it does need to have that flexibility as to whilst you've got that kind of core plan that's going over that long term, actually you need to revisit it on a regular basis to tweak the specifics of what's happening in light of the kind of progress in knowledge and understanding of what's going on.

0:25:19.940 --> 0:25:20.160

Interviewer

Yeah.

0:25:28.180 --> 0:25:28.620

Participant3

And.

0:25:21.510 --> 0:25:35.220

Interviewer

So would you say like the 25 year plan is giving a a direction of travel the aim towards, but then you still need to keep the adaptability in that, was it not quite there?

0:25:34.470 --> 0:25:36.180

Participant3

Yeah, I think that's what you need.

0:25:36.290 --> 0:25:39.400

Participant3

And I think it it's probably not quite doing that at the moment.

0:25:39.410 --> 0:25:42.560

Participant3

There's a bit of a 25 year time horizon, but it's only on certain things.

0:25:42.570 --> 0:25:44.340

Participant3

It's not really as broad as it could be.

0:25:44.610 --> 0:25:46.710

Participant3

I mean, I think the storm overflow stuff is quite good.

0:25:46.720 --> 0:25:49.490

Participant3

We've actually got a pretty detailed plan on that.

0:25:49.740 --> 0:25:53.840

Participant3

You know, I could now tell you after a brief chat with Steve Kenny.

0:25:55.750 --> 0:26:1.70

Participant3

You know exactly what AMP every overflow we've got is gonna deliver to.

0:26:2.720 --> 0:26:2.920

Interviewer

Yeah.

0:26:2.490 --> 0:26:11.700

Participant3

However, to a large extent, I kind of think by the time we get to 2050 that plan will have completely changed because it still feels slightly light.

0:26:12.330 --> 0:26:20.80

Participant3

You know, 10 spills is still not, but if you actually listen to what environmental campaigners talk about, it's like eradication of spills.

0:26:20.670 --> 0:26:21.710

Participant3

That's not what the plan is.

0:26:21.20 --> 0:26:22.980

Interviewer

Yeah, no.

0:26:22.570 --> 0:26:28.940

Participant3

At some point, they're gonna realize that this great plan that's doing everything they want isn't actually doing everything that they want.

0:26:29.470 --> 0:26:44.650

Participant3

And then we're gonna have to have a bit of a debate as a country as to, well, do we want to really go to that level because, you know, the expense rises exponentially going from my 10 to 0 compared to wherever we are at now 10.

0:26:45.400 --> 0:26:45.600

Interviewer

Yeah.

0:26:47.310 --> 0:26:52.890

Participant3

And the value probably decreases on a similar scale as well, but.

0:26:53.930 --> 0:27:2.880

Interviewer

Yeah, but then also as as we move into the future, there's surely the options do things differently.

0:27:6.80 --> 0:27:23.120

Interviewer

So I I I don't know the the spills plan at the moment, but if it's similar to previous approaches to spills and that is one way of doing things, but if you've got a a long term plan surely by 20.

0:27:25.60 --> 0:27:32.270

Interviewer

2040 we should be doing things in a different way to we're doing them now or we have done for the last 20 years.

0:27:32.450 --> 0:27:32.880

Participant3

Yeah.

0:27:32.890 --> 0:27:35.440

Participant3

So I mean, we've got stuff in there, haven't we around?

0:27:35.490 --> 0:27:37.320

Participant3

So there's obviously a hell of a lot more rain.

0:27:40.230 --> 0:27:40.430

Interviewer

Yeah.

0:27:37.610 --> 0:27:41.350

Participant3

Management that's in the current plan still tank driven.

0:27:43.800 --> 0:27:45.120

Participant3

But there's a hell of a lot more.

0:27:45.130 --> 0:27:49.290

Participant3

Got 177 hybrid overflows in the plan out of 442

0:27:57.940 --> 0:27:59.850

Participant3

So that's moving in the right direction.

0:27:59.900 --> 0:28:6.900

Participant3

More importantly, we've got the advanced winep that separates out that kind of specific overflow drive for.

0:28:11.50 --> 0:28:19.520

Participant3

Delivering rainwater management so it gives us the option to just proactively deliver rainwater management on any overflow that needs to be improved in the future.

0:28:19.530 --> 0:28:20.760

Participant3

And we can do that now.

0:28:21.30 --> 0:28:32.120

Participant3

So that gives us the opportunity to actually link up in a far more effective way through things like the integrated water management plan to do rainwater management.

0:28:32.270 --> 0:28:45.630

Participant3

You know, at the most sensible time for the catchment, and that's gotta be a real positive in kind of moving that system away from just putting in more and more storage and more for managing that water in a different and better way.

0:28:47.280 --> 0:28:47.480

Interviewer

Yeah.

0:28:48.450 --> 0:28:57.720

Participant3

But that needs to kind of be a sustained long term approach to how we do it as opposed to a flash in the pan that that we do for one amp and then revert back to.

0:28:59.50 --> 0:28:59.270

Interviewer

Yeah.

0:29:0.930 --> 0:29:21.800

Interviewer

And and I'm just wondering if the the variation of approach between water resources and and wastewater is to do with water resources as always needed to be more planned, more proactive, whereas wastewater has always seemed quite reactive to me.

0:29:21.950 --> 0:29:23.370

Interviewer

I working in the industry.

0:29:24.160 --> 0:29:27.190

Interviewer

Umm, and particularly with around emerging contaminants.

0:29:27.560 --> 0:29:30.670

Interviewer

Obviously, you don't know what's there until you know it's there.

0:29:32.560 --> 0:29:33.400

Participant3

Yeah, yeah, absolutely.

0:29:32.250 --> 0:29:38.350

Interviewer

And I you can't tell what's there until you've been able to measure it, and you can't measure it until you think it's a risk.

0:29:38.990 --> 0:29:40.670

Interviewer

And but that does mean that.

0:29:42.710 --> 0:29:44.490

Interviewer

wastewater always seems like it's on the back foot.

0:29:45.660 --> 0:29:47.580

Interviewer

It's trying to clean up things which.

0:29:49.880 --> 0:29:51.920

Interviewer

Have already happened sort of thing.

0:29:52.180 --> 0:29:53.190

Participant3

Yeah, yeah, absolutely.

0:29:53.200 --> 0:29:55.670

Participant3

And I I think that's very true.

0:30:1.380 --> 0:30:1.560

Interviewer

Yeah.

0:29:55.680 --> 0:30:3.270

Participant3

I mean, I think you have an element of that within water as well because you still got some of these emerging contaminants causing them problems for their long term plans etcetera.

0:30:3.360 --> 0:30:10.710

Participant3

But actually a large element of what's with the the way the water concerns that a long term is about kind of quantity.

0:30:10.860 --> 0:30:14.50

Participant3

And that's a question you kind of already know the answer to.

0:30:14.120 --> 0:30:29.340

Participant3

Therefore, you can think in that very long term because you know what your demand for water is gonna be over that period and therefore you can start to assess well actually what do I think the supply availability is going to be because it's all quantity focused.

0:30:30.40 --> 0:30:30.260

Interviewer

Yeah.

0:30:31.310 --> 0:30:40.570

Participant3

Whereas wastewater is very much about how you're driving that quality, and whilst there's obviously certain stuff we know that's having an impact already.

0:30:40.580 --> 0:30:50.180

Participant3

So we can take fairly long term view on that, but there's a limit to how long term you wanna go because you probably like to resolve those issues slightly quicker than 100 year time frame.

0:30:51.600 --> 0:30:52.460

Interviewer

That'd be nice, wouldn't it?

0:30:51.810 --> 0:30:54.380

Participant3

And then for yeah, absolutely.

0:30:54.470 --> 0:30:58.580

Participant3

And then for emerging contaminants, well, you don't know what you don't know, do you?

0:30:59.160 --> 0:30:59.330

Interviewer

Yeah.

0:31:2.780 --> 0:31:7.950

Interviewer

Is a conversation I've had quite a lot and now working with people outside of the sector.

0:31:8.650 --> 0:31:10.230

Interviewer

I've kind of emerging contaminants.

0:31:10.240 --> 0:31:21.560

Interviewer

Why or why is and the chemical health deteriorated across rivers and why aren't we doing more about emerging contaminants?

0:31:21.570 --> 0:31:26.440

Interviewer

Said well, 10 years ago we didn't know that they were in rivers 10 years ago.

0:31:26.450 --> 0:31:29.850

Interviewer

We didn't know that they were in sewage for more than 10 years ago.

0:31:29.860 --> 0:31:30.770

Interviewer

Now 15 years ago.

0:31:33.920 --> 0:31:39.320

Interviewer

So all of that information about their presence has become known to the public.

0:31:39.330 --> 0:31:45.560

Interviewer

At the same time, it's become known to water companies, water treatment specialists.

0:31:47.110 --> 0:31:55.370

Interviewer

So that body of knowledge is is publicly available at the same time that it's been available to the water companies.

0:32:5.900 --> 0:32:6.740

Participant3

Yeah, yeah, absolutely.

0:31:55.660 --> 0:32:10.910

Interviewer

And actually it's it then really hard to put in new permits and regulator and know how to regulate it and know how to treat it within a very short period of time when we're constrained to A5 year investment cycle as well.

0:32:12.740 --> 0:32:13.50

Participant3

Yeah.

0:32:13.60 --> 0:32:20.310

Participant3

And the I mean the I have got a challenge in that as well in the context that and like I guess microplastics are really good example.

0:32:20.320 --> 0:32:29.290

Participant3

So remember, about five years ago talking to the EA's national lead on microplastics and it was relatively well as it was just all starting to kick off.

0:32:30.420 --> 0:32:30.630

Interviewer

Yeah.

0:32:29.300 --> 0:32:37.770

Participant3

At that point, they're basically saying at that time, yeah, we've got no real interest in regulating for microplastics and the foreseeable future.

0:32:38.300 --> 0:32:47.610

Participant3

And part of that was essentially, yeah, there's a load of data starting to come through that microplastics are in rivers, but there's no data coming through that they cause any problem.

0:32:48.280 --> 0:32:48.550

Interviewer

Umm.

0:32:48.520 --> 0:32:56.210

Participant3

An and therefore from an EA point of view, you know they obviously have to also work and regulate within a legal framework.

0:32:56.300 --> 0:33:1.350

Participant3

And if they can't evidence an issue, then they can't really do much about it.

0:33:1.460 --> 0:33:6.100

Participant3

So therefore you always end up with this challenge that you start to see that there's stuff there.

0:33:7.800 --> 0:33:15.790

Participant3

You kind of think it probably ain't great, but actually you've then gotta collect data and evidence that it is actually causing a problem.

0:33:15.880 --> 0:33:17.480

Participant3

You know that takes years to do.

0:33:18.480 --> 0:33:18.680

Interviewer

Yeah.

0:33:39.10 --> 0:33:39.270

Interviewer

Yeah.

0:33:18.940 --> 0:33:39.290

Participant3

Then you've got to understand what are the actual available technologies to do something about it, which probably takes more years to do, and then you do it all of that within the confined and five year regulatory cycle, which therefore isn't particularly that quick because you kind of actually whilst it's five year regulatory period, you've got a plan for that three years before the actual cycle starts.

0:33:39.300 --> 0:33:42.430

Participant3

So in reality you need to know that you need to do something about it.

0:33:42.440 --> 0:33:44.480

Participant3

Eight years before, you're actually gonna do it.

0:33:45.150 --> 0:33:45.350

Interviewer

Yeah.

0:33:52.200 --> 0:33:54.730

Participant3

Then my view kind of is, which is not. [the water companies'] view the actually 5 year regulatory cycle doesn't really work particularly well anymore and we need to have something that is more reactive and something more akin to a long term 25 year plan that is almost annually revisited in a very light touch way. But the you know, you kind of happier long term 25 year detail plan and then almost every year you put forward a business case for bringing forward the investment. You're gonna deliver that Year) off it. Which therefore gives

you a far more flexibility to add in, you know, big items that come up that you haven't foreseen in a far quicker way.

0:34:39.630 --> 0:34:39.910

Interviewer

Yeah.

0:34:42.820 --> 0:34:43.150

Interviewer

Yeah.

0:34:43.160 --> 0:34:44.130

Interviewer

And I I saw it.

0:34:42.970 --> 0:34:44.960

Participant3

that gets very complicated.

0:34:45.720 --> 0:34:50.510

Interviewer

Yeah, I saw it time and again when I was working at U.

0:34:51.100 --> 0:35:1.710

Interviewer

I'd be on a site commissioning something while there was another team from within Engineering.

0:35:2.990 --> 0:35:6.760

Interviewer

And doing the calculations for what needed to be done on that site in three years time.

0:35:8.730 --> 0:35:9.130

Participant3

Yeah, yeah.

0:35:8.470 --> 0:35:13.980

Interviewer

And yeah, you just end up with operations being frustrated that they are constantly working.

0:35:14.950 --> 0:35:17.290

Interviewer

On a construction site, umm.

0:35:18.180 --> 0:35:27.700

Interviewer

And you've got the local residents having constant disruption from all the construction traffic and it just doesn't seem very well thought out or planned.

0:35:29.810 --> 0:35:30.210

Participant3

Yeah, yeah.

0:35:29.110 --> 0:35:34.50

Interviewer

And but it's it's because of these five year cycles and the constraints of them.

0:35:35.200 --> 0:35:43.230

Interviewer

Umm yes, I often more so building one thing knowing that it wasn't going to be enough in five years time.

0:35:43.760 --> 0:35:49.190

Interviewer

You kind of go and, well, why can't we just change our design now and deliver it all in one go?

0:35:49.240 --> 0:35:57.800

Interviewer

Maybe a year later, but it would all be done in one go and but that doesn't that doesn't apply in the the regulations, does it?

0:35:59.240 --> 0:36:0.150

Participant3

Now it does not.

0:36:3.220 --> 0:36:3.550

Interviewer

And.

0:36:14.370 --> 0:36:14.590

Interviewer

Yeah.

0:36:3.420 --> 0:36:35.350

Participant3

But be interesting, if you took a whole like wholesale kind of environmental approach, which is really difficult, but like if you think about the impact from kind of carbon and yeah disruption on people's lives and all of those sorts of things actually, could you weigh up the argument that one year of slightly higher phosphate going into a river is a price worth paying for the reduction in carbon emissions that's caused by having two separate projects, the reduction in disruption to the residents and all of that sort of thing?

0:36:36.90 --> 0:36:36.310

Interviewer

Yeah.

0:36:36.550 --> 0:36:44.920

Participant3

I mean, I think you can theoretically make that point, but again it comes down to that fundamental argument that, well, I don't think the regulation allows you to do it.

0:36:44.930 --> 0:36:49.960

Participant3

So I don't think they could do it anyway, but even if they wanted to at the moment, would they want to?

0:36:49.970 --> 0:36:54.240

Participant3

Cause you can just see the headline on the front page of the Guardian guardian.

0:36:54.780 --> 0:36:56.80

Interviewer

Yes. Yeah.

0:36:58.100 --> 0:37:1.540

Interviewer

And so move it on slightly.

0:37:3.480 --> 0:37:14.310

Interviewer

And I asked him questionnaire about so aspirational priorities, where where do we, where do we think we want to pay or aim for?

0:37:15.170 --> 0:37:26.900

Interviewer

Umm and yeah, I used the phrase in kind of resilience, robust and sustainable and justice lead or just where?

0:37:27.150 --> 0:37:27.440

Interviewer

Yeah.

0:37:27.450 --> 0:37:33.270

Interviewer

What are your views on where we should be in that so spectrum or like against those options?

0:37:36.350 --> 0:37:36.910

Participant3

Alright, hang on.

0:37:36.920 --> 0:37:40.140

Participant3

You're gonna have to re define those terms for me.

0:37:40.150 --> 0:37:40.520

Participant3

I'm afraid.

0:37:41.310 --> 0:37:43.680

Interviewer

That's all right and so.

0:37:45.30 --> 0:37:45.350

Interviewer

And.

0:37:47.760 --> 0:37:52.460

Interviewer

So robust as in it delivers against its designed objectives.

0:37:55.190 --> 0:37:58.720

Interviewer

Resilient as in it is able to.

0:38:0.170 --> 0:38:0.900

Interviewer

Umm.

0:38:1.520 --> 0:38:2.470

Interviewer

Resist change.

0:38:3.810 --> 0:38:11.840

Interviewer

So if it if we design something and then climate change means that there's higher rainfall or more storms or.

0:38:15.940 --> 0:38:23.830

Interviewer

Some some external event happens it resilient if it's able to continue to function Despite that that change.

0:38:24.840 --> 0:38:25.40

Participant3

Yeah.

0:38:25.930 --> 0:38:26.290

Interviewer

And.

0:38:28.160 --> 0:38:30.160

Interviewer

Sustainable and.

0:38:33.430 --> 0:38:34.350

Interviewer

In the heights.

0:38:39.740 --> 0:38:52.340

Interviewer

It enables us to continue to, sorry, enables us as society to continue without impinging on the ability of future generations to.

0:38:54.500 --> 0:38:56.130

Interviewer

And live their lives.

0:38:57.380 --> 0:38:57.600

Participant3

Yep.

0:38:59.30 --> 0:39:4.760

Interviewer

And then just it starts looking at equity and the barriers that exist.

0:39:7.410 --> 0:39:12.310

Interviewer

Which might mean that certain geography is populations.

0:39:15.450 --> 0:39:17.290

Interviewer

People are less able to.

0:39:19.680 --> 0:39:21.120

Interviewer

Live their lives as they would wish to.

0:39:23.770 --> 0:39:28.350

Interviewer

But yeah, it brings equity into the question and removing barriers.

0:39:34.90 --> 0:39:35.140

Interviewer

Because that terrify things.

0:39:55.700 --> 0:39:55.940

Interviewer

Yeah.

0:39:37.270 --> 0:40:5.390

Participant3

It's probably the just a bit that I'm still trying to get my head around just to it to a little extent, but so essentially it's talking about, you know, delivering a system that is, yeah, I guess fair to all not doing activity that potentially achieves the other objectives, but does that at a cost to specific groups of society.

0:40:6.310 --> 0:40:7.500

Interviewer

Exactly, yeah.

0:40:9.110 --> 0:40:9.420

Participant3

Right.

0:40:9.430 --> 0:40:10.80

Participant3

OK.

0:40:10.710 --> 0:40:13.960

Participant3

What been to an extent, you want all of those things, don't you ideally?

0:40:14.440 --> 0:40:14.600

Interviewer

Yes.

0:40:17.580 --> 0:40:33.580

Interviewer

And yeah, the so the regulations at the moment and the guidance from off or and sticks that resilience and it has some language around sustainability, but it doesn't talk about equity and justice issues.

0:40:36.880 --> 0:40:42.520

Interviewer

Which is where I kind of start challenging the industry that it's not doing enough.

0:40:47.310 --> 0:40:47.550

Participant3

Yeah.

0:40:50.690 --> 0:40:57.680

Participant3

It's interesting because I think there's a bit of thought goes in around that, but.

0:41:0.370 --> 0:41:6.860

Participant3

Yeah, it's not really fully baked into the way we kind of assess things and do things.

0:41:6.870 --> 0:41:10.80

Participant3

I do agree, but there is certainly.

0:41:16.560 --> 0:41:27.210

Participant3

Yeah, there's certainly some thought process that goes into how you can drive more of that kind of social justice point and you know, understanding where we have.

0:41:28.910 --> 0:41:39.840

Participant3

Yeah, things like areas of deprivation and different needs from customers and how actually the activity we're engaging with can support and potentially change that position.

0:41:40.430 --> 0:41:42.960

Participant3

But yeah, it is kind of.

0:41:43.90 --> 0:41:51.210

Participant3

It's something that's talked about a lot, I think rather than necessarily being directly baked into how we do those assessments.

0:41:51.990 --> 0:41:53.980

Interviewer

Yeah, yeah, I I agree.

0:41:54.30 --> 0:41:55.730

Interviewer

I think there's there's elements.

0:42:1.960 --> 0:42:2.160

Participant3

Yeah.

0:41:57.470 --> 0:42:6.150

Interviewer

Because the people actually making the plans are human and hopefully want good things for other humans and.

0:42:8.180 --> 0:42:19.190

Interviewer

I think there are certainly elements within the business plans and within the the processes of water companies that do strive towards it, but it's not conscious.

0:42:23.50 --> 0:42:23.290

Participant3

Yeah.

0:42:22.150 --> 0:42:25.840

Interviewer

I think it's not conscious because it's it's not driven through from the regulators.

0:42:27.310 --> 0:42:30.400

Participant3

I mean, I think it, yeah, it's kind of an interesting point, isn't it?

0:42:30.410 --> 0:42:41.740

Participant3

In the like, we're really driven by efficiency as being our core kind of metric in effect and.

0:42:50.30 --> 0:42:50.210

Interviewer

Yeah.

0:42:44.580 --> 0:42:55.650

Participant3

That efficiency kind of almost has in baked social injustice in it, in the sense that driving to the lowest overall cost across the whole.

0:42:58.240 --> 0:43:15.570

Participant3

Northwest region potentially means you do have a more of an impact cause it's cheaper to do so to people at the bottom end of the pile as opposed to actually saying, well, maybe it's worth doing it in a more expensive way.

0:43:17.30 --> 0:43:21.540

Participant3

But passing that cost on to the people that can afford it to drive that broader social justice.

0:43:23.670 --> 0:43:23.890

Interviewer

Yeah.

0:43:23.450 --> 0:43:29.960

Participant3

But I guess the only thing I'd say is I don't think that's a water company problem.

0:43:30.940 --> 0:43:39.720

Participant3

It is partially a water company problem, but it's a society problem in how we do everything, not kind of just how we run the water sector.

0:43:40.170 --> 0:43:57.860

Participant3

And I guess like specifically on that, I was kind of thinking about it this morning in reality because there was a thing they were talking about the challenge of like features 30% of teachers getting assaulted by kids or whatever and behaviour has significantly deteriorated.

0:43:58.50 --> 0:44:3.760

Participant3

And they were talking about one of the motivating factors for that that the support network that used to be available was now far higher.

0:44:4.130 --> 0:44:8.460

Participant3

And I guess my reflection on that was going through a challenging economic period.

0:44:8.470 --> 0:44:12.970

Participant3

We kind of took a decision that government level that rather than.

0:44:15.370 --> 0:44:20.290

Participant3

Increase the spending on these areas and ask the people at the top to pay a bit more.

0:44:22.90 --> 0:44:31.80

Participant3

We chose to decrease the service provision and therefore a sensually put the cost on the people at the bottom.

0:44:33.340 --> 0:44:39.780

Participant3

And yeah, that's kind of a societal thing, I guess.

0:44:40.710 --> 0:44:42.250

Interviewer

Yeah, I I completely agree.

0:44:41.640 --> 0:44:44.320

Participant3

I'm probably very dependent on your political viewpoint.

0:44:45.50 --> 0:44:45.600

Interviewer

Yes.

0:45:3.80 --> 0:45:3.390

Participant3

Yeah, yeah.

0:44:47.0 --> 0:45:10.860

Interviewer

Umm yeah, I I think it if we want or if there is a need to shift to a more justice led proach that has to come from umm from government and it needs to spread across multiple sectors and but yeah we we see the affordability range.

0:45:13.490 --> 0:45:16.650

Interviewer

I can't remember the numbers off the top of my head, but by the water bill is.

0:45:19.10 --> 0:45:20.430

Interviewer

Over 10% of.

0:45:22.360 --> 0:45:23.790

Interviewer

The income of the.

0:45:26.210 --> 0:45:30.740

Interviewer

One of the lowest quartiles, unlike last deciles of the population.

0:45:31.310 --> 0:45:31.780

Interviewer

UM.

0:45:31.840 --> 0:45:46.430

Interviewer

Uh, but when you look at medium income median incomes, it's it's like less than 1% and that disparity makes a huge difference in how people see that water bill.

0:45:48.230 --> 0:45:48.770

Interviewer

Umm.

0:45:48.460 --> 0:45:49.430

Participant3

Yeah, yeah, absolutely.

0:45:50.80 --> 0:45:50.420

Participant3

But I think.

0:45:49.710 --> 0:45:56.410

Interviewer

And then we've also got legacy issues of in infrastructure being placed in the poorest areas of cities.

0:45:57.630 --> 0:45:57.860

Participant3

Yeah.

0:46:0.350 --> 0:46:0.560

Interviewer

Yeah.

0:45:57.870 --> 0:46:10.800

Participant3

And I I think that's actually more of the problem, because I think actually the the kind of that price point issue can be and to an extent is going to be dealt with it in a more simple way.

0:46:10.950 --> 0:46:16.420

Participant3

So like you've got far bigger customer support financial packages available.

0:46:16.430 --> 0:46:18.50

Participant3

This amp than ever have been before.

0:46:21.320 --> 0:46:21.500

Interviewer

Yeah.

0:46:19.550 --> 0:46:22.680

Participant3

I'm sorry an AMP8, but that was probably true of AMP 7 as well.

0:46:22.690 --> 0:46:47.420

Participant3

It's kind of a step change in followed by another step change and and actually kind of really focusing on how you can, you know, eradicate water poverty and put support in so that the poorest people pay less and and you can do that and you can kind of do that outside of the

system because it's almost an external lever that you can put in a very simple or relatively simple kind of approach to address it.

0:46:47.900 --> 0:46:48.100

Interviewer

Yeah.

0:46:47.950 --> 0:46:55.550

Participant3

But I think where you get into where it's far harder to do that is the the this kind of point around actually?

0:46:57.670 --> 0:46:58.20

Participant3

Yeah.

0:46:58.30 --> 0:47:18.910

Participant3

Where infrastructure gets directed at where you're putting things and and fundamentally kind of when you're trying to just deliver a broad efficiency envelope, then you know that leads you to make certain decisions that just exacerbate kind of societal challenges.

0:47:18.980 --> 0:47:24.390

Participant3

So you know, it's always gonna be cheaper to buy land and dig a big hole.

0:47:25.440 --> 0:47:34.570

Participant3

Umm, in a poor part of the world than it is to no park your diggers up on the front of Buckingham Palace or whatever.

0:47:35.200 --> 0:47:35.440

Interviewer

Yeah.

0:47:36.410 --> 0:47:36.700

Participant3

And.

0:47:36.470 --> 0:47:50.430

Interviewer

Yeah, and yeah, and we we see that in in Manchester in that Davyhulme is in the industrial area and high levels deprivation in that area.

0:47:50.510 --> 0:48:0.730

Interviewer

But it's also got poorer air quality, so it's got this conflation of lots of environmental and economic issues on to a certain demographic.

0:48:2.680 --> 0:48:3.130

Interviewer

Umm.

0:48:3.420 --> 0:48:4.680

Interviewer

And I think it played out in the.

0:48:3.50 --> 0:48:8.160

Participant3

Yeah, getting into a bit of a capitalism versus socialism debate, though, here aren't we?

0:48:8.20 --> 0:48:8.410

Interviewer

Yeah.

0:48:8.850 --> 0:48:15.120

Participant3

Fundamentally, if you live in a free market economy, the crap that's where you have poor air quality are always gonna be cheaper.

0:48:15.530 --> 0:48:15.770

Interviewer

Yeah.

0:48:15.830 --> 0:48:21.300

Participant3

Well, that's will always where you're gonna get that social that, that division of kind of society.

0:48:21.310 --> 0:48:26.770

Participant3

And unless you take a view that you wanna move to a more socialist world, then you're never gonna address that.

0:48:27.400 --> 0:48:29.310

Interviewer

Yeah, yeah, absolutely.

0:48:29.380 --> 0:48:50.400

Interviewer

But that's part of the the future scenarios I've been looking at is if you have kind of wholesale change in global systems, how does that then like ripple through and manifest at the river scale and and that does vary between a a very.

0:48:52.590 --> 0:48:58.710

Interviewer

I capitalist and the haves and the have nots type world and a.

0:49:1.590 --> 0:49:4.200

Interviewer

Ohh, one of them is called eco communism.

0:49:6.980 --> 0:49:7.280

Participant3

No.

0:49:4.210 --> 0:49:13.0

Interviewer

I think there it's very much kind of the opposite of a sustainability driven small society.

0:49:15.90 --> 0:49:15.410

Interviewer

And.

0:49:17.370 --> 0:49:17.550

Interviewer

And.

0:49:19.580 --> 0:49:34.360

Interviewer

I'm not suggesting that either of those would actually exist, but we do have examples of those existing in the world at the moment pays more that where we are likely in the future to exist on a spectrum between them.

0:49:35.740 --> 0:49:39.550

Interviewer

So how do those different influences impact on the decisions we make today?

0:49:41.440 --> 0:49:41.580

Participant3

Yeah.

0:49:43.260 --> 0:49:43.570

Interviewer

And.

0:49:53.870 --> 0:49:55.350

Interviewer

How much do you think?

0:49:57.550 --> 0:50:3.830

Interviewer

Trust pays into plays into this conversation around and.

0:50:6.10 --> 0:50:9.340

Interviewer

What aims we should be for the water system as a whole.

0:50:10.950 --> 0:50:17.350

Interviewer

So by trust, I mean and social trust between, like within a community.

0:50:19.220 --> 0:50:27.660

Interviewer

And social trust between communities and trust between society and the service provider, be that government water company. council

0:50:31.580 --> 0:50:39.520

Participant3

Well, I think you need because that's essentially what's giving you legitimacy because you're kind of operating for those people and they have to trust, have that.

0:50:39.530 --> 0:50:49.720

Participant3

Trust that you are delivering what needs to be done so you know obviously true of a government with kind of democratic accountability, but equally as a monopoly service provider.

0:50:50.30 --> 0:50:56.720

Participant3

I think it's really critical from a [water company] point of view, cause you know customers don't have the option to vote with their feet, do they?

0:50:56.730 --> 0:50:59.260

Participant3

So we need to absolutely have that trust.

0:50:59.690 --> 0:51:6.330

Participant3

But then I think what you also need to try and move towards is that trust between the different parts of the system as well.

0:51:6.520 --> 0:51:12.250

Participant3

And that's gonna be needed to drive that kind of shift towards a more systemic approach to what's happening.

0:51:12.360 --> 0:51:19.390

Participant3

So the that you've got that kind of trust and collaboration you need that then across with those regulators as well.

0:51:19.580 --> 0:51:35.40

Participant3

And then also that needs to flow through from the trust to society into those kind of collaborative organizations and to the regulation of those so that you don't get into this kind of our something's gone wrong.

0:51:36.840 --> 0:51:39.130

Participant3

You know EA, why didn't you?

0:51:39.140 --> 0:52:0.290

Participant3

Ohh you did a bit of collaboration there, so you were going a bit soft on and actually it's more about you know having that trust that that is a better way to drive to a better situation in the long term and there will be occasions where specific elements of that system breaks

but just cause a specific element breaks doesn't mean the whole system is kind of wrong and actually.

0:52:1.950 --> 0:52:9.170

Participant3

It's reasonable to give it an opportunity to fix itself as opposed to to kind of rip it all up and and start again.

0:52:10.90 --> 0:52:10.250

Interviewer

Yeah.

0:52:15.210 --> 0:52:15.640

Interviewer

OK.

0:52:15.690 --> 0:52:22.320

Interviewer

I'll I'll all it and call it into my questions there cause I've realized I'm was nearly 12:00 o'clock.

0:52:22.810 --> 0:52:27.910

Interviewer

Is there anything else you wanted to say that I haven't covered?

0:52:29.960 --> 0:52:33.0

Participant3

Uh, no, I think that was fairly comprehensive.

0:52:33.610 --> 0:52:33.960

Interviewer

OK.

0:52:34.70 --> 0:52:35.180

Interviewer

Well, thank you very much.

#### **Interview 4**

Date of meeting: 03/04/2024

0:0:0 --> 0:0:12.240

Interviewer

Would you like a brief summary of my research and what I'm trying to achieve before we start?

0:0:12.320 --> 0:0:13.80

Interviewer

Yes. OK.

0:0:11.980 --> 0:0:13.650

Participant4

Yeah, yes, yes.

0:0:13.660 --> 0:0:14.500

Participant4

Do that, yeah.

0:0:15.40 --> 0:0:31.580

Interviewer

And so thinking back to the petteril as a project and what we're trying to do with integrated catchments and I started thinking about this four, five years ago about how you would translate that to urban environment.

0:0:33.560 --> 0:0:46.100

Interviewer

And then I started PhD and started kind of going back through the questions and how would you frame that as a research question and umm, go back, back and back to find out what are the fundamental?

0:0:48.700 --> 0:1:19.860

Interviewer

Reasons that we don't do it currently and what I came to is that we don't fully understand the issues across a river catchment as a whole as an as an entire entity umm, and we don't understand the relationships we have with water from multiple perspectives and how that plays into the way we make decisions and the success of those decisions into the future.

0:1:21.510 --> 0:1:29.230

Interviewer

So I started looking at and the futures methodologies which are used in Urban Development planning.

0:1:29.580 --> 0:1:46.710

Interviewer

So looking so 100 years into the future, what might the global trends be that would impact our infrastructure essentially and that's done for, for cities and urban areas, but I start to think about how would you apply that to a water system?

0:1:47.980 --> 0:1:54.780

Interviewer

And I don't want it to be just water industry assets and I'm looking at water as an entirety.

0:1:54.790 --> 0:2:1.700

Interviewer

So from headwaters through to the estuary, the natural water system and our interactions with it.

0:2:1.710 --> 0:2:7.130

Interviewer

So the man made structures that we use and transform that natural system with.

0:2:9.220 --> 0:2:32.370

Interviewer

And so I've been looking at and systems mapping looking at the relationships, how they may

change, what the sort of key factors that and impact the success of our decisions or or how those decisions may experiences may change into the future and.

0:2:34.660 --> 0:2:34.960

Interviewer

As.

0:2:36.840 --> 0:2:47.250

Interviewer

It's helpful when we're looking at decision making to have indicators and metrics to be able to compare one area with another area on a similar basis.

0:2:47.400 --> 0:3:4.160

Interviewer

So I starting looking indicators as well and how you would use indicators to provide a snapshot of information that you could then drill down at different layers within a catchment to draw out more specific.

0:3:5.960 --> 0:3:15.160

Interviewer

Information and relationships across the catchment and I've looked all of this from environmental, social and economic perspectives.

0:3:17.750 --> 0:3:18.640

Interviewer

So that's where it's come from.

0:3:20.360 --> 0:3:21.70

Interviewer

Does that make sense?

0:3:21.690 --> 0:3:22.20

Participant4

Yeah.

0:3:22.30 --> 0:3:22.990

Participant4

Yeah, it does.

0:3:24.910 --> 0:3:25.960

Interviewer

OK so.

0:3:28.160 --> 0:3:32.500

Interviewer

So to have a deeper look at the questionnaire and thank you for filling that out.

0:3:33.420 --> 0:3:33.590

Participant4

OK.

0:3:35.700 --> 0:3:43.920

Interviewer

So I asked it in that about your understanding of issues with an attachment or how well you think issues are understood within catchment.

0:3:45.710 --> 0:3:50.700

Interviewer

I just wondered if you wanted to expand on any of those, of your thoughts around that?

0:3:51.920 --> 0:3:52.420

Participant4

Yeah.

0:3:52.460 --> 0:3:53.230

Participant4

Yeah, I can.

0:3:53.500 --> 0:3:56.260

Participant4

I need to remember what I put as my answer.

0:3:56.670 --> 0:4:0.280

Participant4

Uh, these don't know if I saved it.

0:3:59.940 --> 0:4:2.530

Interviewer

It's anonymous, so I can't look for you.

0:4:1.970 --> 0:4:2.600

Participant4

OK.

0:4:2.650 --> 0:4:2.900

Participant4

Yeah.

0:4:2.910 --> 0:4:4.440

Participant4

Yeah, no problems, no problems.

0:4:5.210 --> 0:4:7.440

Participant4

So yeah, so lack of understanding within the catchment.

0:4:7.450 --> 0:4:9.620

Participant4

Yeah, I think it's.

0:4:11.700 --> 0:4:29.80

Participant4

Biggest issue I have is that that they always we always need to have a bad guy or one single

person to go after what and so there tends to be just the concentration on solving that one issue rather than looking at the multitude of issues.

0:4:29.350 --> 0:4:59.540

Participant4

So from a catchment point of view, the multitude of issues that contribute to it, and I do feel that it's, I don't know if it's human nature or the nature of the generation at the moment or the, but they decide to go after one, one single entity within that catchment and we concentrate all our powers or all the greatest public swelling and support is pushed towards solving that one issue or punishing that one issue.

0:4:59.610 --> 0:5:10.690

Participant4

And what we end up with is wasting money and not seeing the improvement that we all or that everyone expected to see by solving that one issue.

0:5:11.340 --> 0:5:29.630

Participant4

So instead of looking at the catchment from a wider picture a lot more holistically and understanding that it's a multitude of sins and that if you work on all of those sins together and spread the money evenly, that you will see that improvement instead of just going after the one.

0:5:29.680 --> 0:5:33.240

Participant4

The one problem in it and I do really think that is lacking.

0:5:35.320 --> 0:5:44.790

Participant4

You know the the lack of desire to look at root causes rather than, you know, just looking at what the outcome of those root causes are.

0:5:45.240 --> 0:5:47.330

Participant4

Yeah, I don't know why.

0:5:47.340 --> 0:5:48.380

Participant4

It's it's really frustrating.

0:5:50.230 --> 0:5:51.280

Participant4

But that we do it.

0:5:51.290 --> 0:5:56.240

Participant4

But yeah, I think that's the biggest issue that we've got is that people don't understand that.

0:5:56.250 --> 0:5:57.150

Participant4

For example, a river.

0:6:24.970 --> 0:6:25.160

Interviewer

Yeah.

0:5:58.210 --> 0:6:26.950

Participant4

There's so many impacts and so many influences on the river, not just one that yeah, that, that, that, that understanding is completely lacking for me that and I don't know why, because it's common sense, it's the, it might just be for me, but it is common sense that there's just not one cause that there's multitude causes and so and that's what then integrated catchment should be an integrated catchment approach should be yeah I do really feel.

0:6:26.680 --> 0:6:27.880

Interviewer

I I agree.

0:6:29.850 --> 0:6:30.90

Participant4

Yeah.

0:6:28.630 --> 0:6:36.190

Interviewer

Unsurprisingly, I agree, and I I wonder if it goes back to the polluter pays principle.

0:6:44.550 --> 0:6:44.730

Participant4

Yeah.

0:6:37.410 --> 0:6:49.90

Interviewer

And while that's not bad principle, the way it's applied means that it ends up being a blame game and you're trying to find out who's to blame in order to work out who should pay.

0:6:54.980 --> 0:6:55.220

Participant4

Umm.

0:6:49.990 --> 0:7:0.800

Interviewer

And also it it means that collaboration is and avoided because you could collaborate with the polluter and Oh dear isn't that bad and yeah.

0:7:0.960 --> 0:7:2.610

Participant4

Yeah, yeah, it it it.

0:7:2.690 --> 0:7:4.10

Participant4

Yeah, that's yeah.

0:7:4.360 --> 0:7:4.710

Participant4

The whole?

0:7:6.110 --> 0:7:7.480

Participant4

Yeah, the I'm not.

0:7:7.490 --> 0:7:13.80

Participant4

Not never been a big fan of polluter pays principle, but I do understand you know why it's in place?

0:7:19.700 --> 0:7:19.940

Interviewer

Yeah.

0:7:13.610 --> 0:7:19.990

Participant4

Because you do have to put the controls and measures in that, it's to be able to do it.

0:7:20.410 --> 0:7:24.430

Participant4

But yeah, it it's yeah, it is always the big guy though.

0:7:24.440 --> 0:7:52.920

Participant4

They always do off the big go after the big guy and you know the greatest influence on a river from, let's say from right, the upper catchment all the way down to estuary level or where confluence with the large river, the greatest influence on that river you know sits typically with one industry, but they don't get the same pressures and the same pushback at except there's another industry that gets, I don't know my life to name so.

0:7:53.540 --> 0:7:54.110

Interviewer

For sure.

0:7:54.840 --> 0:7:55.510

Participant4

Alright, OK.

0:7:55.520 --> 0:8:0.370

Participant4

So agriculture, everyone knows agriculture has a greatest influence on the

0:8:0.380 --> 0:8:14.700

Participant4

River right from its upper reaches all the way down to estuarine level, whereas sewage inputs will typically only start to be once that river enters or gets close to the conurbations built up.

0:8:14.710 --> 0:8:15.70

Participant4

Areas.

0:8:15.80 --> 0:8:18.120

Participant4

That's when sewage becomes the influence as well.

0:8:18.330 --> 0:8:33.330

Participant4

So, but farming does seem to be, you know, less and less responsible for it, or there's less and less regulation for it or the loudest dissenting voices don't just call out farming as being the influence.

0:8:33.340 --> 0:8:35.660

Participant4

And and it's frustrating.

0:8:35.700 --> 0:8:47.110

Participant4

You know, there's there's a lot going on in the NW with certain catchments, whereas the loud dissenting voices, the ones that seem to get the most publicity at the moment are calling for one.

0:8:59.660 --> 0:8:59.840

Interviewer

Yeah.

0:8:47.690 --> 0:9:11.490

Participant4

All the money and all the changes to come from one industry where we know some of the greatest influences in that catchment are on other agriculture and it's not getting called out and that frustrates the life out of me, you know like it's the IT makes me angry because we just waste our money and we're not going to see the improvements.

0:9:11.880 --> 0:9:36.670

Participant4

And then since it's going to get worse, but when you're trying to do something to understand the catchments where it's gonna take time, let's say a year or two of data gathering, sampling and understanding the catchment you just get called out for inaction and and that you're not actually doing anything in there is what you're trying to do is make sure the money goes in the right place and make sure the work gets done in the right way.

0:9:36.880 --> 0:9:43.550

Participant4

So that you do see that improvement instead of just knee jerk reaction and throwing it at something that doesn't really influence it.

0:9:45.310 --> 0:9:45.510

Interviewer

Yeah.

0:9:43.560 --> 0:9:46.970

Participant4

Say yeah, it's it's a big frustration of mine.

0:9:47.170 --> 0:9:48.600

Participant4

No, I I don't understand it.

0:9:50.70 --> 0:9:50.310

Interviewer

Yeah.

0:9:48.610 --> 0:9:53.370

Participant4

So I mean, I'm not anti farming or anti agriculture or just want to help them.

0:9:55.140 --> 0:9:55.340

Interviewer

Yeah.

0:9:54.660 --> 0:9:55.730

Participant4

So make your obligations.

0:9:56.640 --> 0:9:56.910

Participant4

Aye.

0:10:10.60 --> 0:10:10.300

Participant4

Mm-hmm.

0:9:56.830 --> 0:10:11.760

Interviewer

And this sort of came up in another conversation I had and where they said that they don't like the term and diffuse pollution because it's not diffuse, it's continuous.

0:10:12.710 --> 0:10:13.60

Participant4

It's.

0:10:13.170 --> 0:10:22.470

Interviewer

And then preferred the use of the like the term continuous pollution cause it's more accurate but at the end of the day this is my view.

0:10:27.180 --> 0:10:27.450

Participant4

Always.

0:10:22.520 --> 0:10:31.540

Interviewer

It's easier for a regulator to regulate something that comes out at the end of pipe, then is to regulate like 10 kilometer stretch of river.

0:10:33.560 --> 0:10:33.740

Participant4

Yeah.

0:10:33.320 --> 0:10:34.850

Interviewer

So it's yeah.

0:10:36.560 --> 0:10:36.800

Participant4

Yeah.

0:10:35.50 --> 0:10:38.850

Interviewer

Yeah, it's about ease of regulation as well, isn't it?

0:10:39.520 --> 0:10:48.190

Participant4

That is, yeah, I mean, I had a, a, an interesting conversation about diffuse yesterday actually when they were talking about some of the report that I wrote for them.

0:10:48.460 --> 0:11:0.470

Participant4

And they were like, how do you understand the diffuse and where is it showing this influence and says, well, what you got to remember about diffuse is that sometimes diffuse can be point source.

0:11:0.620 --> 0:11:3.450

Participant4

It can be a direct input into the river.

0:11:6.430 --> 0:11:6.650

Interviewer

Yeah.

0:11:3.460 --> 0:11:6.890

Participant4

It's not necessarily overland or through groundwater.

0:11:6.900 --> 0:11:14.580

Participant4

It can be a direct input, but they just lump it in as has diffused because it's from, you know, wider area.

0:11:14.790 --> 0:11:15.320

Participant4

Drainage.

0:11:15.330 --> 0:11:17.700

Participant4

Ditch from 20 acres of field.

0:11:17.770 --> 0:11:20.560

Participant4

It's it's diffuse or drainage.

0:11:20.570 --> 0:11:24.240

Participant4

Ditch that comes off of the cow shed and you know it's all diffused.

0:11:24.250 --> 0:11:27.740

Participant4

Whereas point source for them is like you say, [just end of pipe](#).

0:11:27.810 --> 0:11:29.120

Participant4

[Nice and easy to regulate](#).

0:11:29.130 --> 0:11:30.640

Participant4

[Nice and easy to go and check](#).

0:11:31.190 --> 0:11:33.100

Participant4

Stick a monitor on the end of the pipe.

0:11:33.170 --> 0:11:33.660

Participant4

Brilliant.

0:11:33.670 --> 0:11:35.180

Participant4

Excellent, no problems whatsoever.

0:11:35.650 --> 0:11:42.30

Participant4

So yeah, it's, yeah, but then that's the way it all it.

0:11:42.70 --> 0:11:43.690

Participant4

[That's the way WFD pushes it](#).

0:11:43.700 --> 0:11:45.330

Participant4

That's the way that side is pushes it.

0:11:45.340 --> 0:11:57.850

Participant4

[That's the way the way money is easier for you to throw money at one person rather than](#)

spread the money out among ten interested parties or no, because then the argument start about who gets how much.

0:11:57.860 --> 0:12:0.560

Participant4

And so yeah, it's.

0:12:0.570 --> 0:12:4.920

Participant4

Yeah, I can understand why they do it, but yeah, I just need to.

0:12:5.710 --> 0:12:7.700

Participant4

It's to move away from it, cause it's not worked.

0:12:7.710 --> 0:12:13.540

Participant4

I think I truly believe that's why we've got into the state that we've got in now with our rivers is cause we have gone for that point source.

0:12:13.550 --> 0:12:19.740

Participant4

Polluter pays permitting, restricted by boundary fences and stuff.

0:12:19.750 --> 0:12:24.360

Participant4

And that's we've just got in the mess that we're in now and we're busy trying to undo that.

0:12:24.650 --> 0:12:25.440

Participant4

Some of us are.

0:12:27.310 --> 0:12:28.530

Participant4

Trying to walk away from it, but.

0:12:30.490 --> 0:12:31.820

Participant4

But we're not getting to politics.

0:12:31.830 --> 0:12:32.640

Participant4

It'll be here all day.

0:12:33.330 --> 0:12:34.200

Participant4

So, yeah.

0:12:34.470 --> 0:12:35.120

Participant4

Yeah, it's.

0:12:35.130 --> 0:12:36.620

Participant4

Yeah, it's frustrating. So.

0:12:37.670 --> 0:12:37.890

Interviewer

Yeah.

0:12:39.240 --> 0:12:40.240

Interviewer

And she think that.

0:12:42.440 --> 0:12:42.800

Interviewer

Kind of.

0:12:45.170 --> 0:12:59.400

Interviewer

That continues so that not to representing the issues for the continues into the action plans and means that the action plans are quite a store, not really representative.

0:13:0.760 --> 0:13:2.320

Participant4

Ohh yeah definitely yeah.

0:13:4.780 --> 0:13:13.190

Participant4

Most action plans I've ever read or been involved in or looked at they have glaringly massive gaps in them and stuff.

0:13:13.200 --> 0:13:22.550

Participant4

So yeah, I just because the problem is sometimes as well is that you know it's not always there are, I don't know if innocent, it's the right terminology.

0:13:22.560 --> 0:13:28.390

Participant4

There are innocent polluters pollute people that might not realize that they are polluting, or being a contributor to pollution.

0:13:30.580 --> 0:13:31.370

Interviewer

Maybe ignorant?

0:13:33.20 --> 0:13:33.530

Participant4

Yeah, that's it.

0:13:33.540 --> 0:13:34.240

Participant4

Yeah. Ignorance.

0:13:34.250 --> 0:13:40.780

Participant4

Yeah, but then there are, but the the non innocent ones, the ones you know full well what they're doing, but they get away with.

0:13:40.790 --> 0:13:43.570

Participant4

They sit in the background and they're not named.

0:13:43.580 --> 0:13:48.610

Participant4

A lot of the times in solutions and stuff like that, and so they think they can get away with it.

0:13:48.620 --> 0:13:52.330

Participant4

You know, when you, you know, the old analogy, if you like someone get away with it.

0:13:56.460 --> 0:13:56.620

Interviewer

Yeah.

0:13:52.340 --> 0:13:57.770

Participant4

Time and time again, and they believe that it's all right for them to do it and so they'll continue to do it.

0:13:58.120 --> 0:13:59.640

Participant4

And so they get worse.

0:13:59.850 --> 0:14:3.720

Participant4

There's a concentration within that plan in that solution.

0:14:3.730 --> 0:14:8.320

Participant4

What this concentrated on, they get better, but overall you've seen no improvement.

0:14:9.190 --> 0:14:12.360

Participant4

So yeah, some are good.

0:14:12.420 --> 0:14:18.460

Participant4

There's just so many so many gaps, but there's so many people that it's hard to keep happy.

0:14:18.610 --> 0:14:20.400

Participant4

That's the problem as well, isn't it?

0:14:20.830 --> 0:14:24.540

Participant4

Yeah, it always becomes about money and why they getting more money than us.

0:14:24.550 --> 0:14:26.0

Participant4

And what about?

0:14:26.50 --> 0:14:37.240

Participant4

We want to do this and so large big collaborations, large big catchment plans with a lot of stakeholders and the full part because of inner arguments.

0:14:37.670 --> 0:14:39.520

Participant4

So that might be a problem.

0:14:39.530 --> 0:14:43.150

Participant4

So it's kind of like democracy, isn't it?

0:14:43.220 --> 0:14:44.590

Participant4

Sometimes democracy works.

0:14:44.600 --> 0:14:46.220

Participant4

Other times you end up with Brexit, but anyway.

0:14:50.20 --> 0:15:0.760

Interviewer

And then when we when we're talking about these plans and planning for the future.

0:15:2.890 --> 0:15:15.810

Interviewer

And how far ahead do you think we currently look and how far ahead do you think we should look at when I say we, I mean the sector as a whole, not water companies, the entire sector.

0:15:18.240 --> 0:15:21.110

Participant4

Well, I don't think we look far enough out at all really to I know.

0:15:23.830 --> 0:15:28.900

Participant4

I know they have, but you know there are 25 year plans, 25 year environment plan.

0:15:29.490 --> 0:15:37.190

Participant4

But the problem with the 25 year environment plan is that you could technically have at least three governments, 3 different sets of governments within that plan.

0:15:37.750 --> 0:15:46.150

Participant4

So you need to have an overarching one that's not affected by changes in politics and, but also we need to start.

0:15:48.930 --> 0:16:2.520

Participant4

I think there's a lack of belief, for lack of understanding in models and forward forecast models, and so they tend not to to throw too much or look too far ahead because otherwise you know it, it gets difficult.

0:16:2.530 --> 0:16:5.980

Participant4

It might become known cost beneficial or not cost effective.

0:16:5.990 --> 0:16:9.260

Participant4

So yeah, where's the happy medium?

0:16:9.430 --> 0:16:11.300

Participant4

You know, five, five years ahead.

0:16:11.310 --> 0:16:14.570

Participant4

But I think climate change is accelerate.

0:16:14.580 --> 0:16:20.780

Participant4

I think over the last five years and I've as within industry that I've worked in both worked in that.

0:16:20.790 --> 0:16:27.760

Participant4

We've talked about climate change for a long while, but I think we're as far exceeding the models and what was expected.

0:16:28.730 --> 0:16:35.220

Participant4

Umm, so is it worthwhile looking too far ahead with the way it's changing at the moment?

0:16:35.230 --> 0:16:42.470

Participant4

Is it just or do we just plan for very very worst case scenario and not necessarily plan too far ahead?

0:16:44.160 --> 0:16:46.560

Participant4

But yeah, it's a difficult it's difficult one.

0:16:49.470 --> 0:16:50.30

Participant4

I don't know.

0:16:50.830 --> 0:16:51.580

Participant4

Yeah, I don't.

0:16:51.750 --> 0:16:51.930

Interviewer

Yeah.

0:16:51.650 --> 0:16:53.230

Participant4

I don't think we do plump fly ahead.

0:16:53.450 --> 0:16:59.740

Participant4

The problem is as well as financial models is, but they're based on five years, whereas forward forecasters are based on 25 years.

0:17:0.230 --> 0:17:3.700

Participant4

So, and we always know that financial models will always win.

0:17:3.710 --> 0:17:6.290

Participant4

So yeah, it's five years ahead.

0:17:7.820 --> 0:17:11.460

Participant4

Suitable, but you know the five.

0:17:11.670 --> 0:17:12.580

Participant4

But why?

0:17:12.770 --> 0:17:13.380

Participant4

What?

0:17:10.810 --> 0:17:13.880

Interviewer

Yeah, yeah, I need so.

0:17:13.470 --> 0:17:14.50

Participant4

Yeah.

0:17:14.110 --> 0:17:17.80

Participant4

Sorry, I was just gonna say, why did we work in five year cycles?

0:17:17.90 --> 0:17:20.460

Participant4

We worked five years cycles so often for everything, isn't it governments?

0:17:21.250 --> 0:17:28.80

Participant4

Local elections price reviews in all sectors, not just the water industry.

0:17:28.390 --> 0:17:31.160

Participant4

All sectors working factor who chose five years?

0:17:31.170 --> 0:17:32.280

Participant4

Why five years?

0:17:32.730 --> 0:17:37.360

Participant4

Why not 10 year of cycles or 10 year government or something?

0:17:37.370 --> 0:17:40.150

Participant4

I don't know two Year) governments or you knows that.

0:17:40.160 --> 0:17:43.160

Participant4

Yeah, it's someone chose five years.

0:17:43.350 --> 0:17:48.840

Participant4

I don't know why they chose five years, but yeah, uh, it's it's a difficult one.

0:17:49.250 --> 0:17:50.330

Interviewer

Yeah, it is.

0:17:50.430 --> 0:18:3.570

Interviewer

And a lot of the stuff I've been reading around prediction based models is beyond kind of at the moment 2-3 years they're pretty much.

0:18:6.460 --> 0:18:11.850

Interviewer

I won't say useless, but they are, they're not predicting they're predicting possible range.

0:18:21.40 --> 0:18:21.180

Participant4

Yeah.

0:18:13.370 --> 0:18:25.220

Interviewer

Not best, because we just don't know where when the realms with climate change, where

we don't know what the next five years will bring, we just know it's gonna be extreme and it's gonna be stuff we haven't seen before.

0:18:26.560 --> 0:18:29.720

Interviewer

And that's as much as we can tell and.

0:18:29.710 --> 0:18:31.310

Participant4

Not much further.

0:18:33.460 --> 0:18:46.260

Interviewer

But because climate change is tipped past that point where we could make predictions, and we can't now, which is, which is why I like the sort of future scenarios.

0:18:46.450 --> 0:19:5.760

Interviewer

Look, we looking more at well, divorce yourself from the current divorce yourself from the next 5-10 years and say, well, in 100 years if this is the political climate that's led to these decisions, that means we're in this kind of climate change situation, this social situation.

0:19:5.820 --> 0:19:8.220

Interviewer

What does that then mean for the water environment?

0:19:9.660 --> 0:19:9.860

Participant4

Yeah.

0:19:11.480 --> 0:19:12.570

Participant4

Or we don't? Yeah.

0:19:11.360 --> 0:19:14.900

Interviewer

But that yeah, that takes a bit of blue sky thinking.

0:19:15.840 --> 0:19:16.470

Participant4

It does.

0:19:16.480 --> 0:19:17.30

Participant4

It does.

0:19:17.40 --> 0:19:20.570

Participant4

Does it takes a lot cleverer person than me to do that as well?

0:19:20.580 --> 0:19:24.960

Participant4

I'm and but like you say about the climate change, the predictions and the models.

0:19:26.670 --> 0:19:34.320

Participant4

Yeah, I mean, where we're in that, let's take the last 2-3 years just in, in little isolation on its own.

0:19:34.330 --> 0:19:40.790

Participant4

We've had what the driest, warmest, driest year we've ever had in 22.

0:19:50.150 --> 0:19:50.340

Interviewer

Yeah.

0:19:40.800 --> 0:19:56.350

Participant4

And then we've had last year the warmest but the wettest year we've had had on record and stuff, and it's all so madness, I suppose, spins around about, you know, don't know what's gonna happen like and yeah, it's it's mad.

0:20:1.950 --> 0:20:2.250

Interviewer

Umm.

0:20:2.300 --> 0:20:5.260

Participant4

and it's that.

0:20:5.350 --> 0:20:28.430

Participant4

That's the big one and the biggest issues I think we do face is that people that don't understand the unpredictability of it or what you were just saying that you know that they they can they're comfortable 2-3 year forward forecasting but then anything beyond that it's just in the realms of the unknown that just feeds into the to the anti climate change people and so yeah, people just go well.

0:20:29.240 --> 0:20:30.90

Participant4

Ohh, there's not.

0:20:30.100 --> 0:20:34.110

Participant4

You don't know what's gonna happen, so might as well just crack on and continue to do what we've always done.

0:20:35.180 --> 0:20:35.320

Interviewer

Yeah.

0:20:34.680 --> 0:20:37.110

Participant4

Uh, so let's just see what happens.

0:20:37.180 --> 0:20:39.840

Participant4

Yeah, it's that's the.

0:20:39.850 --> 0:20:42.840

Participant4

I think that's the social side that we really got the crack and change.

0:20:43.440 --> 0:20:53.680

Participant4

We've seen a lot of I've been saying for a long while to anyone that would listen that **water resources is a bigger issue than necessarily sewage pollution**, for example.

0:20:54.510 --> 0:20:54.690

Interviewer

Yeah.

0:20:54.630 --> 0:21:9.450

Participant4

**And water resources for a long time as as we know from industry, we know that that's and now it's just kind of coming to the forefront a little bit and we start to see places especially in East Anglia in Cambridge where they're looking at Gray water reuse and stuff like that.**

0:21:12.850 --> 0:21:13.90

Interviewer

Yeah.

0:21:9.460 --> 0:21:19.430

Participant4

**But we've been saying that for you for years now that it was always going to be an issue with the ever growing population and and climate change.**

0:21:32.390 --> 0:21:32.590

Interviewer

Yeah.

0:21:19.940 --> 0:21:34.390

Participant4

**And that's my frustration with we've been saying that for years, forward forecasts have been saying that for years, but it's only now that they're acting on it or why haven't we been doing grey water reuse and and stuff like that for the last five years?**

0:21:34.780 --> 0:21:34.960

Interviewer

Yeah.

0:21:34.400 --> 0:21:39.230

Participant4

You know, we wouldn't necessarily be in that position, so yeah, and.

0:21:38.620 --> 0:21:40.830

Interviewer

Yeah, because it's, it's down to perception, isn't it?

0:21:41.230 --> 0:21:41.550

Participant4

It is.

0:21:41.240 --> 0:21:42.570

Interviewer

Where we're labeled.

0:21:42.580 --> 0:21:43.400

Interviewer

We're a wet country.

0:21:44.80 --> 0:21:44.930

Participant4

Mm-hmm.

0:21:57.750 --> 0:21:57.930

Participant4

Yeah.

0:21:44.500 --> 0:22:5.800

Interviewer

We're labeled it rains a lot and but actually per capita, so per head of population rainfall is lower than in some parts of the UK, rainfall is lower than some parts in Mediterranean, it's lower across the country than it is in Australia, like is when you think of it in those terms.

0:22:7.320 --> 0:22:7.570

Participant4

Umm.

0:22:11.920 --> 0:22:12.170

Participant4

Umm.

0:22:5.970 --> 0:22:17.420

Interviewer

That's mad, but it's because that the SE is very population dense and having grown up in the SE, it doesn't rain nearly as much as it does in other parts of the country.

0:22:18.110 --> 0:22:18.650

Participant4

No, no.

0:22:18.610 --> 0:22:21.710

Interviewer

And but that's where all the investment is.

0:22:24.400 --> 0:22:24.580

Participant4

Yeah.

0:22:21.770 --> 0:22:29.490

Interviewer

All the population growth, it's so it's it's bad infrastructure decisions, but which I won't go into now, but.

0:22:32.210 --> 0:22:33.290

Interviewer

Yeah. So.

0:22:35.360 --> 0:22:39.310

Interviewer

You talk to people, even people, that are looking at climate change.

0:22:40.460 --> 0:22:45.420

Interviewer

And if I say to them, we're going to be water scarce, they no, we're gonna flood, but the reality is we're gonna do both.

0:22:46.860 --> 0:22:47.590

Interviewer

You don't understand.

0:22:47.600 --> 0:22:48.550

Interviewer

We're gonna get droughts and

0:22:48.840 --> 0:22:50.620

Interviewer

It's gonna rain at the wrong times.

0:22:50.630 --> 0:22:52.150

Interviewer

It's gonna rain too hard.

0:22:57.120 --> 0:22:57.240

Participant4

Yeah.

0:22:59.650 --> 0:22:59.820

Participant4

Yeah.

0:22:52.960 --> 0:23:2.40

Interviewer

Too much and all in one chunk, and other times the year it's gonna be way too dry and we don't have the capacity to store that much water.

0:23:2.860 --> 0:23:9.420

Participant4

No, that and it's not as easy as it was, let's say 50 60 70 years ago to build a reservoir.

0:23:10.290 --> 0:23:10.490

Interviewer

No.

0:23:10.360 --> 0:23:17.570

Participant4

But you know, I saw for example stocks reservoir as you know, which is one of the biggest in the NW.

0:23:18.40 --> 0:23:22.850

Participant4

I think that was built in the 1918 1920 around that period.

0:23:23.460 --> 0:23:27.200

Participant4

That cost 1.1 million 100 years ago.

0:23:28.790 --> 0:23:29.740

Participant4

So what?

0:23:33.170 --> 0:23:33.370

Interviewer

Yeah.

0:23:29.790 --> 0:23:47.830

Participant4

What stocks reservoir cost now and you know, I mean we see that super, that new reservoir at to talk about new Oxfordshire area with Thames Water now that's in the you know not far off a billion predicted overall costs in the 25 year build time.

0:23:48.820 --> 0:23:49.40

Interviewer

Yeah.

0:23:48.620 --> 0:23:49.550

Participant4

That's that's way too.

0:23:49.560 --> 0:23:50.490

Participant4

That's way too late.

0:23:50.500 --> 0:23:54.550

Participant4

So reservoirs aren't the answer now you know it's it's grey water reuse.

0:24:5.90 --> 0:24:5.290

Interviewer

Yeah.

0:24:7.560 --> 0:24:8.130

Interviewer

Yeah.

0:23:54.560 --> 0:24:8.320

Participant4

It's understanding that you you store in your own rainwater building houses instead of design to shift all the rain water straight into the drains as quick as possible, building houses to store rainwater so that you can reuse it.

0:24:9.740 --> 0:24:10.270

Participant4

Yeah.

0:24:10.340 --> 0:24:11.50

Participant4

Yeah, for you.

0:24:8.140 --> 0:24:12.800

Interviewer

Or get it into the water table and at the very least just get it into the ground.

0:24:13.320 --> 0:24:14.810

Participant4

Yeah, it's bad in it.

0:24:14.820 --> 0:24:17.510

Participant4

I yeah, I I don't really know.

0:24:17.600 --> 0:24:18.150

Participant4

I don't know.

0:24:18.380 --> 0:24:19.310

Participant4

No, what?

0:24:19.320 --> 0:24:21.510

Participant4

I'm a I'm a real low water user.

0:24:40.870 --> 0:24:41.50

Interviewer

Yeah.

0:24:21.520 --> 0:24:51.920

Participant4

I I and you know we we we tried both you know as being ex water industry and [spouse] in particular working in the water parts of the sector we are quite low water users and been on the meter and our meter readings are really really low and our costs are really low and we do that purposely but we are either side of two neighbours that you know will wash the car every weekend wash their windows water their plants with potable water and stuff.

0:24:52.470 --> 0:24:55.630

Participant4

So it's difficult to to.

0:24:55.920 --> 0:24:58.210

Participant4

Yeah, that someone said that to me the other day.

0:24:58.220 --> 0:25:11.430

Participant4

Actually talking to you can't remember it wasn't now, but they they were from the UK, but they were saying I still do not understand how people are comfortable with watering their gardens and plants with drinking water.

0:25:12.520 --> 0:25:12.700

Interviewer

Yeah.

0:25:14.780 --> 0:25:17.730

Participant4

I was like, yeah, it's something I've always struggled with.

0:25:17.740 --> 0:25:19.990

Participant4

You know it's the real, you know that.

0:25:20.0 --> 0:25:21.970

Participant4

Yes, it's a bit of a strange one.

0:25:26.590 --> 0:25:26.980

Participant4

Umm.

0:25:21.240 --> 0:25:29.970

Interviewer

Yeah, I I vegetables and things, but I have 3 water butts which pretty much get us through the summer nearly.

0:25:29.850 --> 0:25:30.300

Participant4

Yes.

0:25:30.310 --> 0:25:37.270

Participant4

Yeah, we have one, we don't grow veggies anymore, mainly because the cats locked the neighbors.

0:25:37.280 --> 0:25:38.500

Participant4

Cats took over our veggie patch.

0:25:39.230 --> 0:25:46.250

Participant4

Uh and the birds and the bird feeder overspill from the bird feeder just dominates.

0:25:46.280 --> 0:25:46.500

Interviewer

Yeah.

0:25:46.260 --> 0:25:54.20

Participant4

So we gave up trying vegetables and yeah, yeah, we have one water bottle and but we use that to water all the half plants in our house.

0:25:54.460 --> 0:25:54.660

Interviewer

Yeah.

0:25:59.180 --> 0:25:59.450

Interviewer

Umm.

0:25:54.650 --> 0:26:2.130

Participant4

And yeah, the biggest downside to that is we get a lot of little black flies all over the house because it's larvae in the water.

0:26:2.140 --> 0:26:5.890

Participant4

But, but yeah, it's a it's a small little place to pay, you know?

0:26:6.180 --> 0:26:7.670

Participant4

So yeah, it's a.

0:26:8.580 --> 0:26:9.650

Participant4

Yeah, water resources.

0:26:9.660 --> 0:26:11.390

Participant4

I'm really concerned about water resources.

0:26:11.400 --> 0:26:13.680

Participant4

It's something that what's that?

0:26:13.690 --> 0:26:14.120

Participant4

Understand.

0:26:23.820 --> 0:26:23.980

Interviewer

Yeah.

0:26:14.130 --> 0:26:26.150

Participant4

You know, like you say, some of the decisions around infrastructure and build, you know, sizewell, see why build it in one of the most water scarce like why not place it somewhere differently?

0:26:26.240 --> 0:26:27.990

Participant4

Yeah, just but no.

0:26:27.840 --> 0:26:28.20

Interviewer

Yeah.

0:26:28.90 --> 0:26:29.690

Participant4

Yeah, I don't listen to that.

0:26:30.0 --> 0:26:34.560

Participant4

So yeah, it's not, it's madness, but.

0:26:33.970 --> 0:26:34.700

Interviewer

Yeah, I know.

0:26:34.710 --> 0:26:36.970

Interviewer

It's just reading the paper the other day about.

0:26:42.760 --> 0:26:42.980

Participant4

Umm.

0:26:39.150 --> 0:26:52.590

Interviewer

How do you convince people basically to accept water recycling when water scarcity isn't the issue and people in this country going on the call out the window when it's pouring the rain?

0:26:53.300 --> 0:26:53.510

Participant4

Yeah.

0:26:53.360 --> 0:26:58.950

Interviewer

But they're not gonna accept that we are water scarce country for a very long time.

0:27:4.640 --> 0:27:4.870

Participant4

Yes.

0:26:59.460 --> 0:27:10.480

Interviewer

It it will be a blame game for all company, mismanagement and all of that before people accept that no, we just don't have enough water anymore.

0:27:11.500 --> 0:27:14.500

Interviewer

When the summer we don't have enough water and.

0:27:16.780 --> 0:27:17.20

Interviewer

Yeah.

0:27:15.270 --> 0:27:21.220

Participant4

It is a hard sell, though it is a hard to pitch it from a water company point of view because they're leakage is still poor.

0:27:21.440 --> 0:27:21.580

Interviewer

Yeah.

0:27:22.130 --> 0:27:22.980

Participant4

That's the biggest.

0:27:22.990 --> 0:27:23.580

Participant4

That's one.

0:27:23.590 --> 0:27:25.240

Participant4

I think that's where they fall down.

0:27:25.310 --> 0:27:32.300

Participant4

They can argue till they're blue in the face, and because every message that they put out about water use is lost because people just start.

0:27:33.130 --> 0:27:33.500

Participant4

Yeah.

0:27:30.840 --> 0:27:34.130

Interviewer

Yeah, because linkages too high, yeah.

0:27:33.510 --> 0:27:34.540

Participant4

And they just start.

0:27:34.610 --> 0:27:35.170

Participant4

But then what?

0:27:41.930 --> 0:27:42.90

Interviewer

Yeah.

0:27:35.180 --> 0:27:45.430

Participant4

People gotta realize as well that it's really difficult to know when there's a water main is leaking, because not all water mains burst and shoot spot out through the road when it leaks.

0:27:45.440 --> 0:27:46.930

Interviewer

With no and also.

0:27:49.250 --> 0:27:50.370

Interviewer

Most of our water mains.

0:27:52.30 --> 0:27:53.550

Interviewer

Have been in existence a long time

0:27:55.220 --> 0:27:55.950

Participant4

Yes, yes.

0:28:10.690 --> 0:28:10.990

Participant4

Umm.

0:27:53.560 --> 0:28:11.500

Interviewer

And then in use for 100 years. The asset life now on them because the rate of replacement is

so low, they are there for over 100 years and it's increasing year by year because we don't pay enough to repair our infrastructure.

0:28:11.780 --> 0:28:14.620

Interviewer

There's so many kilometres of pipes when we we don't.

0:28:15.230 --> 0:28:15.630

Participant4

Now if.

0:28:16.640 --> 0:28:21.90

Interviewer

And that's kind of the bottom line, that are made in that assessment.

0:28:21.100 --> 0:28:24.510

Interviewer

So how much does it cost, and the regulator makes this assessment

0:28:24.520 --> 0:28:25.930

Interviewer

How much does it cost to replace?

0:28:26.340 --> 0:28:28.820

Interviewer

How much are we losing money because we're losing water?

0:28:31.240 --> 0:28:31.450

Participant4

Yep.

0:28:30.130 --> 0:28:34.970

Interviewer

Well, if that if that doesn't add up then it doesn't happen. Doesn't.

0:28:35.570 --> 0:28:36.460

Participant4

No, it doesn't.

0:28:36.470 --> 0:28:38.60

Participant4

No, no.

0:28:38.70 --> 0:28:39.520

Participant4

And that's it.

0:28:39.530 --> 0:28:41.80

Participant4

Again, that's another big seller, isn't it?

0:28:44.440 --> 0:28:44.620

Interviewer

Yeah.

0:28:41.90 --> 0:28:53.850

Participant4

The whole water bill argument that's going around at the moment I've been telling people for many a year that **we don't pay enough for it anyway and the cost of doing it has gone up exponentially as well.**

0:28:55.790 --> 0:28:55.970

Interviewer

Yeah.

0:29:3.130 --> 0:29:3.290

Interviewer

Yeah.

0:28:53.860 --> 0:29:3.560

Participant4

**Let's say in the last five years, because of various political decisions, but also the cost of living stuff impacts wastewater treatment or water treatment as well.**

0:29:3.970 --> 0:29:11.500

Participant4

**But I but hard sell is that they're still making profits and paying dividends to shareholders.**

0:29:11.820 --> 0:29:13.470

Participant4

So yeah, it's just it's difficult.

0:29:11.720 --> 0:29:14.910

Interviewer

Umm, but then the regulator tells them they have to.

0:29:15.510 --> 0:29:15.740

Participant4

I know.

0:29:17.520 --> 0:29:18.120

Participant4

It's horrible.

0:29:15.190 --> 0:29:20.20

Interviewer

So it's yeah, the regulator says they have to do that.

0:29:20.110 --> 0:29:27.580

Interviewer

And you go well, if they don't do that, then they're deemed unsustainable financially and their license gets taken away.

0:29:28.350 --> 0:29:28.470

Participant4

Yep.

0:29:29.180 --> 0:29:30.270

Interviewer

Sype yeah.

0:29:30.280 --> 0:29:31.30

Interviewer

Chicken and egg?

0:29:31.40 --> 0:29:32.670

Interviewer

What rock and hard place maybe?

0:29:33.280 --> 0:29:35.260

Participant4

Ohh yes, definitely definitely.

0:29:35.950 --> 0:29:36.240

Interviewer

Right.

0:29:39.510 --> 0:29:39.670

Participant4

Yeah.

0:29:46.90 --> 0:29:47.530

Interviewer

What are your views on our priorities?

0:29:50.410 --> 0:29:50.720

Participant4

Umm.

0:29:50.680 --> 0:29:53.870

Interviewer

In terms of what do we want to achieve?

0:29:53.880 --> 0:29:55.680

Interviewer

What is our aspiration when it comes to?

0:29:57.450 --> 0:29:58.600

Interviewer

The water environment.

0:30:0.170 --> 0:30:7.170

Interviewer

So in in the questionnaire and like in this too question between some resilience, robustness, sustainability and justice.

0:30:7.230 --> 0:30:7.350

Interviewer

It's.

0:30:8.780 --> 0:30:9.60

Participant4

Hmm.

0:30:10.420 --> 0:30:13.310

Interviewer

Where do you think our aspirations?

0:30:14.400 --> 0:30:19.590

Interviewer

Where do aspirations lie, and where should they be, in your opinion?

0:30:20.540 --> 0:30:38.760

Interviewer

In the questionnaire these were, robust, resilient, sustainable and just.

0:30:39.120 --> 0:30:39.570

Participant4

Right.

0:30:39.960 --> 0:30:44.80

Participant4

OK, though I think the resilience is a big one at the minute.

0:30:44.90 --> 0:30:59.590

Participant4

I think there there is a lot of stuff being done around resilient and I do think that is correct, but I also do think that we need to look at the justness and the fairness of it in regards to two costs as well, and also.

0:31:2.670 --> 0:31:4.670

Participant4

There, there is a disparity between.

0:31:6.950 --> 0:31:33.240

Participant4

I don't know whether it's water cleanliness is the right way, but the water quality, the quality of the water, not the water quality, the quality of the water, there is a disparity between what supplied to large built up city areas and what tiny little villages will get because you know, some of it will have come from the beautiful clean spring that's not impacted by various industries or industrial.

0:31:35.110 --> 0:31:40.680

Participant4

Past, whereas within the cities there are, I believe there is some quality of water issues.

0:31:40.990 --> 0:31:43.100

Participant4

So I think that needs to be improved.

0:31:43.710 --> 0:31:44.300

Participant4

That might just be.

0:31:45.900 --> 0:32:0.90

Participant4

A personal choice rather than any necessary fact behind it, but uh, the But yeah, resilience is a big one and just I think needs to be interesting included.

0:32:0.100 --> 0:32:2.510

Participant4

We do need to start looking on it.

0:32:3.740 --> 0:32:13.410

Participant4

Uh, better, more economical ways of supply and clean, drinkable water for everybody around the world, not just it.

0:32:13.480 --> 0:32:16.820

Participant4

Just within the country, we've got to find better ways of doing it.

0:32:17.380 --> 0:32:18.950

Participant4

Of course, it's my dog's joining.

0:32:19.430 --> 0:32:21.250

Participant4

If you start to hear barking, yeah.

0:32:21.760 --> 0:32:23.560

Participant4

If she she was just barking a minute ago.

0:32:23.570 --> 0:32:26.210

Participant4

That's why I was a bit distracted.

0:32:28.460 --> 0:32:28.820

Participant4

And shoot.

0:32:30.940 --> 0:32:32.110

Participant4

So I've lost my train of thought.

0:32:32.120 --> 0:32:47.940

Participant4

Now I think it there's a lot of concentration on resilience and I think concentration on resilience as an economic basis to it as in it's a protection of profitability, not necessarily for the benefit of wider society.

0:32:51.190 --> 0:32:55.350

Participant4

Because I I think there needs to be a little bit more around.

0:32:56.340 --> 0:33:9.560

Participant4

It's just and reliability of the resource, so there needs to be more cross company cross border cost country working instead of just protection of their own profits.

0:33:10.900 --> 0:33:11.310

Participant4

There you go.

0:33:11.360 --> 0:33:12.470

Participant4

I saw us trying to get to.

0:33:13.100 --> 0:33:13.320

Interviewer

Yeah.

0:33:12.790 --> 0:33:16.90

Participant4

And trying to think of an so putting it, uh, yes.

0:33:16.820 --> 0:33:17.60

Interviewer

Yeah.

0:33:17.930 --> 0:33:29.50

Interviewer

And when I looked into water pricing measures as a way to increase the value that society ascribes to water.

0:33:35.470 --> 0:33:36.110

Participant4

Yep, OK.

0:33:30.490 --> 0:33:46.860

Interviewer

So if something's cheap, it's generally devalued by society and and whether you can use water pricing measures to protect kind of a essential amount per person.

0:33:46.730 --> 0:33:46.970

Participant4

Umm.

0:33:47.40 --> 0:33:48.970

Interviewer

But then above that level it's.

0:33:50.890 --> 0:33:54.110

Interviewer

You pay for the luxury of using excessive amounts of water.

0:33:55.930 --> 0:34:5.80

Interviewer

And but yeah, when I was looking into that, it ties into how do you price in virtual water as well?

0:34:6.400 --> 0:34:23.550

Interviewer

Something we look, we look a lot about our water footprint in, it tends to be how much we use what's our per capita consumption, which is one thing and then there's the how much do we use per person based on what we consume, what we buy from the shops.

0:34:24.650 --> 0:34:26.970

Participant4

Yeah, that's always been a wonder of mine as well, yeah.

0:34:27.550 --> 0:34:27.880

Interviewer

And then.

0:34:29.700 --> 0:34:32.150

Interviewer

How much do we source products?

0:34:32.160 --> 0:34:35.520

Interviewer

Because they're cheaper from other countries at the detriment of their environment.

0:34:36.830 --> 0:34:50.140

Interviewer

So we source some products from a water scarce environment making it worse because it's cheap to import rather than doing it in the UK and that's a whole big kettle of fish.

0:34:50.590 --> 0:34:51.140

Participant4

No, it's.

0:34:50.350 --> 0:34:56.760

Interviewer

But yeah, virtual virtual water is, I think, a huge thing and something that we complete blind to.

0:34:58.660 --> 0:34:59.910

Participant4

This is never really included.

0:34:59.960 --> 0:35:1.160

Participant4

Yeah, it's never included, is it?

0:35:1.170 --> 0:35:8.950

Participant4

When you talk to someone about that, but when you look at their water consumption and stuff like, it's always just what they use within the house, it's never.

0:35:8.980 --> 0:35:9.180

Interviewer

Yeah.

0:35:9.120 --> 0:35:12.270

Participant4

It's never take my mom, for example.

0:35:36.120 --> 0:35:36.320

Interviewer

Yeah.

0:35:12.280 --> 0:35:39.270

Participant4

My mom is a is a bottled water drinker and matter how hard I've tried with her because she just doesn't like the taste of tap water and I'm like well and yeah, but she drinks a lot of bottled water, but then her water consumption, that I would say she's quite a high water user because she drinks so much bottled water, but then she uses tap water for showers, washing, make the cups of tea cups of coffee and and stuff.

0:35:39.280 --> 0:35:43.510

Participant4

But that's the only thing that's counted within our water consumption is what she uses within their household.

0:35:43.520 --> 0:35:49.430

Participant4

But I would say that she's a high auto user because she'll drink two or three litres of bottled water a day.

0:35:50.750 --> 0:35:50.970

Interviewer

Yeah.

0:36:10.910 --> 0:36:11.90

Interviewer

Yeah.

0:36:24.630 --> 0:36:24.890

Interviewer

Umm.

0:35:51.30 --> 0:36:28.490

Participant4

I'm buy it and yeah it it, but that's that's that's trends though as well, isn't it the there's a trend is well the trendy thing that's the smart thing to do is to treat bottled water, you know like and it's the way it's marketed as well smart water, you know and Fiji water and everyone of volvic and the way that's marketed But yeah are they been taken from cause its Evian, but France had big issues with water scarcity over the last couple of years hasn't it and then you got this but how much everyone water.

0:36:33.810 --> 0:36:34.50

Interviewer

Yeah.

0:36:28.640 --> 0:36:39.240

Participant4

Is transported out of France each year, all around the world, for people to drink it because they're marketings worked really, really well and they think that every on water is better than that.

0:36:39.250 --> 0:36:40.900

Participant4

Water from the Lake District or something?

0:36:41.130 --> 0:36:41.310

Interviewer

Yeah.

0:36:41.800 --> 0:36:42.910

Participant4

I've never really thought about that.

0:36:42.920 --> 0:36:43.70

Participant4

Yeah.

0:36:43.80 --> 0:36:43.650

Participant4

It's it's made.

0:36:43.660 --> 0:36:44.290

Participant4

One, isn't it really?

0:36:43.190 --> 0:36:47.390

Interviewer

Yeah, but then it's also admin like the water used in crops.

0:36:48.700 --> 0:36:48.980

Participant4

Umm.

0:36:47.500 --> 0:36:57.620

Interviewer

So water used in cotton production and that's basically dried up an inland sea, the Aral Sea in Uzbekistan.

0:37:4.530 --> 0:37:7.60

Participant4

So why aren't we recycling clothes more than rather than?

0:37:7.840 --> 0:37:8.100

Interviewer

Yeah.

0:37:8.780 --> 0:37:9.160

Participant4

Yeah.

0:37:9.550 --> 0:37:10.310

Participant4

Yeah, the other.

0:37:10.320 --> 0:37:11.360

Participant4

But the other one is milk.

0:37:12.360 --> 0:37:12.620

Interviewer

Umm.

0:37:11.370 --> 0:37:16.540

Participant4

Whenever I have a talk about milk and and milk production, yeah, I'm not a milk drinker.

0:37:16.550 --> 0:37:17.460

Participant4

I don't drink milk at all.

0:37:19.590 --> 0:37:23.200

Participant4

Uh, but that, that that was just more of a health thing.

0:37:33.100 --> 0:37:33.280

Interviewer

No.

0:37:23.210 --> 0:37:37.690

Participant4

And then more consciously realised, but none of the boreholes that dairy farmers well a lot of dairy farmers that take their water from for their cattle and stuff our monitor correctly, they don't quite know what volumes they use and but that's all over the world, though, isn't it?

0:37:37.700 --> 0:37:44.530

Participant4

That's all you know, milk is thought of as a drink that should be readily available for everyone all around the world.

0:37:46.240 --> 0:37:47.870

Participant4

And so we're taking water.

0:37:48.160 --> 0:37:50.830

Participant4

Generate milk to. Yeah.

0:37:50.840 --> 0:37:52.130

Participant4

Milk, milk so bad one.

0:37:52.550 --> 0:37:52.770

Interviewer

Yeah.

0:37:52.680 --> 0:37:55.380

Participant4

But crop crops is one that's real difficult to.

0:37:55.430 --> 0:37:57.830

Participant4

Yeah, it's one I've never got my head around crops as well.

0:37:59.580 --> 0:38:0.310

Interviewer

Yeah.

0:37:57.840 --> 0:38:0.790

Participant4

It water used for crops and of.

0:38:5.350 --> 0:38:5.620

Participant4

Umm.

0:38:0.680 --> 0:38:6.450

Interviewer

And and it's almost easier to work out in arid areas where they have to be irrigated.

0:38:7.320 --> 0:38:8.180

Participant4

And that's true, yeah.

0:38:7.790 --> 0:38:11.110

Interviewer

It's in the UK, where it's generally rainfall.

0:38:11.120 --> 0:38:12.170

Interviewer

They're irrigation.

0:38:16.600 --> 0:38:16.910

Participant4

No.

0:38:13.160 --> 0:38:22.300

Interviewer

It's you can't really measure that, but then if you've been spread the the crops with.

0:38:23.630 --> 0:38:25.660

Interviewer

Fertilizers, herbicides, pesticides.

0:38:26.850 --> 0:38:32.490

Interviewer

You then potentially changing the composition of that water then enters the natural environment.

0:38:33.680 --> 0:38:34.270

Participant4

Yeah.

0:38:34.280 --> 0:38:40.890

Participant4

Yeah, I was going to just going to speak to you in a minute about that about cropping use at the moment because there's a lot.

0:38:47.110 --> 0:38:47.620

Interviewer

Then.

0:38:41.200 --> 0:38:52.210

Participant4

There's a big change out there for a lot of farms on going to glyphosate use is through the roof at the moment, and because they are, Oh no, I've got someone at the door.

0:38:52.840 --> 0:38:53.490

Participant4

2 seconds.

0:38:53.540 --> 0:38:54.270

Participant4

Sorry, sorry.

0:38:53.520 --> 0:38:54.450

Interviewer

OK, sorry.

0:38:54.280 --> 0:38:54.730

Participant4

Let me a minute.

0:39:58.320 --> 0:40:0.420

Participant4

Sorry, it was one that had to be signed for, of course.

0:40:1.370 --> 0:40:1.910

Interviewer

That's alright.

0:40:3.580 --> 0:40:5.690

Interviewer

I-1 last question.

0:40:13.520 --> 0:40:15.490

Interviewer

So, back to kind of future planning.

0:40:15.760 --> 0:40:17.440

Interviewer

Do you think the 25 year plan is working?

0:40:19.410 --> 0:40:23.290

Participant4

Is this a 25 year environment plan?

0:40:21.500 --> 0:40:21.740

Interviewer

Yep.

0:40:24.440 --> 0:40:25.550

Participant4

No. A simple answer.

0:40:26.540 --> 0:40:33.10

Participant4

No, because I think it was short sighted and feels weird talking about 25 year plan being short sighted.

0:40:33.20 --> 0:40:39.830

Participant4

But I think it goes back to the the start of our conversation, which is around integrated catchment and catchment wise solutions.

0:40:40.740 --> 0:40:50.0

Participant4

I think it's very point source heavy doesn't take into account wider influences on the catchment.

0:40:50.230 --> 0:41:5.730

Participant4

I just don't think it's gone far enough, to be perfectly honest in all of that, but also the big glaring gap in a the whole thing is how they're going to pay for it all, and there's nothing in it about they're gonna pay for it all.

0:41:6.40 --> 0:41:6.320

Participant4

Yeah.

0:41:6.330 --> 0:41:11.900

Participant4

They talk about a bit about private investment and stuff like that, but there's been no real thought gone into that at all.

0:41:13.570 --> 0:41:20.600

Participant4

And as someone who's on the ground trying to do it, is this the hardest self of all?

0:41:20.610 --> 0:41:26.820

Participant4

You know, like you've got lots of farmers, lots of other land owners and other people very willing to do it.

0:41:26.830 --> 0:41:29.270

Participant4

But they're like, what's the money?

0:41:29.340 --> 0:41:30.690

Participant4

Where's the money coming from?

0:41:30.830 --> 0:41:37.910

Participant4

You know, because at the at the moment economically, economics is the biggest driver for a lot of people at the moment.

0:41:38.490 --> 0:41:40.780

Participant4

And so, yeah, no, I don't.

0:41:40.790 --> 0:41:43.150

Participant4

Yeah, I don't think it is up.

0:41:43.160 --> 0:41:45.890

Participant4

And also I do my.

0:41:45.900 --> 0:41:57.690

Participant4

I had a lot of concerns around biodiversity, net gain and nutrient neutrality and stuff like that because I do think that is just, uh, we can do whatever damage you want to environment.

0:41:57.800 --> 0:42:1.560

Participant4

We'll just sign a cheque and pass off somewhere else.

0:42:1.570 --> 0:42:1.970

Participant4

So what?

0:42:1.980 --> 0:42:18.470

Participant4

We'll end up with is Nature dead deprived cities in the city areas and wider urban areas and just exclusive places where you can go and see wildlife for the rich, which is almost very similar to what Lake District has come becoming already now.

0:42:19.300 --> 0:42:21.290

Participant4

So yeah, that's my concern with it.

0:42:21.300 --> 0:42:24.90

Participant4

So I'm a big advocate.

0:42:24.100 --> 0:42:25.320

Participant4

I think we both agree on this.

0:42:26.130 --> 0:42:32.690

Participant4

The access to wild spaces, green and blue spaces is so important to everybody, but we are just ending up with.

0:42:34.80 --> 0:42:37.470

Participant4

Great Depression, urban areas with no nature in it.

0:42:38.20 --> 0:42:57.460

Participant4

And then the nature places the national parks and stuff just becoming inaccessible for them because there's no public transport, there's no infrastructure to get these inner city kids, and, well, talking about it with someone the other day about how I'm seeing less and less school trips go into Lake District and Wales.

0:42:58.140 --> 0:43:3.970

Participant4

You know, there's rather go to watch a show in London or or go skiing or something like that.

0:43:3.980 --> 0:43:14.570

Participant4

There's a lot of schools, whereas when I was a lad, don't I sound old now, but but our trip

would be, you know, to Wales, to Snowdonia National Park or to the Lake District National Park and stuff.

0:43:14.580 --> 0:43:20.520

Participant4

And that seems to be not the school trip that people want to go now the school trips that are available now.

0:43:20.530 --> 0:43:25.960

Participant4

So let's get an even, even bigger gap between, you know.

0:43:27.120 --> 0:43:29.390

Participant4

So yeah, definitely.

0:43:29.620 --> 0:43:30.480

Participant4

Well, the all the scene.

0:43:26.130 --> 0:43:31.960

Interviewer

Yeah, the haves and the have nots, yeah, which is what what goes back to justice issues, it's not.

0:43:32.230 --> 0:43:32.900

Participant4

Yeah, it does.

0:43:32.910 --> 0:43:38.0

Participant4

Yeah, but yeah, but also it widens that understanding about.

0:43:38.70 --> 0:43:40.290

Participant4

But we're talking about food and water scare.

0:43:43.810 --> 0:43:43.930

Interviewer

Yeah.

0:43:40.340 --> 0:43:44.50

Participant4

You know where your food comes from, that I will.

0:43:44.340 --> 0:43:53.530

Participant4

There'll be generations out there of kids that have never been to a farm or seen a farm or seen a live cow or seen a live sheep or seen a live pig.

0:43:53.640 --> 0:44:2.10

Participant4

Just a complete lack of understanding where their food comes from that disconnect because you do need to include farming.

0:44:2.20 --> 0:44:7.230

Participant4

I think as part of the greener spaces just needs to be done in a different way to it is doing.

0:44:8.410 --> 0:44:8.700

Interviewer

Umm.

0:44:7.240 --> 0:44:12.240

Participant4

Now I don't vilify the farmer, I want to work with them to make it better so.

0:44:12.220 --> 0:44:12.890

Interviewer

Yeah.

0:44:12.940 --> 0:44:20.50

Interviewer

I mean, well our central needs are to drink water and eat and have shelter.

0:44:18.350 --> 0:44:20.770

Participant4

Umm yes, yeah.

0:44:20.670 --> 0:44:27.740

Interviewer

So we have to be able to eat, but we have to do so in a way that doesn't harm the environment, I think.

0:44:39.410 --> 0:44:39.610

Interviewer

Yeah.

0:44:28.460 --> 0:44:44.810

Participant4

Yeah, but the one one other **glaring big thing gap in the 25 year environment plan and I know we're talking about water, but it's something that I also feel strongly about and that's air quality as well and and that's glaringly missing in the 25 year environment plan.**

0:44:44.860 --> 0:44:57.740

Participant4

So yeah, and I think that's I I listen to a talk from Public Health England.

0:44:58.160 --> 0:45:10.730

Participant4

Yeah, she was talking about air quality and the impacts on uh, health babies and and children and the development of children, especially cognitively and brain and stuff.

0:45:10.740 --> 0:45:14.250

Participant4

And I I was just shocked to hear.

0:45:14.260 --> 0:45:34.670

Participant4

But what she was saying as well was that that actually increases the haves and have nots gap because you got your inner city children who live by a motorway or next door to a motorway, he was breathing in all these hydrocarbons and whatnots and and their education is affected by except brain development, it's affected by it.

0:45:34.680 --> 0:45:41.150

Participant4

And then their future, the future ability to earn, to move beyond that is.

0:45:41.650 --> 0:45:41.830

Interviewer

Yeah.

0:45:42.860 --> 0:45:47.910

Participant4

So I think I've just got a notification saying my next meeting started, but yeah, all of that, all of that.

0:45:47.920 --> 0:45:51.20

Participant4

And then yeah, I think we agree on all of that.

0:45:51.30 --> 0:45:51.690

Participant4

I think, don't we?

0:45:51.920 --> 0:45:52.140

Interviewer

Yeah.

0:45:51.700 --> 0:45:57.160

Participant4

So for, I don't think it's gone far enough, but if it went any further then I think it would have got rejected.

0:45:58.620 --> 0:46:1.760

Participant4

But I think it's a really poor option.

0:46:3.170 --> 0:46:3.290

Interviewer

Yeah.

0:46:15.130 --> 0:46:15.540

Participant4

Alright.

0:46:15.700 --> 0:46:16.690

Interviewer

That's thanks very much.

0:46:15.550 --> 0:46:17.880

Participant4

OK, that's alright.

0:46:20.240 --> 0:46:20.540

Participant4

Yeah.

0:46:16.700 --> 0:46:21.370

Interviewer

Tim, if there's anything else you wanna say, then shout now. But.

0:46:20.550 --> 0:46:23.50

Participant4

If there's anything, no, I think that's.

0:46:23.110 --> 0:46:24.460

Participant4

Yeah, I think I've covered everything.

0:46:23.590 --> 0:46:25.100

Interviewer

OK, right.

0:46:24.500 --> 0:46:26.570

Participant4

But yeah, if I think of anything else, I'll let you know.

0:46:26.620 --> 0:46:32.560

Participant4

I'll I'll have a little look over the questionnaire and if I think there's anything else as well though, what I'll send it to you.

## **Interview 5**

Date of meeting: 10/04/2024

0:0:0.0 --> 0:0:26.590

Participant5

What was what was gonna say was there's there's some things in the questionnaire and your introduction of where you are with this and you know looking ahead into the future, that kind of ring a few bells with me and and particularly I think in in respect of some of the work that we've been doing at the trust in respect of taking out barriers in rivers.

0:0:27.940 --> 0:0:28.120

Interviewer

Yeah.

0:0:28.30 --> 0:0:40.690

Participant5

And you know, we know we've got the evidence that there's fantastic environmental benefits from taking out, certainly redundantly, as that, you know, no longer use.

0:1:4.500 --> 0:1:4.700

Interviewer

Yeah.

0:0:40.700 --> 0:1:8.670

Participant5

They just sit there and great environmental benefits and and also, uh, a number of social benefits as well, you know, in terms of say of localized flood reduction but **trying to get that message across with the public is incredibly difficult** and and yeah I mean how do you balance all that up?

0:1:8.680 --> 0:1:31.240

Participant5

I mean, I I had the experience of over quite a number of years doing restoration, where on the River, Kent above Kendall and it was a battle and it was a **battle with the local community in essence, who to rejected the science and the evidence at every step of the way.**

0:1:36.360 --> 0:1:36.530

Interviewer

Yeah.

0:1:31.330 --> 0:1:37.560

Participant5

**And at the end of the day, they just did not want the change,** you know?

0:1:37.570 --> 0:1:58.360

Participant5

And and and I suppose maybe you know in that sort of sphere I can see some of these difficulties, that is, you know, if you **if you can provide the science, provide the evidence, you know it's irrefutable in lots of cases, but then from a society point of view, people are just saying no, we don't accept it.**

0:1:58.590 --> 0:1:58.880

Participant5

Where?

0:2:0.980 --> 0:2:1.670

Interviewer

Yeah.

0:1:58.890 --> 0:2:2.710

Participant5

Where do you go is really difficult, so I don't have.

0:2:1.980 --> 0:2:3.550

Interviewer

Yeah, and yeah, I see.

0:2:3.20 --> 0:2:4.680

Participant5

I don't know if that has any sort of.

0:2:6.980 --> 0:2:17.550

Participant5

You know, sort of rings, any chimes in in respect to what you're doing, but it's it's bringing those sort of economic society needs along with something that we know is good.

0:2:18.420 --> 0:2:18.640

Interviewer

Yeah.

0:2:18.770 --> 0:2:19.260

Participant5

I'm gonna.

0:2:19.270 --> 0:2:20.60

Participant5

I'm beneficial.

0:2:20.70 --> 0:2:22.180

Participant5

How how do you how do you mix them together?

0:2:22.190 --> 0:2:37.790

Participant5

And the other thing that you mentioned there is about having no regulatory support and that is exactly the same thing as well, because there's no incentives to structure owners to actually take these things down.

0:2:38.420 --> 0:2:46.50

Participant5

And you know, like in some European countries, they are forced to remove them at their own cost.

0:2:47.0 --> 0:2:51.330

Participant5

But you know, there's no such support in this country.

0:2:51.340 --> 0:3:7.700

Participant5

So it's very sort of opportunistic with being able to identify maybe a structural owner who's

willing to work with you and allow you to take these things down as long as it's no cost to them, of course.

0:3:8.160 --> 0:3:8.360

Interviewer

Yeah.

0:3:8.50 --> 0:3:8.520

Participant5

So.

0:3:8.530 --> 0:3:11.160

Participant5

So there's there's, there's, there's quite a lot of.

0:3:11.630 --> 0:3:22.40

Participant5

There's there's, there's quite a lot of similar points I think could take from the sort of thing that you're doing in terms of trying to look into the future and say, well, this is gonna be great.

0:3:22.390 --> 0:3:26.280

Participant5

But you know, you've got to understand and accept that it's gonna be great.

0:3:26.330 --> 0:3:27.790

Participant5

It's really difficult place to be.

0:3:28.620 --> 0:3:29.30

Interviewer

Yeah.

0:3:29.70 --> 0:3:31.230

Interviewer

And I think it it comes down to sort of.

0:3:33.110 --> 0:3:39.190

Interviewer

And what's the time I'm looking for kind of cultural adopted thinking.

0:3:39.750 --> 0:3:39.970

Participant5

Yeah.

0:3:43.560 --> 0:3:43.880

Participant5

Yep.

0:3:40.370 --> 0:3:45.860

Interviewer

So you've grown up with an environment looking a certain way and that is the right way in your head.

0:3:46.250 --> 0:3:46.440

Participant5

Yeah.

0:3:46.330 --> 0:3:49.940

Interviewer

But 100 years before, 200 years before, it probably looked completely different.

0:3:49.970 --> 0:3:50.320

Participant5

Totally.

0:3:53.210 --> 0:3:53.530

Participant5

Yep.

0:3:50.810 --> 0:3:57.370

Interviewer

But that's beyond living memory, and it's beyond any ones experience. Yeah.

0:3:55.560 --> 0:3:57.570

Participant5

Photographic memory as well, isn't it?

0:3:57.580 --> 0:3:57.750

Participant5

Yeah.

0:3:57.760 --> 0:4:1.620

Participant5

No, **no photographic evidence going back that you know that that period of time.**

0:4:1.890 --> 0:4:2.110

Interviewer

Yeah.

0:4:10.500 --> 0:4:10.740

Participant5

Yeah.

0:4:12.760 --> 0:4:13.830

Participant5

Yes, yeah, yeah.

0:4:2.580 --> 0:4:18.460

Interviewer

And so it, yeah, it was kind of think people talk about kind of the UK's natural environment and what they actually mean is an agricultural environment because it's what we see when we go well, you live near the countryside that I do.

0:4:19.40 --> 0:4:19.460

Participant5

Yeah, yeah.

0:4:18.470 --> 0:4:22.0

Interviewer

But when we go in the countryside, what we see is actually agriculture.

0:4:22.510 --> 0:4:26.490

Interviewer

There are very few places where we see a wild environment.

0:4:27.80 --> 0:4:27.440

Participant5

I don't.

0:4:27.450 --> 0:4:28.390

Participant5

I don't think we have any.

0:4:29.600 --> 0:4:30.660

Participant5

I don't think we have any.

0:4:30.140 --> 0:4:31.920

Interviewer

I think there's little pockets, yeah.

0:4:30.670 --> 0:4:44.560

Participant5

I mean, I yeah, well, you know, tiny little areas possibly, but you know to say and trying to pinpoint somewhere in the UK that's pristine and untouched by, you know, human Management.

0:4:44.570 --> 0:4:46.260

Participant5

And I can't think of anywhere.

0:4:53.460 --> 0:4:53.690

Interviewer

Yeah.

0:4:46.370 --> 0:4:59.460

Participant5

I mean, I think probably have to go to the states or somewhere like that to one of they massive, you know Yosemite or Yellowstone or somewhere like that to see fairly sort of pristine environments.

0:4:59.710 --> 0:5:1.800

Participant5

So yeah, you're absolutely right.

0:5:12.690 --> 0:5:12.870

Interviewer

Yeah.

0:5:1.810 --> 0:5:14.60

Participant5

People's interpretation of the landscape is absolutely skewed by really what's happened in the last couple of 100 years. Umm.

0:5:15.310 --> 0:5:22.970

Interviewer

And and I think the other thing it relates to is trust and social trust and fear of.

0:5:26.550 --> 0:5:26.710

Participant5

Yeah.

0:5:24.320 --> 0:5:29.380

Interviewer

Outsiders, someone coming in and change, like forcing a change on them.

0:5:29.820 --> 0:5:29.980

Participant5

Yes.

0:5:30.430 --> 0:5:30.800

Interviewer

Umm.

0:5:37.900 --> 0:5:38.180

Participant5

Yep.

0:5:31.30 --> 0:5:41.920

Interviewer

And that may be as well intentioned as possible, but if it's seen as a change of view forced upon you, there's no there's no ownership, and the trust breaks down.

0:5:42.240 --> 0:5:42.420

Participant5

Yeah.

0:5:42.370 --> 0:5:46.680

Interviewer

And obviously coming from the water industry and trust is a huge issue.

0:5:46.720 --> 0:5:47.920

Participant5

Yeah, yeah, yeah, totally.

0:5:46.720 --> 0:5:56.690

Interviewer

But and it's one that's I think only recently been recognized widely across the industry as something that needs to be thought about.

0:5:57.300 --> 0:5:58.140

Participant5

Yeah, yeah.

0:5:58.140 --> 0:6:3.860

Interviewer

But yeah, or not, I'd say from the water sectors, but water industry is point of view and trust is broken.

0:6:4.540 --> 0:6:5.260

Participant5

Yeah, yeah.

0:6:5.120 --> 0:6:6.580

Interviewer

We've got a long way to go to fix that.

0:6:7.40 --> 0:6:7.260

Participant5

Yeah.

0:6:8.100 --> 0:6:9.470

Participant5

Yeah, I wouldn't disagree with that at all.

0:6:11.390 --> 0:6:11.680

Participant5

Umm.

0:6:12.20 --> 0:6:28.610

Interviewer

And just on that, do you do you think some visualization tools so and maps that can show multiple needs where you can show where actions are gonna happen?

0:6:28.700 --> 0:6:32.810

Interviewer

Do you think that helps build that dialogue and the trust and engagement?

0:6:33.300 --> 0:6:34.130

Participant5

Absolutely.

0:6:34.140 --> 0:6:36.930

Participant5

And and I think they, you know, I'm perhaps I'm.

0:6:50.200 --> 0:6:50.380

Interviewer

Yeah.

0:6:37.80 --> 0:7:16.370

Participant5

I'm I might might start to concentrate a little bit on the example I've already used, but you know I I can see that those visualizations, certainly when you're talking to communities, are really important and and I have been looking at some new tools and and and they they're more like 3D tools with we've we've had quite a lot of sort of 2D stuff and and again you know you you you tend to get this sort of reaction from members of the community based around the fact that they really don't want to see any change I.

0:7:16.380 --> 0:7:16.840

Participant5

Think that's?

0:7:18.170 --> 0:7:27.70

Participant5

That that's pretty much the uh, that that their point of view and and especially I think it's it's the demographic as well.

0:7:27.600 --> 0:7:48.310

Participant5

It's the demographic of, you know, if you're working in a certain place, if you're working on a river, you're working by a Weir, and it's a way that you want to remove, they tend to be fairly sort of affluent communities, people who are retired mainly or approaching retirement and cover forward to buy those nice properties by the side of the river.

0:7:48.840 --> 0:7:49.0

Interviewer

Yeah.

0:7:48.870 --> 0:8:1.810

Participant5

And so so you you're already dealing with a particular sort of demographic, you know, and and interpretation being able to sort of walk them through the science and all the rest of it is is critical.

0:8:1.960 --> 0:8:20.10

Participant5

Absolutely critical, and I think visual agent visualization tools in terms of and now we're looking at something at the moment, which is like drone photography, but kind of been overlaid on to an accurate mapping system.

0:8:20.560 --> 0:8:27.30

Participant5

But that then you can actually look at it in a in a in a 3D way and and that's that's really important.

0:8:27.40 --> 0:8:36.60

Participant5

I think if we can get to it because we can actually show on that map, you know where, say, storm Desmond water levels came to in 2015.

0:8:37.430 --> 0:8:47.120

Participant5

And you can extrapolate where the changes that you propose in make a reduction against that plotted level.

0:8:47.650 --> 0:8:48.260

Participant5

You know I'm.

0:8:48.270 --> 0:8:51.930

Participant5

I'm I'm when it gets to oh, there's my house.

0:8:52.230 --> 0:9:1.920

Participant5

And that's where the level came up to and what they're proposing is going to reduce that if, with the same circumstances prevailed in the future, so can reduce that by 6 inches.

0:9:2.250 --> 0:9:8.480

Participant5

That really hits home to anybody is so visually it's like, oh, that's that's really good thing.

0:9:8.490 --> 0:9:10.80

Participant5

And we didn't have we we.

0:9:8.890 --> 0:9:12.650

Interviewer

Yeah, I and it's related to their life, their home.

0:9:12.360 --> 0:9:15.50

Participant5

And that's that's the point.

0:9:15.740 --> 0:9:15.940

Interviewer

Yeah.

0:9:15.100 --> 0:9:15.960

Participant5

That's the point.

0:9:15.970 --> 0:9:25.320

Participant5

You know when they can relate it to their property or how they live, and then that makes it really personal and pertinent.

0:9:25.390 --> 0:9:35.830

Participant5

And and I think we could do certainly a a great deal more in many different directions about being able to hit home a lot more closely to people's lives in that respect.

0:9:36.710 --> 0:9:39.590

Interviewer

Yeah, you just remind me actually of a a company that.

0:9:45.920 --> 0:9:46.270

Participant5

Yet.

0:9:41.100 --> 0:9:50.100

Interviewer

And we're pitching their their services to us a few years ago, when I worked at [a water company] and I don't know if it's the same company, but they did.

0:9:51.650 --> 0:9:51.940

Participant5

Yeah.

0:9:56.990 --> 0:9:58.50

Participant5

Yes. Yeah.

0:10:4.90 --> 0:10:4.390

Participant5

Yeah.

0:10:6.560 --> 0:10:6.830

Participant5

Yeah.

0:9:58.100 --> 0:10:10.90

Interviewer

Or how do you change the way that you and manage your fields in order to stop all of this topsoil running off into the river and causing problems?

0:10:10.170 --> 0:10:12.30

Interviewer

And how do you retain that value on your soil?

0:10:10.390 --> 0:10:12.520

Participant5

In. Yeah.

0:10:16.880 --> 0:10:18.130

Participant5

Yep, Yep.

0:10:12.440 --> 0:10:23.310

Interviewer

And because they converted it to kind of soil value for a farmer it it won over the hearts and minds of of these people and yeah.

0:10:21.780 --> 0:10:23.820

Participant5

Yeah, yeah, yeah.

0:10:23.860 --> 0:10:24.670

Participant5

Because it's it's.

0:10:27.890 --> 0:10:28.50

Interviewer

Yeah.

0:10:24.680 --> 0:10:29.610

Participant5

It's tailored to that particular person or group of people.

0:10:29.720 --> 0:10:42.850

Participant5

If it's tailored and it's pertinent to what they do, how they work on their business and well, their their quality of life, any of those sorts of things, then I think that's really where we can we can get a lot sharper.

0:10:43.690 --> 0:10:43.850

Interviewer

Yeah.

0:10:46.120 --> 0:10:46.300

Participant5

Yeah.

0:10:46.330 --> 0:10:54.510

Interviewer

And and do you think the the tools you have available to you at the moment, do you think they do enough or do you think they're a bit?

0:10:56.350 --> 0:10:57.40

Interviewer

Hit and miss.

0:10:57.50 --> 0:10:58.840

Interviewer

So do you think that's areas lacking in them?

0:10:59.780 --> 0:11:13.870

Participant5

Yeah, I think I think I think the kind of like, say sort of disparate aren't they, you know, there's a bit here, there's a bit there, there's there's a bit there and you know, trying to pull them all together and make sense of them is really difficult.

0:11:14.530 --> 0:11:18.70

Participant5

And so, you know, I'm just.

0:11:18.80 --> 0:11:22.130

Participant5

I'm just trying to think of, you know, some of the examples.

0:11:22.140 --> 0:11:29.140

Participant5

I mean for right, a good example probably is the new source apportionment work, as that's been done on Windermere.

0:11:29.690 --> 0:11:29.830

Interviewer

Yeah.

0:11:49.220 --> 0:11:49.420

Interviewer

Yeah.

0:11:30.30 --> 0:11:50.800

Participant5

And so you know, that's the science or it's the best we have at the moment, you know, it's updated, but maybe coming back to what you were saying before about trust, you know, certainly in respect of United Utilities and now Environment Agency, they've been dragged into this in recent months.

0:11:51.510 --> 0:11:52.50

Participant5

Umm.

0:11:52.60 --> 0:11:54.100

Participant5

Fingers pointing much more at them.

0:11:54.430 --> 0:11:58.140

Participant5

They say you know lot of people see this information coming out.

0:12:4.830 --> 0:12:5.10

Interviewer

Yeah.

0:11:58.410 --> 0:12:8.310

Participant5

That's been commissioned by the Environment Agency and immediately disregard it because they think they're in cahoots and you know, it's all.

0:12:8.320 --> 0:12:16.280

Participant5

It's all twisted, so that's really difficult, you know, and we we we sort of have to use that because that's the latest science.

0:12:16.290 --> 0:12:20.470

Participant5

You know that that's where your phosphorus is coming from these different sources.

0:12:21.20 --> 0:12:22.760

Participant5

So the farmers are saying no, it's not right.

0:12:23.670 --> 0:12:27.180

Participant5

You know the and everybody else can just pick holes in it.

0:12:27.190 --> 0:12:28.510

Participant5

So you're it.

0:12:31.890 --> 0:12:32.110

Interviewer

Yeah.

0:12:29.400 --> 0:12:32.430

Participant5

You are disadvantaged before you start in, in many respects.

0:12:34.230 --> 0:12:34.800

Participant5

So.

0:12:34.860 --> 0:12:57.200

Participant5

So I don't know what the answer is, but I certainly think that if there was something that pulled all this stuff together and made it more pertinent to people and to individual communities, because, you know, even working in, say somewhere like Windermere, you've got so many different communities, you know what they're thinking in Windermere and what their problems are In Windermere, we are quite different from what they are in Ambleside or grassmere or, you know, Hawkshead or whatever, you know

0:13:4.690 --> 0:13:7.420

Participant5

Yeah, they're all part of the same catchment, essentially.

0:13:7.730 --> 0:13:12.290

Participant5

But you know, they're different communities than they have different and needs.

0:13:12.460 --> 0:13:23.70

Participant5

And so, you know, different sort of problems that you know they they want you to look at specifically because you know it's different from one place to another.

0:13:23.80 --> 0:13:23.600

Participant5

Simple as that.

0:13:24.500 --> 0:13:24.680

Interviewer

Yeah.

0:13:24.890 --> 0:13:25.600

Participant5

So.

0:13:25.610 --> 0:13:25.960

Participant5

So.

0:13:25.970 --> 0:13:27.920

Participant5

So yeah, so it's always a bit of a struggle.

0:13:27.930 --> 0:13:46.130

Participant5

It's pulling together the relevant information and and making sense of it, but you know, I I certainly do find the, you know, steps to visualize this kind of thing far more accurately.

0:13:46.140 --> 0:13:51.900

Participant5

And more pertinently, is probably the great way that we should be going.

0:13:53.510 --> 0:13:53.690

Interviewer

Yeah.

0:13:56.370 --> 0:13:56.620

Interviewer

Great.

0:13:56.630 --> 0:13:58.430

Interviewer

Thank you. Umm.

0:14:0.850 --> 0:14:1.790

Interviewer

And then just to.

0:14:4.260 --> 0:14:4.990

Interviewer

Moves on slightly.

0:14:13.270 --> 0:14:13.600

Participant5

Umm.

0:14:8.170 --> 0:14:14.640

Interviewer

Obviously you are involved in kind of action in the Community and kind of boots on the ground.

0:14:14.650 --> 0:14:15.650

Interviewer

You're actually doing things.

0:14:16.130 --> 0:14:16.890

Participant5

Yeah, yeah.

0:14:16.240 --> 0:14:28.450

Interviewer

I'm how well do you feel that kind of the various environmental social community needs are translated into action plans?

0:14:30.600 --> 0:14:32.860

Interviewer

Currently, do you?

0:14:32.870 --> 0:14:35.750

Interviewer

Do you think that those needs are translated well?

0:14:38.530 --> 0:14:38.940

Participant5

Woo.

0:14:38.390 --> 0:14:40.310

Interviewer

Or do you think we're missing some of the needs?

0:14:42.500 --> 0:14:44.170

Participant5

Yeah, it's it's very difficult.

0:14:44.180 --> 0:15:0.330

Participant5

There's because obviously we we host the catchment partnership, the Becks to Bay Catchment Partnership, which is the different initiative going back to 2013 and and and with the host of that catchment partnership for South Lakes.

0:15:1.820 --> 0:15:40.420

Participant5

So you know, within that partnership there are, you know a number or probably the you know the usual suspects and the the the key organizations you know which might be you know NGOs like ourselves and also you know United Utilities, Environment Agency, Natural England and you know so on and so forth, the wildlife trusts et cetera, et cetera and that the whole purpose of that is to do some of the things that you're talking about is actually

bringing together the people that are doing things or planning things and have one hub where that's all understood for.

0:15:40.440 --> 0:15:41.130

Participant5

Your area.

0:15:41.630 --> 0:15:41.810

Interviewer

Yeah.

0:15:41.820 --> 0:16:22.70

Participant5

So, so that everybody understands where each other is working and understands, you know what their ambitions are and so on and so forth and and and and hopefully prevents everybody going off in different directions, stepping on each others toes and you know making a bit of a mess of about it for example is, you know going down a farm track and multiple people knocking on the door to speak to a farmer or a landowner about, you know stuff that you could prevented by, you know talking to each other in the 1st place and understanding and.

0:16:22.80 --> 0:16:25.310

Participant5

Where you know you need to step in or step out.

0:16:25.730 --> 0:16:27.200

Participant5

You know, simple as that.

0:16:27.210 --> 0:16:28.580

Participant5

Now is that is that perfect?

0:16:28.590 --> 0:16:29.440

Participant5

No, it isn't.

0:16:29.610 --> 0:16:40.150

Participant5

And we've been running it, as I say, since 2013 and it's it's become a little bit more difficult because I think maybe it's a bit of like an initiative phase.

0:16:41.500 --> 0:16:49.280

Participant5

And which is probably compounded as well by the fact that each of the other rivers trusts in Cumbria.

0:16:49.740 --> 0:16:53.780

Participant5

I've also got the same hosting arrangement with Defra.

0:16:54.750 --> 0:17:12.690

Participant5

So whereas let's say a uh catchment manager from United Utilities will become into our catchment partnership, they would also be required to go to West Cumbria Rivers Trust catchment Partnership and Eden Rivers Trust catchment partnership.

0:17:13.10 --> 0:17:13.230

Interviewer

Yeah.

0:17:12.700 --> 0:17:19.230

Participant5

And if the holding they're holding four meetings a year, well, you know already you're at 12 meters a year for that individual.

0:17:19.650 --> 0:17:21.0

Participant5

And we understand that's a problem.

0:17:21.900 --> 0:17:29.10

Participant5

And and that's the same for the other organizations as well, who are required to to support it, like the Environment Agency.

0:17:29.180 --> 0:17:30.660

Participant5

So that has been a move to.

0:17:32.20 --> 0:17:36.170

Participant5

And do this more on a Cumbre wide basis.

0:17:37.0 --> 0:17:37.180

Interviewer

Yeah.

0:17:36.620 --> 0:17:40.170

Participant5

So so that it it and I think that makes a lot of sense to me.

0:17:40.760 --> 0:17:58.280

Participant5

I think one of the things that the [catchment partnership started with and really didn't have a lot of involvement with was sort of community members being around that table, think that has been part of the problem.](#)

0:18:22.680 --> 0:18:22.840

Interviewer

Yeah.

0:17:59.160 --> 0:18:24.220

Participant5

And in the last couple of years with the, you know, the furore and the raising of public awareness about state of our rivers and our environment as a as a whole, our local environment I think is massive amount now of and increase public interest in what's in what's going on.

0:18:24.230 --> 0:18:25.980

Participant5

There's absolutely no doubt about that.

0:18:26.190 --> 0:18:35.260

Participant5

I think one of the problems that we're facing as well and Windermere is a great example, is the desperate needs of each of those communities.

0:18:35.810 --> 0:18:57.450

Participant5

You know where the wild swimmers, whether paddle boarders and you know and there and there seems to be a clamour and has been for such and such a time of people setting up their own like little groups and we've had recent example of of that in Windermere we settled this catchment partnership, Windermere catchment partnership.

0:18:57.460 --> 0:18:59.250

Participant5

And you know, PersonX and PersonY.

0:18:59.930 --> 0:19:5.880

Participant5

And the trust I've been working on that with, with funding that we got to pull that together.

0:19:6.230 --> 0:19:14.870

Participant5

And although we feel that it's been a success in some respects, is that you know, we've been able to excuse me.

0:19:14.880 --> 0:19:19.220

Participant5

That's might come through in, in some respects.

0:19:19.790 --> 0:19:51.960

Participant5

There's we have detected that there's a real kind of pushback in terms of because the funding is coming to an end of this particular piece of work to try and bring these communities together and get them work together in the manner that I've described as the funding has come to an end, which it just has at the end of March, there's really been nobody who's stepped forward to say, right, you know, you've given us all this support, this scientific Technical Support.

0:19:51.970 --> 0:19:57.670

Participant5

You've told us you know how to go out and monitor rivers in various different ways, et cetera.

0:19:57.780 --> 0:19:59.890

Participant5

Nobody's really stepped forward and said, right?

0:19:59.970 --> 0:20:2.620

Participant5

I am going to take it on from here.

0:20:2.730 --> 0:20:5.510

Participant5

You know, I'm a Member of this community.

0:20:6.30 --> 0:20:7.220

Participant5

It's great what you've done.

0:20:7.230 --> 0:20:9.870

Participant5

You know, we'd like to think that you could support us into the future.

0:20:9.880 --> 0:20:15.300

Participant5

We understand you, your funding is going, but we're gonna take it on from here and that's really been lacking.

0:20:15.610 --> 0:20:28.510

Participant5

And I think part of that has been that there's all these little groups have just wanting to maintain their own identity in their own little location on their own, you know, few little Becks, et cetera.

0:20:28.520 --> 0:20:38.890

Participant5

And and and not want to pull together, you know with other like minded people in perhaps even in their fairly local area.

0:20:39.320 --> 0:20:43.590

Participant5

So that that that's something that I didn't really expect to come out of this.

0:20:43.600 --> 0:20:53.770

Participant5

I lthought well it would do would pull people together and with a little bit of encouragement and support and a bit of funding that we were able to do to kick start it.

0:20:53.780 --> 0:20:56.230

Participant5

Now you know there'd be a clamour for people to say, right?

0:20:56.240 --> 0:21:2.440

Participant5

I wanna take it on from it and it hasn't happened and that's that's really strange given the circumstances.

0:21:2.450 --> 0:21:6.960

Participant5

I would have thought that they would do, but maybe they're just big.

0:21:23.160 --> 0:21:23.400

Interviewer

Yeah.

0:21:6.970 --> 0:21:24.480

Participant5

Big because it's sort of embryonic and they have joined this particular bandwagon and they just want to keep themselves to themselves and do their own thing with their kind of little bit blinkered sort of approach to it rather than working together.

0:21:24.490 --> 0:21:26.100

Participant5

It's it's difficult so.

0:21:27.50 --> 0:21:31.770

Interviewer

I wonder is why we've give that kind of heard about the human nature.

0:21:35.730 --> 0:21:36.560

Participant5

Possibly, yeah.

0:21:32.320 --> 0:21:46.130

Interviewer

A lot of my explanations seem to hear back to human nature, but you they've got control over that bit and it's maybe open their eyes to how big and complex the issues are.

0:21:46.620 --> 0:21:48.270

Interviewer

And actually that's very hard to control.

0:21:46.420 --> 0:21:48.820

Participant5

Yeah, yeah.

0:21:51.790 --> 0:21:51.990

Participant5

Yeah.

0:21:59.410 --> 0:21:59.880

Participant5

Yes.

0:21:48.640 --> 0:22:0.920

Interviewer

So you can keep control of your little bits and make improvements that you can see in your local area and kind of the big picture is someone else's concern and.

0:21:59.990 --> 0:22:4.850

Participant5

Yeah, but you say you say part part that problem is and I'll just give you an example.

0:22:4.860 --> 0:22:8.180

Participant5

Going back a few years, we heard a Community partnership.

0:22:11.650 --> 0:22:11.830

Interviewer

Yeah.

0:22:8.350 --> 0:22:13.440

Participant5

Well, well, we tried to do like I've just explained in Windermere, we're trying to set this community partnership up.

0:22:13.530 --> 0:22:25.180

Participant5

We had a very, very successful one that ran in Coniston and create catchment partnership and it was established by two school teachers back in 2009.

0:22:25.190 --> 0:22:27.240

Participant5

I think it was, but they ran it.

0:22:27.350 --> 0:22:36.380

Participant5

They took control of it as an organization wanting to do good things in the constant crate catchment.

0:22:36.900 --> 0:22:37.90

Participant5

I'm.

0:22:37.100 --> 0:22:46.630

Participant5

I'm and they brought us in and they said, well, look, we don't know what we're doing, but we we, you know, really enthusiastic, we've got some great volunteers.

0:22:47.460 --> 0:22:49.130

Participant5

Can you point us in the right direction?

0:22:49.140 --> 0:22:49.550

Participant5

What to do?

0:22:49.560 --> 0:22:54.610

Participant5

So we did, but it was a very clear understanding that we were a support function to them.

0:22:54.800 --> 0:22:59.900

Participant5

So we provided them with all sorts of support in terms of training equipment.

0:23:0.830 --> 0:23:2.880

Participant5

Then you know, talk them out.

0:23:3.410 --> 0:23:5.220

Participant5

Talk them out about river.

0:23:5.230 --> 0:23:8.680

Participant5

Fly taught them about, you know, various other sort of techniques.

0:23:9.70 --> 0:23:17.480

Participant5

And they went off and did it and they, but they were very, very sort of closely coordinated by two key individuals in the valley.

0:23:17.910 --> 0:23:19.870

Participant5

So, so that was great.

0:23:20.480 --> 0:23:20.680

Interviewer

Yeah.

0:23:19.910 --> 0:23:24.460

Participant5

And that was before all this happened, you know, well, before all this, you know, sort of.

0:23:24.470 --> 0:23:43.280

Participant5

And people were looking in at the time in Coniston and Craig, volunteers were looking in knowing that they had a water body that was deteriorated and that and that was quite unusual because my feeling for many years was the fact now people were more concerned about what was happening globally.

0:23:44.10 --> 0:23:44.360

Participant5

They were.

0:23:44.380 --> 0:23:44.560

Interviewer

Yeah.

0:23:44.370 --> 0:23:46.290

Participant5

They were interested in plastic pollution.

0:23:46.300 --> 0:23:51.780

Participant5

They were interested in the white rhino disappearing the, you know all that kind of stuff.

0:23:51.790 --> 0:23:59.160

Participant5

And you know, we used to say to them said, well, you know, what about what's happening in your backyard and it's, they didn't get it.

0:23:59.610 --> 0:24:12.140

Participant5

They didn't think there was a problem, so Conniston Craig would were quite unique in that respect because they've recognized that they had a problem that was gonna grow and they didn't want to end up like Windermere already had done.

0:24:13.100 --> 0:24:13.650

Participant5

So.

0:24:13.660 --> 0:24:28.420

Participant5

So it's been been really interesting to see how these last couple years and this increase in public awareness has not had this effects that I would thought would have emulated the Conniston.

0:24:28.430 --> 0:24:31.980

Participant5

Craig example it it it, it doesn't seem to be happening yet.

0:24:31.990 --> 0:24:32.300

Participant5

Maybe.

0:24:32.310 --> 0:24:33.300

Participant5

Maybe it's too early.

0:24:33.310 --> 0:24:34.400

Participant5

I I don't know.

0:24:34.410 --> 0:24:37.220

Participant5

But like you say, it might be just human nature.

0:24:37.450 --> 0:24:40.940

Participant5

They just wanna bite off a little chunk they wanna do in their local area.

0:24:40.950 --> 0:24:50.500

Participant5

But for an organization like us who wants to support communities to do good things, how do you do that with nobody if they don't come together as a group?

0:24:50.820 --> 0:24:51.0

Interviewer

Yeah.

0:24:50.510 --> 0:24:59.10

Participant5

You you haven't got the time and resources to go to these individual many, many individual groups with their own focus.

0:24:59.710 --> 0:24:59.910

Interviewer

Yeah.

0:25:0.310 --> 0:25:1.980

Participant5

That and and that that was impossible.

0:25:1.990 --> 0:25:3.470

Participant5

You know, for funding or resort.

0:25:4.580 --> 0:25:5.290

Interviewer

Yeah.

0:25:5.580 --> 0:25:6.270

Interviewer

Yeah, it's.

0:25:12.140 --> 0:25:12.310

Participant5

Yeah.

0:25:6.340 --> 0:25:13.270

Interviewer

It's almost like and independent coordinator needs to kind of bring everyone together, but then who's gonna fund that?

0:25:14.400 --> 0:25:14.600

Participant5

Yeah.

0:25:13.280 --> 0:25:15.730

Interviewer

And who's gonna and enable that?

0:25:17.10 --> 0:25:18.990

Interviewer

Yeah, yeah, tricky issues.

0:25:19.850 --> 0:25:21.250

Participant5

Yeah, yeah.

0:25:21.260 --> 0:25:22.400

Participant5

I don't know what the answer is to that.

0:25:23.340 --> 0:25:37.180

Interviewer

No, I also wonder if no concrete example they'd taken ownership of their local area and have done that regardless of the wider.

0:25:38.90 --> 0:25:39.600

Interviewer

And she's because the wider she's went.

0:25:39.610 --> 0:25:40.800

Interviewer

Nine was.

0:25:40.810 --> 0:25:52.430

Interviewer

I wonder if now because the wider water sector issues are in the public domain and very well discussed and there in the media all the time.

0:26:0.70 --> 0:26:2.0

Participant5

Umm yeah.

0:25:54.370 --> 0:26:7.630

Interviewer

If there's a feeling of all this is someone's responsibility and they're not doing their duty, so how much do we as activist groups just need to raise our voice?

0:26:10.330 --> 0:26:11.270

Participant5

Yeah, yeah.

0:26:7.640 --> 0:26:16.170

Interviewer

Enough so that the people that should be doing it do it, and rather than going well, no ones doing it, I'll take responsibility.

0:26:16.450 --> 0:26:16.650

Participant5

Yeah.

0:26:16.440 --> 0:26:17.70

Interviewer

It's.

0:26:22.920 --> 0:26:23.70

Participant5

Yes.

0:26:17.860 --> 0:26:26.470

Interviewer

Yeah, I wonder if although the public awareness is really good thing, whether it's undermines that kind of grassroots?

0:26:28.320 --> 0:26:28.700

Participant5

Possibly.

0:26:28.500 --> 0:26:29.80

Interviewer

Perspective.

0:26:29.640 --> 0:26:30.600

Participant5

Yeah, possibly.

0:26:30.370 --> 0:26:30.840

Interviewer

I'm just.

0:26:31.90 --> 0:26:32.630

Interviewer

Yeah, just thinking things through.

0:26:46.170 --> 0:26:46.470

Participant5

Yep.

0:26:36.550 --> 0:26:47.970

Interviewer

So as you know, in the water industry, So what companies they they work on sort of five year plans, five year investment cycles.

0:26:54.200 --> 0:26:54.590

Participant5

Yet.

0:26:48.920 --> 0:26:57.240

Interviewer

And which is now meant to be aligned to the 25 year environment plan and how?

0:26:57.290 --> 0:27:3.900

Interviewer

How well do you think I don't know how close are you involved in the 25 year environment plan, but how well do you think it's working?

0:27:7.850 --> 0:27:9.430

Participant5

Big question that isn't it.

0:27:10.80 --> 0:27:11.350

Interviewer

Noone really likes this question.

0:27:9.830 --> 0:27:12.160

Participant5

Good Lord. Yeah.

0:27:17.130 --> 0:27:17.890

Participant5

Well, I have to say.

0:27:20.530 --> 0:27:21.420

Participant5

I have to be honest.

0:27:21.430 --> 0:27:24.90

Participant5

Surprise, I don't ever think about it.

0:27:24.950 --> 0:27:25.150

Interviewer

OK.

0:27:30.580 --> 0:27:30.740

Interviewer

Yeah.

0:27:26.140 --> 0:27:38.630

Participant5

If you know and quite honestly, you know, I know it's out there somewhere, and occasionally it raises his head where perhaps we've got a funding opportunity.

0:27:39.770 --> 0:27:46.810

Participant5

And then maybe we'll look to see how we meet that through the environment plan, etcetera. But.

0:27:48.630 --> 0:27:56.450

Participant5

Yeah, it it's really difficult to say because we we we don't refer to it in our day-to-day work.

0:27:57.30 --> 0:27:57.210

Interviewer

Yeah.

0:28:3.200 --> 0:28:3.380

Interviewer

Yeah.

0:27:57.240 --> 0:28:8.460

Participant5

You know, we know it's there in the background, but we just get on and do the things that we did, you know, no knowing it's gonna have a contribution to, you know, the the, the wider plans are caused.

0:28:8.470 --> 0:28:11.590

Participant5

But yeah, apart from that I I can't really answer that question.

0:28:12.350 --> 0:28:13.280

Interviewer

No, that that's fine.

0:28:13.290 --> 0:28:14.190

Interviewer

That's really interesting.

0:28:18.250 --> 0:28:23.80

Interviewer

You know, interested to to see how it's kind of embedded through different parts of the sector.

0:28:23.170 --> 0:28:27.50

Interviewer

So you you that's interesting.

0:28:27.360 --> 0:28:42.800

Interviewer

Would you say then that your main activities are more focused on resolving issues that you can see now in the view to the making improvements for the future rather than planning for a future date?

0:28:44.600 --> 0:28:45.350

Interviewer

Does that make sense?

0:28:45.700 --> 0:28:47.230

Participant5

Uh, yeah.

0:28:47.240 --> 0:28:49.830

Participant5

I mean, you'll think maybe go.

0:28:49.840 --> 0:28:53.590

Participant5

You're going back to, well, what's it gonna look like in 100 years time, you know?

0:29:0.280 --> 0:29:0.510

Interviewer

Umm.

0:28:53.600 --> 0:29:1.120

Participant5

And and I what we doing now is that is that is that you know part of the pathway to that longer vision.

0:29:2.250 --> 0:29:5.640

Participant5

And again, I don't think we look at things in those terms.

0:29:6.270 --> 0:29:12.770

Participant5

I think we're we're probably more frustrated by, you know, governments and short term views.

0:29:13.870 --> 0:29:23.790

Participant5

Uh, and that wouldn't be great if we all had a plan that did what you say in a it looked, you know, at least 50 years into the future like forestry does.

0:29:24.820 --> 0:29:24.980

Interviewer

Yeah.

0:29:23.900 --> 0:29:27.440

Participant5

You know, they're they're for forest has to work on those time scales.

0:29:27.450 --> 0:29:29.450

Participant5

So that's how long it takes trees to grow.

0:29:29.700 --> 0:29:31.480

Participant5

So it's it's obvious, isn't it?

0:29:31.700 --> 0:29:41.110

Participant5

But you know, a lot of the stuff that we're involved in is at the mercy of, you know, whatever minister produces, you know, the next piece of and.

0:29:41.120 --> 0:29:44.850

Participant5

And that's probably why I personally don't take a lot of interest in it.

0:29:45.610 --> 0:29:45.790

Interviewer

Yeah.

0:29:45.450 --> 0:29:55.660

Participant5

You know, I, you know, I if I can draw out of all these different things, something that is beneficial for the trust to be able to continue into the future, our future.

0:29:56.140 --> 0:30:5.540

Participant5

I know that you know are different activities are kind of in their own right at a future proof.

0:30:5.600 --> 0:30:13.340

Participant5

You know, if we if we establish a new read bed and that is maintained into the future and it grows and it's successful then you know that's.

0:30:13.860 --> 0:30:16.150

Participant5

The and you know that's good enough.

0:30:16.280 --> 0:30:20.250

Participant5

If you take away down, it's not gonna be put back up again in the same place.

0:30:20.230 --> 0:30:20.430

Interviewer

Yeah.

0:30:20.360 --> 0:30:23.760

Participant5

So you know that's it's own future proof it.

0:30:24.360 --> 0:30:26.790

Participant5

So really I don't get.

0:30:41.210 --> 0:30:41.390

Interviewer

Yeah.

0:30:26.800 --> 0:30:44.380

Participant5

I don't get myself to involved in all that higher level stuff apart from where I can detect that there's something in it that's actually beneficial for for us as a trust to be able to see our own future because we're a small organization, we have to live by a wit, as you well know.

0:30:44.880 --> 0:30:51.650

Participant5

And you know, I'm fighting for funding and very competitive area and it's getting harder and harder.

0:30:52.140 --> 0:31:1.80

Participant5

So, and that's kind of the priority is, is you know, how do we survive into the future and not just for the sake of survival.

0:31:9.460 --> 0:31:9.620

Interviewer

Yeah.

0:31:1.90 --> 0:31:12.210

Participant5

We've got we've got a survive into the future because, you know, we all strongly believe what we do is really good, you know, and and it and it's good for the environment.

0:31:12.220 --> 0:31:15.440

Participant5

It's good for communities and you know it's good for society.

0:31:15.890 --> 0:31:29.170

Participant5

Not that they always see it straight off for the reasons we described before, but you know, if you didn't pushed these things and never happened, so where we can, we just pushed them and you know hope that.

0:31:30.570 --> 0:31:32.840

Participant5

Somebody here or two down the line will go.

0:31:32.930 --> 0:31:35.860

Participant5

Ohh yeah, it was really against that, but actually it looks great, doesn't it?

0:31:36.670 --> 0:31:37.650

Interviewer

Yeah, yeah.

0:31:36.250 --> 0:31:40.420

Participant5

I hope I might be naive, but that's that's my.

0:31:40.460 --> 0:31:41.300

Interviewer

Gotta hope haven't.

0:31:41.310 --> 0:31:41.670

Interviewer

We're here.

0:31:40.430 --> 0:31:42.900

Participant5

That's my. Yeah, absolutely.

0:31:42.910 --> 0:31:43.220

Participant5

Yeah.

0:31:43.590 --> 0:31:44.40

Participant5

Yeah.

0:31:44.50 --> 0:31:49.780

Participant5

So so really, I suppose the answer is I don't really get involved in all that sort of higher level stuff.

0:31:50.90 --> 0:31:52.520

Participant5

You know, we don't lobby.

0:31:52.530 --> 0:31:53.200

Participant5

We're not a lobby.

0:31:53.210 --> 0:31:54.0

Participant5

No organization.

0:31:54.10 --> 0:31:59.70

Participant5

That's something that the umbrella and organization, The Rivers Trust.

0:31:59.80 --> 0:32:0.750

Participant5

That's, that's where they work.

0:32:1.140 --> 0:32:1.320

Interviewer

Yeah.

0:32:8.300 --> 0:32:8.440

Interviewer

Yeah.

0:32:0.760 --> 0:32:8.930

Participant5

You know a political level and influencing and campaigning and lobbying, you know we we we're more grassroots and we just get on with it.

0:32:8.940 --> 0:32:15.700

Participant5

And as I say, I think we we believe that you know the interventions that we make, they don't always succeed.

0:32:15.710 --> 0:32:16.480

Participant5

Of course they don't.

0:32:16.490 --> 0:32:42.270

Participant5

But you know, in the main interventions we do are beneficial and the other part of our aims and objectives as a charitable trust is, is to try and, you know, engage people in communities and bring them together to, you know, help them to to, to do good things through volunteering and the sorts of catchment partnerships.

0:32:47.100 --> 0:32:47.280

Interviewer

Yeah.

0:32:42.280 --> 0:32:49.80

Participant5

That was talking about before, but again, yeah, that's got a little bit more difficult for the reasons we described.

0:32:49.230 --> 0:32:51.60

Participant5

But you know that's that's what.

0:32:51.150 --> 0:32:52.800

Participant5

That's what it's about at our level.

0:32:53.320 --> 0:33:3.250

Interviewer

Yeah, yeah, I think it of your point on forestry and kind of them needing to plan 50 years in advance because of that's the rate of growth of trees.

0:33:3.540 --> 0:33:3.740

Participant5

Yeah.

0:33:10.430 --> 0:33:10.600

Participant5

Yes.

0:33:19.130 --> 0:33:19.390

Participant5

Yeah.

0:33:3.800 --> 0:33:20.770

Interviewer

And it seems bizarre to me that we don't apply the same to the water environment because there was a study few years ago in Italy, but had looked her contamination in lakes and nutrient contamination.

0:33:20.780 --> 0:33:30.170

Interviewer

So I've, I've forus I think it was mainly focused on a better nitrogen and and they removed all of the inputs into the lake.

0:33:30.220 --> 0:33:37.90

Interviewer

So all of the kind of the effluents going in that were adding phosphorus, they reduce those right down and it took.

0:33:51.820 --> 0:33:52.0

Participant5

Yeah.

0:33:38.770 --> 0:33:55.90

Interviewer

20 to 30 years for the lakes to remediate themselves so that that balance between the sediment and the water and water concentrations, and for that to kind of balance out, and they reckon that that was typical for most European lakes.

0:33:55.580 --> 0:33:55.760

Participant5

Yeah.

0:34:0.890 --> 0:34:1.190

Participant5

Mm-hmm.

0:34:6.860 --> 0:34:9.440

Participant5

Yeah, yeah, yeah.

0:34:11.290 --> 0:34:11.450

Participant5

Yeah.

0:33:56.820 --> 0:34:12.390

Interviewer

And so, given that that's what we're trying to do, it does still seem crazy to me that we don't apply the same logic we do to for us, because you can see that to something that's microscopic and it it's gotta be that different that one of them you can see.

0:34:12.470 --> 0:34:13.390

Interviewer

And one of them you can't.

0:34:13.970 --> 0:34:14.460

Participant5

Yes.

0:34:14.510 --> 0:34:15.780

Participant5

Yeah, yeah.

0:34:18.600 --> 0:34:18.780

Interviewer

Yeah.

0:34:16.170 --> 0:34:32.910

Participant5

And and and you know we understand that and but we we we do we understand it I mean and I think that partnership you know for all its sort of faults et cetera, but we're still at the table the love Windermere partnership you know that was one of the things at the beginning.

0:34:35.50 --> 0:34:35.270

Interviewer

No.

0:34:32.920 --> 0:34:35.880

Participant5

You're not gonna kill this overnight, you know?

0:34:36.460 --> 0:34:38.40

Participant5

Hopefully bring good things.

0:34:47.690 --> 0:34:47.890

Interviewer

Yeah.

0:34:54.390 --> 0:34:54.550

Interviewer

Yeah.

0:34:38.90 --> 0:35:5.840

Participant5

Stop the inputs where you possibly can reduce them as much as you can, so on and so forth, but this is a certainly generational issue and you know any long term plan at least it's gonna be, you know, quarter of a century and you know more along the the terms you're looking you're looking for and and and actually is there not good reason to actually to think about that it much further into the distance.

0:35:6.370 --> 0:35:6.550

Interviewer

Yeah.

0:35:7.690 --> 0:35:8.160

Interviewer

Yeah.

0:35:8.450 --> 0:35:8.600

Participant5

No.

0:35:8.310 --> 0:35:15.0

Interviewer

And obviously that's stuff that you and I understand, but I don't think that's in the the general public's psyche at all.

0:35:14.420 --> 0:35:15.590

Participant5

Yeah, no.

0:35:19.360 --> 0:35:19.580

Participant5

Yeah.

0:35:22.340 --> 0:35:22.520

Participant5

Yeah.

0:35:15.730 --> 0:35:26.560

Interviewer

The understanding that environmental change takes a long time to happen unless you have a catastrophic event and but yeah, the remediation takes a long time for longer as well.

0:35:25.740 --> 0:35:26.710

Participant5

Yeah, yeah.

0:35:28.190 --> 0:35:31.250

Interviewer

And have you got another couple of minutes?

0:35:31.720 --> 0:35:32.320

Participant5

Yeah, yeah, sure.

0:35:32.730 --> 0:35:33.140

Interviewer

OK.

0:35:33.450 --> 0:35:45.210

Interviewer

I just one final question and I wanted to ask your views around the justice and how you think justice, OK.

0:35:42.600 --> 0:35:47.170

Participant5

I was intrigued with the mention of the word justice.

0:35:47.180 --> 0:35:48.850

Participant5

I wasn't quite sure what this was about.

0:35:50.120 --> 0:35:56.20

Interviewer

Umm, so the uh, I explained my reasoning behind including justice.

0:35:59.340 --> 0:35:59.550

Participant5

Yeah.

0:35:56.90 --> 0:36:0.950

Interviewer

And so sustainability is is very.

0:36:3.160 --> 0:36:5.820

Interviewer

Poorly defined thing?

0:36:7.220 --> 0:36:9.340

Interviewer

Umm, there are lots of definitions for it.

0:36:10.320 --> 0:36:18.10

Interviewer

They often it it relates back to a few questions is sustainability of what.

0:36:18.940 --> 0:36:20.150

Interviewer

So what are you sustaining?

0:36:21.130 --> 0:36:22.180

Interviewer

And for who?

0:36:23.610 --> 0:36:27.510

Interviewer

His are we are we sustaining some communities at the detriment of others?

0:36:28.190 --> 0:36:28.340

Participant5

Yeah.

0:36:28.710 --> 0:36:33.950

Interviewer

I'm bored to to the actions within the UK have detrimental impacts in other parts of the world.

0:36:46.100 --> 0:36:46.320

Participant5

Yeah.

0:37:1.770 --> 0:37:2.80

Participant5

Yeah.

0:36:35.570 --> 0:37:14.520

Interviewer

It's is not as quite as clear cut as it might seem, and and it's also linked to sustainable development, which I personally think it's a bit of a contradiction in terms because develop meaning what commonly meaningful and is put forward to main and growth in GDP and how can you have growth and ginger P without continuing time, the environment that kind of break breaking that connection hasn't been hasn't happened anywhere.

0:37:15.270 --> 0:37:15.830

Participant5

That's that.

0:37:15.840 --> 0:37:16.810

Participant5

That's very political.

0:37:15.650 --> 0:37:18.30

Interviewer

Why do we suddenly think? Yeah.

0:37:17.740 --> 0:37:19.970

Participant5

Yes, that's that's quite political, isn't it?

0:37:20.320 --> 0:37:20.830

Interviewer

Yes. Yeah.

0:37:20.0 --> 0:37:25.570

Participant5

Cause I mean but, but basically we need talking about, you know sort of growth and GDP and all the rest of it where?

0:37:28.790 --> 0:37:31.440

Participant5

To the Wilbooks, doesn't it?

0:37:31.450 --> 0:37:31.770

Participant5

Or or.

0:37:33.40 --> 0:37:33.240

Interviewer

Yeah.

0:37:43.210 --> 0:37:43.730

Interviewer

Yes. Yeah.

0:37:31.780 --> 0:37:45.360

Participant5

Certainly the Western world, you know, it's all based on growth and when whether whether you, whether you buy into the the construct or not, that's essentially what we've been born into and and you know I cannot.

0:37:45.760 --> 0:37:47.540

Participant5

That's one of my concerns.

0:37:47.550 --> 0:37:51.120

Participant5

I suppose you know on a personal level is just watching.

0:37:51.430 --> 0:38:5.660

Participant5

You know what's happened in our country, it's probably the Western world and you know, over the last few years and there's huge sort of shift to the rich and the very rich, you know, of all the.

0:38:7.700 --> 0:38:12.510

Participant5

Assets and this current sort of collapse of the middle class.

0:38:13.550 --> 0:38:19.30

Participant5

Uh, I'm talking about generational issues to try and rebalance some of that.

0:38:21.480 --> 0:38:21.670

Interviewer

Yeah.

0:38:19.550 --> 0:38:25.980

Participant5

That's gonna be one that, that that's gotta go 50 years into the future before if there's a will to do it.

0:38:26.450 --> 0:38:26.610

Interviewer

Yeah.

0:38:25.990 --> 0:38:27.800

Participant5

And I'm not quite sure that there is so.

0:38:29.270 --> 0:38:31.200

Interviewer

No. Yeah.

0:38:28.930 --> 0:38:37.480

Participant5

I do get it is like sustainable and development 2 words put together, actually a misnomer is out in, in in that respect.

0:38:38.130 --> 0:38:38.290

Interviewer

Yeah.

0:38:40.30 --> 0:38:40.410

Participant5

It's.

0:38:41.670 --> 0:38:42.50

Interviewer

That's right.

0:38:40.420 --> 0:38:42.970

Participant5

Excuse me, brannick, your phones going right.

0:38:47.160 --> 0:38:47.970

Participant5

So you could hang on.

0:38:48.210 --> 0:38:48.700

Interviewer

That's good.

0:38:48.560 --> 0:38:49.50

Participant5

There you go.

0:38:49.240 --> 0:38:51.820

Participant5

Sorry, that's alright. Yeah.

0:38:51.350 --> 0:38:57.200

Interviewer

And so that's why I started to looking at and justice and environmental justice in particular.

0:38:57.560 --> 0:38:57.800

Participant5

Yeah.

0:38:57.270 --> 0:39:19.860

Interviewer

So that's kind of pulling together and social justice issues and also adding to that having an independent voice for the environment because I strongly believe that nature has a value that is separate from the values that humans get from that nature.

0:39:20.600 --> 0:39:20.810

Participant5

Yeah.

0:39:21.190 --> 0:39:26.100

Interviewer

So so often the value of nature is described in human terms.

0:39:26.790 --> 0:39:27.420

Interviewer

There is actually.

0:39:29.640 --> 0:39:30.520

Participant5

Yeah, right. OK.

0:39:27.430 --> 0:39:50.680

Interviewer

I think it has value in and of itself, so that was that was the idea of looking at vironment justice, which is a grassroots movement looking at kind of this the the community based social issues and often social justice issues are very closely linked to environmental degradation.

0:39:51.470 --> 0:39:51.710

Participant5

Right.

0:40:9.980 --> 0:40:10.210

Participant5

Umm.

0:40:10.260 --> 0:40:12.230

Interviewer

Instead of leading to social injustice.

0:40:13.20 --> 0:40:13.220

Participant5

Yeah.

0:40:15.860 --> 0:40:16.730

Participant5

Interesting.

0:40:16.920 --> 0:40:28.100

Participant5

I mean, one of the things I don't know if it's on the same lines, but one of the things always kind of looked to me, I suppose was, you know, the in recent years is this growing?

0:40:28.830 --> 0:40:31.360

Participant5

What did he call it now about?

0:40:32.10 --> 0:40:32.370

Participant5

Not.

0:40:32.410 --> 0:40:48.860

Participant5

Not environmental credits as such, but, you know, putting a value on different, you know, putting a value on clean water, putting a value on trees, putting a value on, you know, certain landscapes and this, that and the other.

0:40:48.970 --> 0:40:55.220

Participant5

And and maybe probably on the same lines, it was like, well, yeah, it's always linked back.

0:40:55.230 --> 0:40:55.410

Participant5

What?

0:41:5.240 --> 0:41:5.420

Interviewer

Yeah.

0:40:55.420 --> 0:41:6.190

Participant5

It's ohh **what that is worth to you know they catchment community catchments, you know the people that are living in it.**

0:41:6.200 --> 0:41:10.410

Participant5

**But I do get the fact that it has value in its own right, doesn't it?**

0:41:10.720 --> 0:41:10.920

Interviewer

Yeah.

0:41:10.980 --> 0:41:24.220

Participant5

**And and and and that maybe maybe should sort of delink them in, in, in in some respects and because people get them get the fact that you know it's nice to go to a countryside park, don't they?**

0:41:24.810 --> 0:41:28.810

Participant5

And that might be their only taste of nature.

0:41:35.280 --> 0:41:35.470

Interviewer

Yeah.

0:41:28.820 --> 0:41:36.360

Participant5

We know it's contrived, but there again, as we said earlier, it's all contrived, isn't it?

0:41:37.60 --> 0:41:37.520

Participant5

I don't know.

0:41:37.520 --> 0:41:40.590

Participant5

It's such a it's such a difficult for it's such a difficult thing.

0:41:40.600 --> 0:41:47.420

Participant5

But you know, I I strongly believe that everything has a value of itself for quite agree with that.

0:41:47.840 --> 0:41:48.500

Interviewer

Yeah.

0:41:49.40 --> 0:41:54.380

Interviewer

And off when we start talking about value in in terms of investment decision making.

0:41:54.310 --> 0:41:55.560

Participant5

Yes, yes, yes, yeah.

0:42:0.480 --> 0:42:0.640

Participant5

Yeah.

0:41:56.110 --> 0:42:2.340

Interviewer

We then stopped because if we can translate everything into a value, it means we're discussing in the same terms.

0:42:2.390 --> 0:42:6.750

Interviewer

It makes a lot of sense from a purely mathematical point of view.

0:42:7.210 --> 0:42:7.430

Participant5

Yeah.

0:42:19.320 --> 0:42:19.600

Participant5

Hmm.

0:42:7.530 --> 0:42:23.480

Interviewer

And but when you when you start talking to communities and willingness to pay for improvements in order to receive certain values, that willingness to pay increases with the affluence of the Community.

0:42:23.910 --> 0:42:24.600

Participant5

You have course.

0:42:24.710 --> 0:42:28.770

Interviewer

So an affluent community is more likely to be willing to pay for their environment.

0:42:26.290 --> 0:42:29.390

Participant5

Yeah, yeah, yeah.

0:42:35.110 --> 0:42:37.70

Participant5

Yeah, yet.

0:42:29.730 --> 0:42:39.970

Interviewer

I at the private community is too worried about the essentials, food, shelter, water and and then you.

0:42:44.240 --> 0:42:44.410

Participant5

Yeah.

0:42:54.210 --> 0:42:54.390

Participant5

Yeah.

0:42:57.550 --> 0:42:57.730

Participant5

No.

0:42:40.110 --> 0:42:59.330

Interviewer

So if you rely too much on a monetary value for everything, and making that your decision point at a small scale, you then end up with very different environments that communities live with them because they can't afford the same things and the environment is seen as a luxury.

0:43:5.510 --> 0:43:5.670

Interviewer

Yeah.

0:42:59.860 --> 0:43:6.510

Participant5

But but but then on the political front, that's the same for everything else they receive, isn't it?

0:43:6.550 --> 0:43:14.950

Participant5

You know that's the same for the dentistry, for the uh, you know, for the healthcare, for their transport, you know, it's the same.

0:43:15.160 --> 0:43:15.330

Interviewer

Yeah.

0:43:15.20 --> 0:43:18.730

Participant5

Don't those who have the way we will be able to pay the way around it.

0:43:21.470 --> 0:43:21.670

Interviewer

Yeah.

0:43:19.0 --> 0:43:22.150

Participant5

The rest can't, so they go.

0:43:22.160 --> 0:43:22.830

Participant5

They go without.

0:43:23.410 --> 0:43:23.790

Interviewer

Yeah.

0:43:26.500 --> 0:43:26.710

Participant5

Yeah.

0:43:23.800 --> 0:43:29.120

Interviewer

And and also have the the influence the power and the voice to make the changes that they want.

0:43:29.750 --> 0:43:30.160

Participant5

Told me.

0:43:30.230 --> 0:43:37.170

Interviewer

And here's what I often think about a lot of the I discussion around wild swimming.

0:43:37.700 --> 0:43:37.920

Participant5

Yeah.

0:43:44.600 --> 0:43:44.790

Participant5

Yeah.

0:43:38.300 --> 0:43:45.530

Interviewer

Because while something is actually done by us, very small selective community, we're not selective.

0:43:48.190 --> 0:43:48.610

Participant5

Yeah, yeah.

0:43:53.20 --> 0:43:53.310

Participant5

Yet.

0:43:45.540 --> 0:43:58.230

Interviewer

But it is very similar demographic and the benefits that they were shouting very loud about were not going to benefit a large portion of the community and yeah.

0:43:56.170 --> 0:43:58.360

Participant5

No, no, no.

0:43:58.440 --> 0:44:14.770

Participant5

I I I and and I get that and I'm going back to where we started with the we're removal and the affluent communities that live alongside of the rig, the river and you know at that really hit home to me about keyboard warriors who are probably.

0:44:15.390 --> 0:44:16.70

Participant5

Umm.

0:44:16.850 --> 0:44:30.970

Participant5

Male white in it within a certain age range probably had successful careers quite, you know, high up in the field and got plenty of time on their hands.

0:44:30.980 --> 0:44:41.400

Participant5

And **when there's an issue, they jump into it with gusto, and they've got the skills to be able to confront every step of the way.**

0:44:42.70 --> 0:44:42.250

Interviewer

Yeah.

0:44:42.30 --> 0:44:44.120

Participant5

Uh, and you will you will.

0:44:44.130 --> 0:44:44.940

Participant5

You're not gonna get.

0:44:45.130 --> 0:44:51.700

Participant5

You might get that, you know, like I say, you upstream of Kendal, you know, in in some of those nice communities.

0:44:54.200 --> 0:44:54.360

Interviewer

No.

0:44:51.710 --> 0:44:56.530

Participant5

But you're not gonna get it in the center of Barrow because people haven't got the time.

0:44:56.540 --> 0:45:2.600

Participant5

They haven't got the resources, they probably got the skills to be able to take this sort of thing on.

0:45:10.420 --> 0:45:10.640

Interviewer

Yeah.

0:45:2.610 --> 0:45:20.770

Participant5

So there's a huge imbalance where you are and it is something that frustrates me to probably on a political level is because I think, oh, here we go again, they're like clones, you know, certain people, parish councillors, this that and the other see them time and time again, the same type of person.

0:45:21.190 --> 0:45:24.510

Participant5

And I find it very frustrating personally.

0:45:25.110 --> 0:45:25.300

Interviewer

Yeah.

0:45:26.920 --> 0:45:31.510

Participant5

Umm, I don't know what point I'm trying to make that maybe just a couple, I don't know.

0:45:30.710 --> 0:45:32.60

Interviewer

No, just sharing.

0:45:32.70 --> 0:45:32.860

Interviewer

Sharing is fine.

0:45:33.210 --> 0:45:34.980

Participant5

Yeah, exactly. Yeah.

0:45:34.530 --> 0:45:39.80

Interviewer

No, I think it's interesting to see that.

0:45:41.120 --> 0:45:41.400

Interviewer

Yeah.

0:45:47.860 --> 0:45:48.60

Participant5

Yeah.

0:45:50.210 --> 0:45:50.370

Participant5

Yeah.

0:45:52.380 --> 0:45:52.860

Participant5

Yeah, yeah.

0:46:2.600 --> 0:46:2.900

Participant5

Right.

0:46:7.380 --> 0:46:7.580

Participant5

Yeah.

0:46:8.860 --> 0:46:9.780

Participant5

Yes, yeah, yeah.

0:46:12.590 --> 0:46:12.950

Participant5

Yet.

0:45:41.410 --> 0:46:15.120

Interviewer

Those those same issues, the same concerns a present amongst the people that I'm speaking to, but also their present globally and a lot of the the justice conversation I think in America it it started out in America as as a racial conversation and but actually it's been taken on in a lot of areas by indigenous communities and because they've viewed the value of nature differently to the regulatory system that they sit with them.

0:46:15.610 --> 0:46:16.300

Participant5

Absolutely.

0:46:16.310 --> 0:46:26.640

Participant5

I I had a I had a great conversation with a uh, a chap who was an American Indian and I damn removal conference think it was in Vienna.

0:46:26.650 --> 0:46:34.30

Participant5

Actually, we went to went, we went to Vienna and he he he also gave a talk and I spoke to him at the bar later and all the rest of it.

0:46:34.40 --> 0:46:36.60

Participant5

But that's exactly what you're talking about.

0:46:37.840 --> 0:46:38.40

Interviewer

Yeah.

0:46:45.530 --> 0:46:45.710

Interviewer

Yeah.

0:46:36.130 --> 0:46:46.980

Participant5

They would just sidelined all the time, but they had this huge history of being very close to the land for, you know, thousands of years and they just didn't have a voice.

0:46:51.80 --> 0:46:51.260

Interviewer

Yeah.

0:46:47.50 --> 0:47:4.530

Participant5

So they made themselves heard and bit by bit they got there and and now they have the power, you know, about what's done, what's not done so on and so forth and being able to, you know, make sure that some of those cultural practices that do are maintained into the future.

0:47:4.540 --> 0:47:14.440

Participant5

So, you know, apps really interesting and I think similar things have happened in other places with the Aborigines in Australia and how they care for the water.

0:47:14.450 --> 0:47:16.590

Participant5

And the land and so on and so forth.

0:47:16.600 --> 0:47:29.70

Participant5

And I think there's been a growing acceptance that, you know, the those bad old days of, you know, being racist and keeping those people under the thumb, you know, hopefully started to turn that corner.

0:47:29.80 --> 0:47:38.50

Participant5

And you know that they are involved in, you know, maintaining, sustaining properly and then landscapes and environment.

0:47:38.610 --> 0:47:39.200

Interviewer

Yeah.

0:47:44.640 --> 0:47:44.840

Participant5

Yeah.

0:47:47.880 --> 0:47:48.150

Participant5

Hmm.

0:47:39.270 --> 0:47:50.750

Interviewer

Yeah, a lot of those communities as well that advocated for legal personhood of specific environmental areas, that places which gives.

0:47:52.790 --> 0:47:54.730

Interviewer

Gives that sort of natural body.

0:47:58.280 --> 0:47:58.620

Participant5

Yeah, yeah.

0:48:0.170 --> 0:48:0.450

Participant5

Umm.

0:47:55.410 --> 0:48:3.900

Interviewer

Umm, the same legal rights as a person or community, and that's been used to with great power in some areas.

0:48:3.670 --> 0:48:4.0

Participant5

Yeah.

0:48:4.490 --> 0:48:4.670

Participant5

Yeah.

0:48:5.740 --> 0:48:6.590

Participant5

Interested in, isn't it?

0:48:6.930 --> 0:48:7.600

Interviewer

Yeah.

0:48:7.830 --> 0:48:9.380

Interviewer

And that's very much

0:48:9.420 --> 0:48:11.790

Interviewer

That's been a really useful conversation.

0:48:11.870 --> 0:48:15.50

Interviewer

I don't know if there's anything else you'd like to add or I'll say.

0:48:14.540 --> 0:48:15.970

Participant5

No, I've had.

0:48:15.980 --> 0:48:16.630

Participant5

No, no, no.

0:48:16.640 --> 0:48:23.800

Participant5

I think I've I've just kind of taking an hour out to vent some of my frustrations, which has been really helpful, Bryony.

0:48:24.130 --> 0:48:24.460

Interviewer

Good.

0:48:24.470 --> 0:48:25.300

Interviewer

I'm glad it's cathartic.

0:48:27.150 --> 0:48:28.100

Participant5

Absolutely right.

## **Interview 6**

Date of meeting: 26/04/2024

0:0:0.0 --> 0:0:1.330

Interviewer

So I wonder if be useful.

0:0:1.340 --> 0:0:6.100

Interviewer

If I give you a bit of background about me and and the research and why I'm doing it to start with.

0:0:5.790 --> 0:0:7.110

Participant6

Yes, that would be helpful.

0:0:7.810 --> 0:0:11.960

Interviewer

And so I I used to be a process engineer working in the water industry.

0:0:32.770 --> 0:0:33.20

Participant6

Umm.

0:0:12.810 --> 0:0:40.20

Interviewer

Umm for you that you still stays mainly on the wastewater side, so looking at designing and OP sharing and improving wastewater treatment works and and I moved into innovation through that and and looking at different technologies and how we can do things differently and as part of the innovation work I was involved in the Petteril project.

0:0:41.320 --> 0:0:41.490

Participant6

Yep.

0:0:40.70 --> 0:0:42.0

Interviewer

I think Cumbria at you.

0:0:42.10 --> 0:0:42.890

Interviewer

Are you aware of that one?

0:0:43.360 --> 0:0:43.560

Participant6

Uh-huh.

0:0:44.220 --> 0:0:44.400

Interviewer

OK.

0:0:45.0 --> 0:0:45.300

Participant6

I am.

0:0:46.50 --> 0:0:56.700

Interviewer

Which really sort of triggered my thinking of how can we do things differently to better improve the environment for society as a whole.

0:0:57.500 --> 0:0:57.910

Participant6

Umm.

0:0:57.110 --> 0:1:3.620

Interviewer

And instead of looking at end of pipe, look at the wider problem, the wider issue.

0:1:5.480 --> 0:1:17.660

Interviewer

And it led me to thinking that there's kind of systemic reasons why we don't do that, which again has then led me to leave the water industry and start (PhD).

0:1:21.830 --> 0:1:23.0

Participant6

Yeah, I can understand that.

0:1:20.650 --> 0:1:44.910

Interviewer

And to to start looking at, yeah, start looking at at why do these things happen, and particularly from an Urban Development point of view and how can we look at things differently for the, for the betterment of society as a whole because a lot of the integrated catchment work and I'm aware of is kind of quite rural focused.

0:1:45.560 --> 0:1:45.800

Participant6

Hmm.

0:1:46.40 --> 0:1:49.870

Interviewer

And so I was really looking at it from an urban perspective.

0:1:49.880 --> 0:1:56.200

Interviewer

How would you apply that thinking into the urban context and the research group?

0:2:0.830 --> 0:2:1.80

Participant6

Umm.

0:1:56.210 --> 0:2:5.890

Interviewer

I've joined a mainly focused on Urban Development and Liveable cities, and so they look at it from the other point of view.

0:2:6.300 --> 0:2:6.450

Participant6

Yeah.

0:2:5.900 --> 0:2:7.490

Interviewer

I look at everything from a water perspective.

0:2:9.570 --> 0:2:9.730

Participant6

Yeah.

0:2:7.500 --> 0:2:12.540

Interviewer

They look everything from a built environment perspective and but it's a similar way of thinking about things.

0:2:13.30 --> 0:2:13.260

Participant6

Umm.

0:2:14.520 --> 0:2:35.850

Interviewer

And so so you have spent the last few years kind of working back through what fundamental questions and I it led me to the perspective that which really don't have a good understanding of our relationship with water environment from multiple perspectives.

0:2:36.470 --> 0:2:36.740

Participant6

Umm.

0:2:37.180 --> 0:2:43.400

Interviewer

And so that's what my research focus is on is how do we understand that better and how do we communicate that better?

0:2:43.720 --> 0:2:43.890

Participant6

Yeah.

0:2:44.10 --> 0:2:48.870

Interviewer

Because I think a lot of people have very deep knowledge or certain pockets.

0:2:52.510 --> 0:2:52.770

Participant6

Hmm.

0:2:49.860 --> 0:2:54.350

Interviewer

But how do we make that more accessible so we can make more holistic decisions?

0:3:0.800 --> 0:3:0.960

Interviewer

Yeah.

0:3:7.950 --> 0:3:8.150

Interviewer

Yeah.

0:2:55.810 --> 0:3:14.530

Participant6

Well, and I think there's an element too there of how do you get people to value the water environment, you know, to respect it, to recognize their impact on it, to daily life and the fact

that we can flush the toilet and not every think again about what we put down. It is very, very privileged position to be in.

0:3:15.270 --> 0:3:20.380

Interviewer

It is and a lot of people have the the opinion that it's someone else's problem.

0:3:20.870 --> 0:3:21.30

Participant6

Yeah.

0:3:22.240 --> 0:3:22.810

Participant6

Exactly.

0:3:23.300 --> 0:3:23.420

Participant6

Yeah.

0:3:20.610 --> 0:3:24.570

Interviewer

As soon as they flush the toilet, that's that's someone or put something down the drain.

0:3:24.650 --> 0:3:25.830

Participant6

Damn those water companies.

0:3:25.840 --> 0:3:26.680

Participant6

Why don't they do better?

0:3:26.690 --> 0:3:27.890

Participant6

Well, maybe you shouldn't flush wipes.

0:3:31.820 --> 0:3:38.580

Interviewer

And so yeah, really wanted to use this as a chance to to delve into some of the topics and the questionnaire a bit more detail.

0:3:38.240 --> 0:3:39.580

Participant6

Yes, that's fine.

0:3:45.490 --> 0:3:46.270

Participant6

I don't remember it.

0:3:46.280 --> 0:3:46.540

Participant6

I'm sorry.

0:3:40.260 --> 0:3:47.370

Interviewer

I don't know if there's anything that stood out to you that you want to pick up on straight away or that's fine.

0:3:48.830 --> 0:3:49.460

Interviewer

That's fine.

0:3:50.300 --> 0:4:8.270

Interviewer

And so I I think start with and maybe would you be able to share some views on how you think we plan for the future do do you think we plan for the future or do we do you think we're kind of more focused on the the here and now?

0:4:10.290 --> 0:4:13.400

Interviewer

And you how are you think that's changing?

0:4:14.590 --> 0:4:18.680

Participant6

As a society, as government, as a water industry.

0:4:19.210 --> 0:4:19.800

Interviewer

Whatever you want.

0:4:21.280 --> 0:4:21.810

Interviewer

Yeah.

0:4:20.380 --> 0:4:21.850

Participant6

But everyone open, OK.

0:4:27.400 --> 0:4:29.40

Participant6

As a water sector. Hmm.

0:4:37.480 --> 0:4:37.700

Participant6

Yeah.

0:4:21.920 --> 0:4:41.590

Interviewer

And and yeah, I'd say I I'm tending to look at this as a water sector rather than the water industry because the water industry as a portion its a large portion, but it's a portion of the water sector say, but yeah, any of the the views you want to share, that's fine.

0:4:41.640 --> 0:4:44.10

Participant6

So so my background.

0:4:44.100 --> 0:4:45.270

Participant6

I'm a hydrogeologist.

0:4:45.600 --> 0:4:45.800

Interviewer

OK.

0:4:45.820 --> 0:4:54.920

Participant6

I've worked in four different countries as consultant, researcher, whatever worked for three other governments other than I've never worked for my own government.

0:4:54.930 --> 0:4:58.190

Participant6

But I've worked for the government to three other countries, including England.

0:4:58.760 --> 0:5:0.430

Participant6

Umm, it's quite interesting.

0:5:0.880 --> 0:5:2.170

Participant6

Uh, yeah.

0:5:2.180 --> 0:5:10.850

Participant6

So I've been in the EA since 2007, working in an area I work in the Northeast area groundwater and contaminant land team as a hydrogeologist.

0:5:10.860 --> 0:5:16.500

Participant6

So working with water companies on managing groundwater supplies, mine water risk, all that kind of stuff.

0:5:17.90 --> 0:5:18.900

Participant6

And in 2020, I moved to future funding.

0:5:20.440 --> 0:5:25.770

Participant6

So it's a national team within the Environment Agency where we look at trying to enable blended funding.

0:5:26.160 --> 0:5:28.780

Participant6

You know, how do we bring in other other money?

0:5:28.790 --> 0:5:40.220

Participant6

And I think what I joined the team in October 2020, it was very much about nature markets

and credits and selling, selling ecosystem services and through the work that I'm involved with, I very much see it as that.

0:5:40.650 --> 0:5:44.60

Participant6

That may be an element of it, but we need to step back and think.

0:5:44.910 --> 0:5:47.640

Participant6

How do we collaboratively work together?

0:5:47.650 --> 0:6:0.490

Participant6

How do all the organizations who are present in a catchment work collaboratively together to develop plan that could be delivered to solve the environmental problem in that catchment and think about funding at the same time too?

0:6:0.500 --> 0:6:10.780

Participant6

So if you have that [jigsaw puzzle of land ownership and action that could be taken](#), you know who can do what, what what grant opportunities are there that you can go for cause.

0:6:11.60 --> 0:6:13.120

Participant6

But would anybody go into debt if they don't have to?

0:6:13.890 --> 0:6:14.50

Interviewer

Yeah.

0:6:14.460 --> 0:6:21.110

Participant6

And then you know and then look at well actually do we need to go into debt, can we ask some buyers to put into this?

0:6:21.120 --> 0:6:33.90

Participant6

And but you know, by working collaboratively at that scale, I think there's a much bigger offer to potential investors, but also then you have better bargaining power and your transaction costs are lower case.

0:6:33.100 --> 0:6:38.570

Participant6

They may only have 1 transaction to do rather than many transactions with lots of different land owners.

0:6:38.580 --> 0:6:42.210

Participant6

So do we plan for the future at the minute?

0:6:42.220 --> 0:6:43.400

Participant6

No, I don't think we do.

0:6:44.780 --> 0:6:45.570

Participant6

Do we need to?

0:6:45.580 --> 0:6:45.920

Participant6

Hell yes.

0:6:47.10 --> 0:6:47.450

Participant6

Umm.

0:6:47.710 --> 0:7:2.360

Participant6

And I think I think from what I see across government, there is an attempt to try to shift to a more systems approach to water management that's not ubiquitous yet it's still forming. I think there's still quite enough hill climb to go.

0:7:3.220 --> 0:7:11.810

Participant6

It doesn't help that we're at the end of a Parliament that has kind of not really put a lot of weight behind any environmental.

0:7:13.350 --> 0:7:13.700

Participant6

Umm.

0:7:17.420 --> 0:7:17.620

Interviewer

Yeah.

0:7:16.60 --> 0:7:22.550

Participant6

Anything for lack of a better word, and I think that that kind of like the lame duck period.

0:7:22.560 --> 0:7:24.110

Participant6

You know, if if, what?

0:7:24.120 --> 0:7:27.720

Participant6

Whatever happens, we're gonna have a new parliament, whoever's leading it.

0:7:40.600 --> 0:7:40.820

Interviewer

Yeah.

0:7:28.120 --> 0:7:41.690

Participant6

But that period of knowing that we're in an election period I think makes some of my colleagues at Defra kind of things seem to feel like they're going a bit slowly because they're kind of waiting to see who they're writing the policy for that makes sense.

0:7:45.540 --> 0:7:47.280

Participant6

Some of the work I'm doing is looking at.

0:7:50.720 --> 0:8:1.800

Participant6

Uh, how do we influence PR 29 to allow for more Co investment and trying to overcome some of the regulatory barriers that get in the way, which has been really fascinating?

0:8:1.810 --> 0:8:2.960

Participant6

I've learned so much.

0:8:2.970 --> 0:8:5.180

Participant6

You know, I thought I understood how they water industry worked.

0:8:5.220 --> 0:8:9.980

Participant6

Really, you just kind of get into the nuance of it and it is very water quality focus this element of it.

0:8:9.990 --> 0:8:14.380

Participant6

So really interested in looking at the integrated drainage and wastewater management plan element.

0:8:14.390 --> 0:8:14.960

Participant6

You know what?

0:8:15.230 --> 0:8:16.720

Participant6

What opportunities are there there?

0:8:16.730 --> 0:8:26.650

Participant6

How do we how do we actually start dealing with water in an integrated way and a lot of people I think would say, well, this collaborative working together, isn't that what CABA does?

0:8:27.470 --> 0:8:31.660

Participant6

Yes, to some extent, but there's no mandate for any of those partners to be in the room.

0:8:32.500 --> 0:8:33.550

Participant6

Yeah, that's voluntary

0:8:34.470 --> 0:8:37.0

Participant6

Umm, there's no accountability. Really.

0:8:37.350 --> 0:8:39.900

Participant6

There's little accountability. Umm.

0:8:41.840 --> 0:8:49.220

Participant6

And I don't think they have the power, nor do I think they have been empowered to think creatively.

0:8:49.230 --> 0:8:55.580

Participant6

So they could set themselves up as some sort of special purpose vehicle to blend funding amongst them.

0:8:55.590 --> 0:9:0.960

Participant6

So then you have multiple organizations forming a board of a thing.

0:9:11.640 --> 0:9:11.800

Interviewer

Yeah.

0:9:1.330 --> 0:9:12.500

Participant6

Community Company benefits society, whatever whose purpose is to improve the environment in that catchment and hopefully meet the link to local communities cause to me that's a really key thing.

0:9:12.510 --> 0:9:21.70

Participant6

That's one of the worries I have with all this talk about private investment is we need to ensure that our private community, our local communities, benefit from all of this work.

0:9:21.960 --> 0:9:22.80

Interviewer

Yeah.

0:9:21.910 --> 0:9:28.930

Participant6

You know we can't be in a situation like we are with social housing for care homes, the elderly or for children.

0:9:29.960 --> 0:9:35.40

Participant6

Where you know they're owned by asset management companies who are operating them for profit rather than for service.

0:9:36.420 --> 0:9:36.620

Interviewer

Yeah.

0:9:48.500 --> 0:9:48.870

Participant6

Uh.

0:9:51.0 --> 0:9:51.160

Participant6

Yeah.

0:9:56.740 --> 0:9:56.990

Participant6

Yeah.

0:9:57.0 --> 0:9:58.960

Participant6

So absolutely.

0:9:59.10 --> 0:9:59.200

Interviewer

Over.

0:9:59.790 --> 0:10:0.560

Participant6

Yeah, exactly.

0:10:0.570 --> 0:10:9.720

Participant6

So if you're in a rural community, then the land owners and the people who live next to those land owners support the change that's needed to bring out the environmental change, right?

0:10:9.610 --> 0:10:9.810

Interviewer

Yeah.

0:10:9.910 --> 0:10:12.680

Participant6

I live in a small village in County Durham.

0:10:13.740 --> 0:10:17.840

Participant6

We get flooded regularly from surface water runoff because the it's very steep.

0:10:19.30 --> 0:10:19.520

Participant6

Umm.

0:10:19.950 --> 0:10:28.610

Participant6

And the farms are, you know, arable or they're cattle.

0:10:29.290 --> 0:10:29.800

Participant6

Umm.

0:10:30.170 --> 0:10:50.470

Participant6

And so there's a, I mean, the phenomenal amounts of run off this year because it's been so wet that you just think surely the hilltops need to be trees or, you know, even you've got massive dairy farm across the valley, you know, even agroforestry would do a lot to help improve the infiltration practice the runoff.

0:10:52.650 --> 0:11:0.500

Participant6

But if that were to happen, a lot of people would see a nice green, grassy hill with hedges on look very different and that scares a lot of people.

0:11:0.870 --> 0:11:1.70

Interviewer

Yeah.

0:11:1.110 --> 0:11:14.200

Participant6

So you have, you know, there's A at the top end of the village at the upstream end of the village, there's a commercial forest that they want to plant land on, a wants to convert or grazing land really into a commercial forest.

0:11:15.170 --> 0:11:25.260

Participant6

I think they have to do 30% minimum broadleaf trees for commercial forestry, so they've opted to do 40% so more less commercial forestry to be gained by them.

0:11:25.270 --> 0:11:28.580

Participant6

At some point they do wanna have camping lodges and things in there.

0:11:37.830 --> 0:11:38.10

Interviewer

Yeah.

0:11:28.590 --> 0:11:38.270

Participant6

That's fine, but the amount of people who are against the idea because it will change the landscape from open field to trees is phenomenal.

0:11:39.700 --> 0:11:39.900

Interviewer

Yeah.

0:11:39.570 --> 0:11:41.950

Participant6

You know, they **people don't see the multiple benefits.**

0:11:41.960 --> 0:11:46.990

Participant6

**They don't see the the carbon, they don't see the biodiversity, they don't see the flood risk.**

0:11:47.0 --> 0:11:47.490

Participant6

They go.

0:11:47.500 --> 0:11:48.550

Participant6

Oh, it's gonna bring midges.

0:11:48.560 --> 0:11:49.590

Participant6

Kielder has midges.

0:11:49.600 --> 0:11:50.400

Participant6

They have pine trees.

0:11:50.410 --> 0:11:51.750

Participant6

We're gonna have midges and you kind of go.

0:11:53.400 --> 0:11:54.470

Participant6

Don't think that's how it works.

0:11:57.530 --> 0:11:57.900

Interviewer

Yeah.

0:11:57.910 --> 0:12:2.810

Interviewer

And I think that's it's linked to our perception of what I'm natural environment is.

0:12:3.310 --> 0:12:3.670

Participant6

Umm.

0:12:10.870 --> 0:12:11.10

Participant6

Yeah.

0:12:3.650 --> 0:12:16.60

Interviewer

So across England and natural environment is actually an agricultural environment and we have very little perception of what wild areas look like because our so few.

0:12:14.960 --> 0:12:17.990

Participant6

Umm yeah

0:12:18.0 --> 0:12:23.130

Participant6

I heard a colleague from a Wildlife Trust described it as a very capability brown type of landscape as well.

0:12:28.560 --> 0:12:28.740

Interviewer

Yeah.

0:12:23.140 --> 0:12:29.940

Participant6

It's a very managed open fields clumps of trees around the edges or at some distance in the edge around the edges.

0:12:34.680 --> 0:12:34.880

Interviewer

Yeah.

0:12:31.960 --> 0:12:41.370

Participant6

I thought was quite a nice description of it as well, but yeah, you're right, the the natural, the normal little finger quotes air quotes is very much an agricultural landscape.

0:12:42.890 --> 0:12:43.560

Interviewer

Yeah.

0:12:53.960 --> 0:12:54.410

Participant6

Umm.

0:13:1.220 --> 0:13:1.440

Participant6

Umm.

0:13:13.940 --> 0:13:15.270

Participant6

And with yes.

0:12:44.70 --> 0:13:15.730

Interviewer

And then, yeah, about that kind of community ownership, I when I was at UU, we're working with farmers and land owners in one part of the area, and they were they were family like long term family run farms and they had a long term commitment they they wanted to improve their environment and their lands and then would reduce run off because they had this legacy of ownership and they wanted to see the improvements long term.

0:13:23.590 --> 0:13:25.80

Participant6

Yeah, they're not interested at all.

0:13:16.400 --> 0:13:25.430

Interviewer

We worked six months later in a different area where was all tenant farmers and say there was no engagement because it was quick turn over.

0:13:25.350 --> 0:13:26.300

Participant6

Not their land, yeah.

0:13:30.70 --> 0:13:30.210

Participant6

Yes.

0:13:26.320 --> 0:13:30.840

Interviewer

Yeah, I don't need it to make as much money as they could off the land as it was.

0:13:30.850 --> 0:13:31.730

Interviewer

And then move on.

0:13:32.710 --> 0:13:41.690

Participant6

It's interesting because the other piece of research that I've heard that similar is so the Defra land use Framework team had done some research with.

0:13:44.120 --> 0:13:45.510

Participant6

Farmers in Cumbria.

0:13:47.460 --> 0:13:47.930

Participant6

What to say?

0:13:47.940 --> 0:13:55.360

Participant6

Like Herefordshire, maybe East Anglia and then somewhere in the southwest I can't quite remember where that.

0:13:55.370 --> 0:14:2.360

Participant6

They said there was just such a massive difference attitude in land use from Cumbria where you had, you know, a lot of hill farmers.

0:14:4.200 --> 0:14:6.390

Participant6

Where it was very much more about heritage and legacy.

0:14:9.830 --> 0:14:10.30

Interviewer

Yeah.

0:14:7.330 --> 0:14:12.480

Participant6

Umm, because they were all land owners and they weren't versus an E Anglia.

0:14:12.530 --> 0:14:13.790

Participant6

The farm is treated as business.

0:14:15.160 --> 0:14:17.490

Participant6

You know, there was no heritage or legacy around it.

0:14:17.500 --> 0:14:19.470

Participant6

That was not what their priority was at all.

0:14:19.560 --> 0:14:20.40

Participant6

It was.

0:14:20.220 --> 0:14:21.470

Participant6

How do we maximize profit?

0:14:21.680 --> 0:14:22.590

Participant6

What else can we do?

0:14:22.600 --> 0:14:38.870

Participant6

We can put in the solar farm in that corner where we don't really get any if we can't really grow anything there or you know, we can, yeah, constantly looking to innovate because they always wanted to make money, not bothered about not not saying that they weren't environmentally switched on.

0:14:38.880 --> 0:14:42.10

Participant6

Some of them were, but that wasn't their driving motivation.

0:14:42.20 --> 0:14:46.0

Participant6

Wasn't the landscape heritage aspect if that makes sense.

0:14:46.440 --> 0:14:46.660

Interviewer

Yeah.

0:14:48.920 --> 0:14:51.30

Interviewer  
Yeah. Umm.

0:14:57.130 --> 0:15:12.40

Interviewer  
And I so related to that, what are your views on on what kind of the focus should be when we're looking at and actions within a catchment or or looking at catchment in general?

0:15:22.390 --> 0:15:22.660

Participant6  
Umm.

0:15:12.750 --> 0:15:26.960

Interviewer  
And so the question I put some examples of what should we be looking at resilience and sustainability justice and yeah, do you wanna share any views on any of that?

0:15:28.220 --> 0:15:29.160

Participant6  
Can we not look at all three?

0:15:30.150 --> 0:15:31.120

Interviewer  
Yeah, absolutely.

0:15:32.90 --> 0:15:34.160

Participant6  
I mean, does it have to be one or the other?

0:15:35.770 --> 0:15:36.10

Interviewer  
No.

0:15:35.830 --> 0:15:38.490

Participant6  
I mean **resilience and sustainability kind of go hand in hand**, right?

0:15:40.670 --> 0:15:41.100

Interviewer  
Yeah.

0:15:41.170 --> 0:15:45.90

Interviewer  
I mean, it's generally kind of seen as a a progression.

0:15:45.850 --> 0:15:46.80

Participant6  
Umm.

0:15:49.0 --> 0:15:49.240

Participant6

Umm.

0:15:46.480 --> 0:15:52.40

Interviewer

So you can't be sustainable unless you're resilient and but you can be resilient without being sustainable.

0:15:52.10 --> 0:15:53.210

Participant6

But yeah, OK, let's see.

0:15:54.360 --> 0:15:54.790

Participant6

Got it.

0:15:54.60 --> 0:15:56.680

Interviewer

And yeah, and then kind of justice sits beyond that.

0:15:55.640 --> 0:15:57.890

Participant6

I E yeah, I mean.

0:16:0.690 --> 0:16:4.480

Participant6

Personally, I think we should be aiming for the just transition pathway.

0:16:5.470 --> 0:16:5.650

Interviewer

Yeah.

0:16:5.490 --> 0:16:11.20

Participant6

Umm, I think that takes a lot of hearts and minds to be changed though, and a lot of political will.

0:16:12.710 --> 0:16:18.600

Participant6

So adaptation and resilience is quite a big, big, big phrases going around at the minute.

0:16:19.130 --> 0:16:21.790

Participant6

Maybe those feel a little bit more achievable.

0:16:23.740 --> 0:16:24.160

Participant6

Umm.

0:16:27.50 --> 0:16:29.740

Participant6

I think there's an maybe because I work for the EA.

0:16:30.40 --> 0:16:31.980

Participant6

There's an assumption that will also be sustainable.

0:16:33.160 --> 0:16:33.360

Interviewer

Yeah.

0:16:33.730 --> 0:16:34.340

Participant6

You know a lot.

0:16:34.350 --> 0:16:45.130

Participant6

A lot of what we're talking about is you do catchment management in a, you know focused on the multiple benefits because it builds resiliency for the catchment have.

0:16:45.720 --> 0:16:46.810

Participant6

So what are my colleagues?

0:16:46.820 --> 0:16:49.680

Participant6

Has a project happening on the air in Leeds?

0:16:50.540 --> 0:16:58.650

Participant6

Umm, where he's looking at developing a Co funding model for it's natural flood management.

0:16:58.660 --> 0:17:9.400

Participant6

So I think I think the pitch that he says is the leads flood alleviation scheme will protect you know, effectively can protect people up to a certain point.

0:17:9.410 --> 0:17:24.530

Participant6

But if we in enact all this natural Management across the catchment, you can reduce flood risk by another 5 to 6% or lengthen the time over which those that flood alleviation scheme is viable, right.

0:17:25.80 --> 0:17:25.260

Interviewer

Yeah.

0:17:24.590 --> 0:17:34.790

Participant6

So you kind of it's, it's a bit of statistics and percentages and probabilities, but you know for

the they're focusing on the one in 200 year event because that's what they've been hit by mostly that size of event.

0:17:37.610 --> 0:17:42.250

Participant6

Using capital, looking at using capital to actually and that's this natural flood management.

0:17:42.260 --> 0:17:51.250

Participant6

But then looking at raising money through local businesses, who would benefit from the flood risk reduction element to pay for the maintenance?

0:17:51.260 --> 0:17:59.660

Participant6

The monitoring and I think things like that or wonderful, but they they also need to link into what's happening.

0:17:59.670 --> 0:18:6.590

Participant6

So the local authority or a partner you know needs to fit into some of the local authority ambitions too.

0:18:6.960 --> 0:18:15.410

Participant6

So one of the things we're trying to do with a program called Nature returns is look at catchment scale blended funding, but that also has an element for communities.

0:18:15.420 --> 0:18:18.590

Participant6

So, you know, no.

0:18:18.730 --> 0:18:21.290

Participant6

Are there different types that I'm not an expert in?

0:18:21.300 --> 0:18:34.110

Participant6

The stuff I've working with others you know more about it than I do, you know, looking at Community investment vehicles or community assets that can be owned by a community and managed by a community that gives them that ownership, like you say.

0:18:35.980 --> 0:18:40.750

Participant6

Makes them more engaged, and that's so whether it's around parks or whether it's around social housing.

0:18:41.280 --> 0:18:53.360

Participant6

I mean, what are the opportunities there that we can explore that kind of builds that engagement but then hopefully helps lift people a little bit higher out of Meyer, so more of an equitable transition?

0:18:54.720 --> 0:18:54.920

Interviewer

Yeah.

0:18:58.560 --> 0:18:59.0

Interviewer

And.

0:19:4.90 --> 0:19:4.340

Interviewer

So.

0:19:7.720 --> 0:19:27.20

Interviewer

And midway, where you currently sit and and the projects you're involved in, do you think the the structures or the government structures that we have support that or are you finding that you're creating the governance structures essentially to support these actions?

0:19:27.900 --> 0:19:29.960

Participant6

How do you use government structures?

0:19:29.970 --> 0:19:35.20

Participant6

What's your definition of governance structure in that in that case cause I've there's lots of different things that could mean.

0:19:33.410 --> 0:19:43.20

Interviewer

And yeah, and so I guess in this sense, more kind of the regulatory side of things and and.

0:19:45.280 --> 0:19:46.420

Interviewer

Statutory commitments.

0:19:48.290 --> 0:19:52.630

Interviewer

Regulatory requirements and the the more kind of hard governance.

0:19:57.520 --> 0:20:4.270

Participant6

I think there's a big question floating around as to what Defra and other government bodies, you know, but I work for Defra.

0:20:6.560 --> 0:20:6.780

Interviewer

Yep.

0:20:4.320 --> 0:20:11.620

Participant6

Ultimately, you know when my parent organization, **what incentives can Defra or put in place that can enable?**

0:20:13.960 --> 0:20:44.190

Participant6

This transition to either you know, a more regenerative ultimately becomes ultimately a more regenerative economic wait a functioning because if you're farmers of your agricultural products are actually investing not just to get the cheap, the product produced most cheaply so that they can have the most profit, but they're investing in element of that to create a better, more resilient, more sustainable, more justly used landscape then that could help.

0:20:44.200 --> 0:20:48.870

Participant6

So how does how does an organization like Defra influence that?

0:20:48.880 --> 0:20:57.70

Participant6

If you look at the water industry, then you look at PR29 or the the winapp approach and the role of the economic regulator.

0:20:57.80 --> 0:21:6.30

Participant6

So how can Defra and the economic regulator require greater investment from the water companies into catchment nature based solutions or catchment scale?

0:21:6.40 --> 0:21:6.700

Participant6

Nature based solutions.

0:21:7.490 --> 0:21:12.340

Participant6

You know, and I'm sure you'll get lots of opinions about privatized water companies.

0:21:13.700 --> 0:21:14.130

Participant6

Umm.

0:21:14.660 --> 0:21:27.730

Participant6

In my mind, Ofwat as an economic regulator, could do a lot to require more investment, whether it's profit caps or percentages of profits or social purpose, within their license to operate.

0:21:28.790 --> 0:21:37.770

Participant6

Umm, I think within the EA we very much have an enabling and well, where I sit, certainly we have an enabling and facilitation role.

0:21:38.20 --> 0:21:49.10

Participant6

So trying to help some of my regulatory colleagues understand and believe in the benefits of catchment nature based solutions, but also help the water industry recognize that.

0:21:50.110 --> 0:21:52.950

Participant6

But regulatory colleagues aren't asking for things just to be awful.

0:21:53.850 --> 0:21:57.560

Participant6

So we have certain regulatory requirements we have to meet as an organization as well.

0:21:58.160 --> 0:21:58.360

Interviewer

Yeah.

0:21:57.950 --> 0:22:10.990

Participant6

We need to have some certainty, so trying to act as the go between a lot of the time to kind of help this conversations and to get people to recognize that just regulation alone isn't enough.

0:22:11.40 --> 0:22:20.800

Participant6

First of all, we're not gonna hit all of our environmental targets just through regulation and that that collaborative approach can help improve the regulatory relationship.

0:22:21.640 --> 0:22:25.160

Participant6

Obviously we still have to be in a position of we're gonna hit you with a stick if you're bad.

0:22:26.10 --> 0:22:26.200

Interviewer

Yeah.

0:22:25.540 --> 0:22:37.370

Participant6

That's always gonna be there, but I get really frustrated when I see my regular regulatory colleagues just say no and not provide any narrative around why the answer is no.

0:22:38.600 --> 0:22:44.150

Participant6

But I think sometimes new things and innovation, people's workloads are so high they don't have the headspace to think about it.

0:22:44.160 --> 0:22:47.490

Participant6

So it's an automatic no to me.

0:22:48.20 --> 0:22:50.170

Participant6

If you can kind of break down the relationship to.

0:22:52.280 --> 0:22:58.320

Participant6

Talking about ambitions and recognize that you know we both we all work for bigger organizations and we're all kind of faceless minions.

0:23:0.540 --> 0:23:3.730

Participant6

Ultimately, the people that you're sitting across the table with are trying to do a good thing.

0:23:5.990 --> 0:23:6.150

Interviewer

Yeah.

0:23:4.600 --> 0:23:7.210

Participant6

Most of the time, right, you know.

0:23:7.260 --> 0:23:11.760

Participant6

And so building that human relationship and that can really help.

0:23:11.770 --> 0:23:18.690

Participant6

Hopefully I think build that regulatory relationship so that you can actually find the points where you can collaborate or figure out right.

0:23:18.700 --> 0:23:19.490

Participant6

You wanna get there?

0:23:19.500 --> 0:23:21.600

Participant6

Actually, we agree that that could be a good idea.

0:23:21.820 --> 0:23:23.50

Participant6

We have some concerns.

0:23:23.60 --> 0:23:27.150

Participant6

How do we get to a point where we can be satisfied that our concerns are met and you can actually do it you want?

0:23:28.320 --> 0:23:28.500

Interviewer

Yeah.

0:23:29.160 --> 0:23:32.340

Participant6

Seems really obvious in my head, but not everybody agrees with me so.

0:23:33.420 --> 0:23:34.740

Interviewer

It would be nice, wouldn't it?

0:23:34.760 --> 0:23:35.380

Interviewer

We could get there.

0:23:36.230 --> 0:23:36.680

Participant6

Exactly.

0:23:37.270 --> 0:23:37.470

Interviewer

Yeah.

0:23:36.930 --> 0:23:37.780

Participant6

So yeah.

0:23:40.20 --> 0:23:40.230

Interviewer

And.

0:23:42.480 --> 0:23:50.270

Interviewer

Yeah, I guess a lot of what you're talking to relates to the mainstreaming NBS project and which.

0:23:57.440 --> 0:23:57.640

Interviewer

Yeah.

0:23:49.450 --> 0:24:2.890

Participant6

Umm and yeah, and there's a program inside the EA called the water Environment Transformations Program that I'm leading, which is about it's Linked in with an M NBS program. Yeah.

0:24:2.430 --> 0:24:5.950

Interviewer

Yeah, I I remember writing a lot of links between them in the bit so.

0:24:6.90 --> 0:24:7.250

Participant6

Yeah.

0:24:9.740 --> 0:24:9.930

Interviewer

Yeah.

0:24:7.550 --> 0:24:10.120

Participant6

Yes, that's right, yeah.

0:24:12.200 --> 0:24:13.370

Interviewer

And is.

0:24:13.420 --> 0:24:15.640

Interviewer

Is there anything else that you'd like to talk about?

0:24:15.650 --> 0:24:18.40

Interviewer

Because I realize our half hour is nearly up.

0:24:20.520 --> 0:24:22.770

Interviewer

So any pressing issues that you'd like to raise?

0:24:24.440 --> 0:24:26.30

Participant6

No, I think we could have covered everything really.

0:24:26.410 --> 0:24:26.630

Interviewer

OK.

0:24:28.350 --> 0:24:29.220

Interviewer

That's that's great.

0:24:29.330 --> 0:24:30.180

Interviewer

Yeah, and.

0:24:29.670 --> 0:24:34.350

Participant6

I mean, I guess the the main thing to say is that none of this is easy and nobody really knows how to do it.

0:24:34.910 --> 0:24:35.80

Interviewer

Yeah.

0:24:36.420 --> 0:24:37.740

Participant6

And make it work right, you know.

0:24:44.610 --> 0:24:44.860

Participant6

Umm.

0:24:38.520 --> 0:24:57.780

Interviewer

Yeah, it's a is a big issue and you're dealing with but lots of different geographies, lots of

different communities and agencies and organizations which all have conflicting priorities and and trying to get everyone on the same pages is always gonna be very hard.

0:24:58.630 --> 0:24:58.770

Participant6

Yeah.

0:24:58.680 --> 0:25:6.530

Interviewer

And and yeah, I think mixed in with all of this and the kind of organizational.

0:25:14.920 --> 0:25:15.370

Participant6

Umm.

0:25:9.110 --> 0:25:16.600

Interviewer

Issues that you were kind of talking about, there's the the, the trust and the public trust and issues as well.

0:25:16.700 --> 0:25:24.680

Interviewer

That or in my view having worked in the water St for many years and and and and now laughed.

0:25:25.730 --> 0:25:26.0

Participant6

Yeah.

0:25:28.810 --> 0:25:29.700

Participant6

Umm, absolutely.

0:25:36.480 --> 0:25:36.710

Participant6

Umm.

0:25:24.750 --> 0:25:41.110

Interviewer

But there's there's a big public trust public trust has been broken and and I think it's now bleeding out from just distrust of water companies to distrust of the regulators and the whole system.

0:25:40.470 --> 0:25:42.150

Participant6

Umm yeah.

0:25:42.880 --> 0:25:48.480

Interviewer

And that's gonna be a very big problem to try and fix and resolve and and win back.

0:25:49.810 --> 0:25:51.150

Interviewer

And yeah, people's trust.

0:26:0.270 --> 0:26:0.470

Interviewer

Yeah.

0:25:52.610 --> 0:26:6.460

Participant6

Well, and I think I think it's not just within the water environment, I think trust of anything big is kind of gone out the window with the cost of living and you know profiteering and and you know people being paid what they're being paid and people not being able to make a living.

0:26:6.470 --> 0:26:13.300

Participant6

So, you know, executives being paid with their paved and most of us, you know, finding it hard, even if you're on a good salary.

0:26:13.910 --> 0:26:14.90

Interviewer

Yeah.

0:26:15.340 --> 0:26:17.390

Participant6

So I think trust overall, yeah.

0:26:19.470 --> 0:26:22.280

Participant6

As a massive issue, but yeah, trust.

0:26:22.330 --> 0:26:25.710

Participant6

I mean you mapping out those trust relationships.

0:26:25.720 --> 0:26:31.80

Participant6

That would be tough because you know, just internally within the science.

0:26:31.210 --> 0:26:31.600

Participant6

Yeah.

0:26:31.650 --> 0:26:33.320

Participant6

Really, that would be quite interesting.

0:26:34.40 --> 0:26:34.200

Interviewer

Yeah.

0:26:33.510 --> 0:26:34.730

Participant6

I'd be all (PhD in itself.

0:26:39.230 --> 0:26:39.390

Interviewer

OK.

0:26:38.650 --> 0:26:39.700

Participant6

Well, good luck with your (PhD.

0:26:40.440 --> 0:26:40.950

Interviewer

Thank you.

0:26:41.10 --> 0:26:44.110

Interviewer

And thanks very much for taking the time to to speak to me.

0:26:44.410 --> 0:26:45.110

Interviewer

It's been really helpful.

0:26:44.530 --> 0:26:45.380

Participant6

Yeah, no problem.

0:26:45.730 --> 0:26:46.80

Participant6

Good.

0:26:46.290 --> 0:26:46.760

Interviewer

OK.

0:26:46.170 --> 0:26:46.870

Participant6

Alright, take care.

0:26:47.140 --> 0:26:47.780

Interviewer

Thanks very much. Bye.

### **Interview 7**

Date of meeting: 30/04/2024

0:0:0.0 --> 0:0:7.430

Interviewer

And would it be useful if I started off by giving you a bit of background, but my background and a bit of the premise of the research?

0:0:7.980 --> 0:0:8.820

Participant7

Yes, please.

0:0:8.630 --> 0:0:32.390

Interviewer

OK so I I used to be a process engineer, so mainly in wastewater sort of designing, commissioning, troubleshooting, waste, watching the plants and as part of that got involved in innovation work and looking at new technologies, different ways of working, different ways of permitting and how that would enable greater innovation.

0:0:34.200 --> 0:0:41.380

Interviewer

And and one of the large projects worked on was looking at integrated catchments and using catchment permitting.

0:0:42.780 --> 0:0:43.120

Interviewer

Umm.

0:0:44.710 --> 0:0:45.10

Participant7

Where?

0:0:47.230 --> 0:0:47.410

Participant7

Yeah.

0:0:44.470 --> 0:0:50.380

Interviewer

And it's well and in the Petteril catchment in Cumbria.

0:0:55.220 --> 0:0:55.370

Interviewer

Yes.

0:0:51.120 --> 0:0:56.890

Participant7

Well, the the global poster child of catchment permitting good for you. OK.

0:0:57.140 --> 0:0:58.180

Participant7

Yes, yes, yes. OK.

0:1:3.180 --> 0:1:4.140

Participant7

Fantastic. OK.

0:0:59.680 --> 0:1:8.370

Interviewer

Yes, I was working with a minor and on that project I was kind of the Engineering support the the Technical Support for the new technology.

0:1:9.810 --> 0:1:10.30

Participant7

OK.

0:1:8.380 --> 0:1:16.950

Interviewer

We're looking at to to get it to work and and kind of around that time I started thinking right.

0:1:18.20 --> 0:1:20.970

Interviewer

It's great to catchments, you can kind of see it working.

0:1:20.980 --> 0:1:25.760

Interviewer

You can see the the theory building in a rural environment where.

0:1:27.760 --> 0:1:35.30

Interviewer

This this is kind of more engagement in the natural environment, but how would this work within an urban environment and?

0:1:36.50 --> 0:1:42.430

Interviewer

And how could you look at a more integrated approach within cities and urban areas?

0:1:44.160 --> 0:1:44.340

Participant7

Yeah.

0:1:44.380 --> 0:1:45.640

Participant7

Just check something for yes.

0:1:45.650 --> 0:1:46.130

Participant7

Sorry, sorry.

0:1:44.310 --> 0:1:46.330

Interviewer

And that's where, yeah.

0:1:46.140 --> 0:1:46.550

Participant7

Please please.

0:1:46.370 --> 0:1:47.80

Interviewer

Yeah, that carry on.

0:1:50.10 --> 0:2:1.850

Participant7

So so you you the the catchment permitting correct me if I'm wrong is really about balancing your permits across three of your own works across the catchment, right?

0:2:2.970 --> 0:2:3.940

Participant7

Are you talking or?

0:2:4.370 --> 0:2:6.370

Participant7

OK, OK.

0:2:2.940 --> 0:2:16.160

Interviewer

No, no, not in the Petteril it is slightly that, but it's it's also looking at can we do things in the catchment to reduce overall load in order to do less at the treatment works.

0:2:14.440 --> 0:2:16.450

Participant7

Uh, so I I always thought that later.

0:2:16.460 --> 0:2:18.640

Participant7

OK, I thought the latter was catching the nutrient balancing.

0:2:19.310 --> 0:2:20.70

Participant7

Umm.

0:2:20.490 --> 0:2:25.600

Participant7

And and that catchment permitting was truly between permits, you know across your own works kind of thing.

0:2:25.610 --> 0:2:26.680

Participant7

So, OK. Understood.

0:2:26.900 --> 0:2:27.120

Interviewer

OK.

0:2:26.690 --> 0:2:27.570

Participant7

Yeah. OK.

0:2:28.280 --> 0:2:38.730

Interviewer

Umm, so yeah, starts the research looking at sort of urban systems and how you could apply this more holistic thinking within a urban area.

0:2:39.260 --> 0:2:48.840

Interviewer

And as you do kind of went back through, what are the what, the questions we should be answering and what are the fundamental questions?

0:2:48.890 --> 0:2:54.630

Interviewer

And I came to the conclusion that we don't really understand our relationships with the water environment very well.

0:2:56.360 --> 0:3:0.480

Interviewer

Umm, the the more complex than we may be.

0:3:2.580 --> 0:3:11.700

Interviewer

Initially thing and there's a lot of focus on this anyway, but a lot of focus on it into pipe solutions rather than looking at the big picture.

0:3:13.410 --> 0:3:27.20

Interviewer

So my research is looked at and how can we use system mapping to visualize our relationships across a a water system and using water as the heart of the system.

0:3:28.800 --> 0:3:36.640

Interviewer

And and have we use that to better make decisions from a justice led perspective.

0:3:37.600 --> 0:3:38.600

Interviewer

Current justice led approach.

0:3:39.830 --> 0:3:40.390

Interviewer

Umm.

0:3:41.290 --> 0:3:46.720

Interviewer

And then moving on to how do we visualize that in a way that's accessible to lots of people?

0:3:46.730 --> 0:3:51.530

Interviewer

So it's not just data, it's actual information that could be shared across multiple parties.

0:3:55.720 --> 0:3:56.230

Participant7

OK.

0:3:54.10 --> 0:3:56.660

Interviewer

So that's where I've got to I'm.

0:3:56.820 --> 0:3:58.500

Participant7

Well, I mean, you're certainly trying to.

0:3:58.600 --> 0:4:9.770

Participant7

You're you're part of a as, as I'm sure you know, you're part of a movement in essence, cause most many of us are trying very, very hard and to move into that direction.

0:4:10.90 --> 0:4:10.290

Interviewer

Yeah.

0:4:10.360 --> 0:4:10.990

Participant7

Yeah.

0:4:11.900 --> 0:4:12.190

Interviewer

Yeah.

0:4:11.40 --> 0:4:12.690

Participant7

OK, excellent.

0:4:17.760 --> 0:4:18.0

Participant7

Umm.

0:4:12.200 --> 0:4:19.840

Interviewer

And and it's been interesting when I what I did my literature of you at the start of the (PhD, it's very little around justice.

0:4:25.840 --> 0:4:26.120

Participant7

No.

0:4:19.850 --> 0:4:33.700

Interviewer

There's very little around the kind of systems approaches were very much modelling based and in the last year or so there's been a massive upsurge in a justice led approach.

0:4:33.710 --> 0:4:35.730

Interviewer

And how do we look at the big picture?

0:4:37.620 --> 0:4:37.890

Participant7

Yeah.

0:4:39.270 --> 0:4:39.800

Participant7

That what?

0:4:39.810 --> 0:4:40.980

Participant7

What's the UM?

0:4:43.750 --> 0:4:47.70

Participant7

When you say that a justice led approach, what do you what do you mean by that?

0:4:51.610 --> 0:4:53.190

Participant7

Right, yeah.

0:4:48.430 --> 0:4:59.720

Interviewer

So I'm taking an environmental justice definition, so looking at social justice and the needs of the environment for themselves.

0:5:3.370 --> 0:5:3.520

Participant7

Yeah.

0:4:59.850 --> 0:5:9.560

Interviewer

So not just the human benefits that we get from the environment, the sort of ecological benefits and and then looking at that into future generations.

0:5:12.510 --> 0:5:12.750

Interviewer

Yeah.

0:5:10.530 --> 0:5:13.580

Participant7

Like a rights of nature and of and going.

0:5:14.120 --> 0:5:14.410

Interviewer

Yeah.

0:5:13.590 --> 0:5:14.600

Participant7

Yeah. OK.

0:5:14.670 --> 0:5:14.980

Participant7

Brilliant.

0:5:14.420 --> 0:5:16.50

Interviewer

And then linking that with social justice.

0:5:16.770 --> 0:5:17.880

Participant7

Can I ask who?

0:5:18.190 --> 0:5:20.680

Participant7

Who, who which, which?

0:5:20.690 --> 0:5:22.350

Participant7

Water companies have you spoken to?

0:5:25.660 --> 0:5:25.820

Participant7

Yeah.

0:5:23.890 --> 0:5:28.470

Interviewer

And united utilities, mainly that they are the sponsor of the (PhD.

0:5:28.460 --> 0:5:28.620

Participant7

Yeah.

0:5:30.110 --> 0:5:30.460

Participant7

None.

0:5:30.470 --> 0:5:31.10

Participant7

None of the others.

0:5:30.210 --> 0:5:35.690

Interviewer

And although I've I have spoken in briefly to severn trent as well.

0:5:39.250 --> 0:5:39.580

Participant7

How are you?

0:5:39.600 --> 0:5:40.980

Participant7

Good for you to get in touch with Wessex.

0:5:42.290 --> 0:5:42.480

Interviewer

OK.

0:5:42.290 --> 0:5:43.920

Participant7

Umm, I know.

0:5:45.670 --> 0:5:45.850

Interviewer

Yeah.

0:5:43.930 --> 0:5:46.420

Participant7

So let's have the conversation, but OK, great.

0:5:46.430 --> 0:5:47.720

Participant7

Well, fantastic

0:5:48.910 --> 0:5:51.520

Interviewer

And so really, this was a kind of.

0:5:51.660 --> 0:5:57.680

Interviewer

So thank you for filling out the questionnaire, but this was a chance for us to kind of talk through those topics in a little bit more detail.

0:5:58.280 --> 0:5:58.430

Participant7

Yes.

0:5:58.990 --> 0:6:2.520

Interviewer

And so I'm not expecting you to remember the questionnaire.

0:6:2.560 --> 0:6:3.450

Interviewer

If you do, that's a bonus.

0:6:4.530 --> 0:6:7.400

Participant7

I I think you remember I I I umm.

0:6:9.440 --> 0:6:17.10

Participant7

I didn't find an easy in the sense that I I I can't remember specifics, but I felt like I kind of wanted to.

0:6:17.880 --> 0:6:24.190

Participant7

There were so many different ways I think of answering the questions or that that I didn't necessarily feel like I wasn't really conveying.

0:6:24.240 --> 0:6:28.930

Participant7

Maybe some of the points in the way that I could serve at the I'm happy to talk it through actually.

0:6:29.190 --> 0:6:30.900

Interviewer

OK, right.

0:6:30.910 --> 0:6:36.150

Interviewer

So I think or maybe we kind of go from the beginning.

0:6:38.870 --> 0:6:39.80

Interviewer

Yeah.

0:6:39.90 --> 0:6:41.600

Interviewer

Do you have any any views you want to share on?

0:6:42.970 --> 0:6:53.130

Interviewer

How you think we or how well do you think we understand the issues in the catchment across kind of environmental, societal and and economic viewpoints?

0:6:55.280 --> 0:6:55.850

Participant7

Umm.

0:7:3.470 --> 0:7:4.520

Participant7

I think we have a a.

0:7:7.320 --> 0:7:12.360

Participant7

A relatively an increasing awareness and realization that.

0:7:14.370 --> 0:7:21.130

Participant7

We need to make a systems approach that are multiple actors contributing and that's.

0:7:21.140 --> 0:7:33.930

Participant7

Well, something the systems approach to date of trying to optimize the individual components of the system to the extent that they can isn't is running is hitting a wall in terms of improving the system overall.

0:7:34.840 --> 0:7:35.60

Interviewer

Yeah.

0:7:35.50 --> 0:7:35.680

Participant7

I am.

0:7:36.680 --> 0:7:49.310

Participant7

I think we realized there's an inefficiency as spent umm and uh, desperate, lack of integrated solutions both across Nature based solutions, customer relations.

0:7:49.320 --> 0:7:52.380

Participant7

And now people don't talk about community and nature based solutions.

0:7:52.390 --> 0:8:1.250

Participant7

And so whilst there is an enormous amount of don't, not least in the Petteril, as as as a bit of a frontrunner, they aren't coming off the ground.

0:8:1.840 --> 0:8:4.160

Participant7

So I think there is a great awareness of.

0:8:6.170 --> 0:8:19.510

Participant7

Conceptually, I think are growing weary of the conceptually we aren't there in terms of your the specifics on an individual catchment, I think nobody really understands the full picture and nobody is certainly very few put all the data points together to extend that.

0:8:19.520 --> 0:8:21.590

Participant7

We have them, but I do.

0:8:22.40 --> 0:8:34.650

Participant7

I do think, or at least many would say that that it really depends on the catchment to catchment UM and so that the different and there's something like 100 plus catchment partnerships ultimately covering the entire country.

0:8:34.820 --> 0:8:49.330

Participant7

Some you know are a skeleton of an entity and actually some are getting quite mature and if some sophisticated models actually behind them in terms of bringing data and people bringing organize differently bringing data together.

0:8:49.500 --> 0:8:51.550

Participant7

Putting solutions in place, procuring our solutions.

0:8:51.590 --> 0:9:4.260

Participant7

So I'm I think that's probably quite a big spectrum in terms of the extent to which there's an

understanding of the issues, the extent to which that's truly integrated with social and equity type issues.

0:9:4.270 --> 0:9:5.420

Participant7

I think it's probably it's.

0:9:5.430 --> 0:9:7.880

Participant7

It's largely environmentally driven.

0:9:8.50 --> 0:9:16.440

Participant7

I think in that regard and probably scratching the surface on the social side, I also think actually maybe you you would know better than I do.

0:9:16.450 --> 0:9:18.170

Participant7

But I do think that I probably there's probably.

0:9:20.240 --> 0:9:40.960

Participant7

An inverse relationship between the two in the sense that you know where you see the greatest activities and activism in terms of kind of catchment lead approaches or for example, bathing waters in the Ilkley, it's led by generally you know relatively well-off people, well educated people who can organize themselves and have connections.

0:9:40.970 --> 0:9:45.840

Participant7

So there's probably an inverse relationships to some extent as well in that regard.

0:9:46.400 --> 0:9:47.50

Interviewer

Yeah.

0:9:47.220 --> 0:9:48.740

Interviewer

Yeah, it's gonna pick up on that.

0:9:56.910 --> 0:9:59.320

Participant7

Umm, you know?

0:9:59.380 --> 0:10:1.410

Interviewer

And the different places of work and.

0:10:3.670 --> 0:10:16.970

Interviewer

And then so based on that, we've got a a sketchy understanding of the the issues, mainly environmentally driven and some other issues as well.

0:10:17.40 --> 0:10:30.790

Interviewer

How well do you think that translated into action plans and I guess further to that, do you think the action plans reflect the data that we have, but maybe not necessarily the issues that are?

0:10:33.480 --> 0:10:35.510

Interviewer

I think there's two levels too to that.

0:10:38.110 --> 0:10:50.80

Participant7

But as a as a sector or as a country, or whichever way you wanna look at this, there isn't a systemic integration.

0:10:52.260 --> 0:10:52.980

Participant7

Of.

0:10:55.110 --> 0:11:7.370

Participant7

Looking at the issue in this way and working through the issues and coming through to kind of coming up with solutions and interventions that then kind of get procured and funded there, we don't, we don't, we don't have this.

0:11:7.620 --> 0:11:12.460

Participant7

We don't systematically do that, and that's one of the things that many of us are trying to kind of.

0:11:15.430 --> 0:11:15.630

Interviewer

Yeah.

0:11:14.960 --> 0:11:23.110

Participant7

You know, get reform in essence implemented into so that, that, that there's a more just that that how do you put this, you know that.

0:11:24.260 --> 0:11:32.710

Participant7

Yeah, a systematic way of bringing bringing these kind of ways of working and thinking and partnerships and collaborations into key decision making process doesn't exist.

0:11:32.860 --> 0:11:33.540

Participant7

So I'm.

0:11:33.700 --> 0:11:35.890

Participant7

I don't know that's an answer to your to your first question.

0:11:38.830 --> 0:11:39.10

Interviewer

Yeah.

0:11:35.980 --> 0:11:45.920

Participant7

I mean it happens and great things are happening in many places, but they don't necessarily add up to kind of this systemic way of working.

0:11:45.960 --> 0:11:46.690

Participant7

So.

0:11:46.700 --> 0:11:52.540

Participant7

So that would be the first one and flipping the issues versus the data I mean.

0:11:55.710 --> 0:11:56.170

Participant7

Umm.

0:11:58.300 --> 0:12:14.150

Participant7

I mean, I guess if you are looking at kind of non human rights of nature type perspectives, you know if you if you look at many other parts of the world or sort some sending models for example that they're playing with in, in, in uh, so playing is around world, they're implementing in places like New Zealand.

0:12:18.300 --> 0:12:18.480

Interviewer

Yeah.

0:12:15.60 --> 0:12:24.80

Participant7

You know where they are giving legal status to rivers and bringing boards together of the indigenous kind of groups, communities and and the kind of more.

0:12:26.30 --> 0:12:30.200

Participant7

Kind of western oriented type kind of perspectives.

0:12:33.370 --> 0:12:36.980

Participant7

You know, **one of the things that they will always say is we're kind of we kind of know what's going on.**

0:12:36.990 --> 0:12:41.50

Participant7

**We don't really need thousand data points to tell us that you know this is happening to our river.**

0:12:42.0 --> 0:12:43.350

Participant7

Uh, no.

0:12:43.360 --> 0:12:49.470

Participant7

I mean, I think the answer lies in the middle between between the two, and that's what they're that's what they're doing there as well.

0:12:49.480 --> 0:12:55.450

Participant7

So when something happens and and it's an invasive species of fish arrives overnight, literally some of them go right.

0:12:55.520 --> 0:12:56.570

Participant7

Stop all these data.

0:12:56.580 --> 0:12:57.150

Participant7

What is that?

0:12:57.160 --> 0:12:59.730

Participant7

And and and and and and and the local news will go.

0:12:59.740 --> 0:12:59.980

Participant7

Let me.

0:12:59.990 --> 0:13:1.170

Participant7

We'll just go and catch one.

0:13:1.180 --> 0:13:7.250

Participant7

Open it up and have a look and I will probably know what's going on here and they're trying to balance by the way, I'm not.

0:13:7.780 --> 0:13:18.740

Participant7

This is a question I have not that long ago with somebody on the other river and so it's not a very long way of saying, I think it probably relatively poorly reflects the data or the data is relatively poor.

0:13:22.530 --> 0:13:22.710

Interviewer

Yeah.

0:13:18.750 --> 0:13:25.460

Participant7

However, I don't think that inevitably means it doesn't reflect the issues, because if you are working with local communities, they're gonna have some sense.

0:13:25.510 --> 0:13:30.300

Participant7

As to what's going on, even if you haven't got all the data points, so that's a very roundabout way of.

0:13:30.310 --> 0:13:31.490

Participant7

I guess I'll answering that question.

0:13:32.180 --> 0:13:32.610

Interviewer

Yeah.

0:13:32.670 --> 0:13:48.110

Interviewer

And I think that kind of springs in the wider water sector rather than just focusing on water companies and the action that they undertake, which is very much more data and regulatory process driven.

0:13:49.180 --> 0:14:0.650

Interviewer

But umm, I've been working with some of the rivers trusts and the basis of smaller grassroots action that's addressing the issues seen by the community much more.

0:14:1.190 --> 0:14:2.560

Participant7

And they're gonna be the issues, right?

0:14:2.650 --> 0:14:3.290

Interviewer

Yeah, yeah.

0:14:2.750 --> 0:14:4.680

Participant7

I mean, at the end of the day.

0:14:4.690 --> 0:14:4.940

Participant7

So.

0:14:4.950 --> 0:14:5.800

Participant7

So that's yeah, exactly.

0:14:5.810 --> 0:14:7.900

Participant7

By the way, just so you're aware, I'm on the board of the Rivers trust.

0:14:8.430 --> 0:14:8.700

Interviewer

OK.

0:14:8.310 --> 0:14:13.100

Participant7

UM, I'll Central Rivers trust some kind of quite aware of some of their initiatives.

0:14:13.270 --> 0:14:13.900

Participant7

So.

0:14:13.910 --> 0:14:14.540

Participant7

So.

0:14:14.810 --> 0:14:17.460

Participant7

So yeah, it's gonna be the data is relatively poor.

0:14:17.830 --> 0:14:27.160

Participant7

The data might point partially in different directions, but the fact that it's community led or driven, then there's gonna be some sense of some real meaningful understanding of of at least some of the issues.

0:14:27.680 --> 0:14:27.860

Interviewer

Yeah.

0:14:27.750 --> 0:14:28.280

Participant7

You know what?

0:14:28.290 --> 0:14:30.640

Participant7

It wouldn't have is is things like.

0:14:30.990 --> 0:14:41.890

Participant7

Well, I mean, even on like phosphorus and element nutrients stuff, you could see you could kind of someone that is visible if you're getting into the space of you know forever chemicals and PFAS and stuff.

0:14:41.900 --> 0:14:44.710

Participant7

That's where I think there is.

0:14:44.720 --> 0:14:46.310

Participant7

There is the community.

0:14:48.290 --> 0:14:48.510

Interviewer

Yeah.

0:14:46.320 --> 0:14:50.450

Participant7

He can't see that basically, you know, and unless you're in a terrible situation.

0:14:50.460 --> 0:14:50.790

Participant7

Like what?

0:14:50.800 --> 0:15:2.400

Participant7

You the stuff that you see in movies, in the US or you know where people are, clearly communities is kind of kind of dying, you know, sooner than anybody else kind of thing.

0:15:2.410 --> 0:15:10.600

Participant7

Than they can start seeing a link but but I think for for some of [for some of it you do need the science and the data because it's just not visible.](#)

0:15:11.240 --> 0:15:11.400

Interviewer

Yeah.

0:15:11.150 --> 0:15:12.650

Participant7

But I think many of the issues will be.

0:15:13.430 --> 0:15:19.160

Interviewer

Yeah, umm, that kind of leads me on to to something else.

0:15:19.650 --> 0:15:19.950

Participant7

Umm.

0:15:19.170 --> 0:15:23.730

Interviewer

So I've been looking as well at indicators and how you can use.

0:15:51.820 --> 0:15:52.430

Participant7

You have towards.

0:15:26.160 --> 0:15:53.640

Interviewer

That is a way to interpret the data so that it's more accessible, so you comparing it against various thresholds and given the the current issues across the the country with the water industry and and the level of, or the lack of public trust in which company operations and including the regulators now and that's all this, Sir.

0:15:54.180 --> 0:15:55.40

Participant7  
Regulators?

0:15:55.180 --> 0:15:56.510

Interviewer  
Yeah, yeah.

0:15:55.300 --> 0:15:57.970

Participant7  
No regulator but I think regulators, the DWI less so.

0:15:58.930 --> 0:15:59.150

Interviewer  
Yeah.

0:15:57.980 --> 0:15:59.160

Participant7  
But they're both distrusted.

0:16:3.520 --> 0:16:3.890

Participant7  
OK.

0:16:0.140 --> 0:16:16.980

Interviewer  
And and so you're you're trying to kind of bolster multisector action and yet the data and the the sort of the status quo of routes that you go through are untrusted.

0:16:17.460 --> 0:16:21.380

Interviewer  
How do you start to build back that trust so one of the things I've?

0:16:23.890 --> 0:16:45.330

Interviewer  
I'm considering are having a kind of community health check of the data, so you have the the centralised or the sort of the known data points and then you say well, how does this compare to River flat data to different citizen science data to local knowledge and have that built into the assessment.

0:16:45.380 --> 0:16:50.950

Interviewer  
So you kind of trying to build back that trust and and communication Japanese thoughts on that?

0:16:52.140 --> 0:16:56.910

Participant7  
I mean, I think it's an inherently a very good idea to kind of use multiple data sources.

0:16:57.420 --> 0:17:1.710

Participant7  
Umm, including kind of citizen science data and kind of community.

0:17:4.320 --> 0:17:4.530

Interviewer

Yeah.

0:17:2.20 --> 0:17:8.230

Participant7

Just just what they know kind of thing which is not not quite the same as the size of the stuff that we talked about just now.

0:17:8.470 --> 0:17:8.630

Interviewer

Yeah.

0:17:9.20 --> 0:17:10.680

Participant7

So I think inherently that's a good thing.

0:17:16.700 --> 0:17:17.280

Participant7

I don't know.

0:17:17.320 --> 0:17:19.160

Participant7

So umm.

0:17:21.990 --> 0:17:33.950

Participant7

The **that will contribute**, I mean I'm kind of getting through how how much, how much will **how much will that really help on what's will help**, how much will that really move the dial on **the trust side?**

0:17:38.740 --> 0:17:43.520

Participant7

**I don't know, you know cause so I think it's a good idea.**

0:17:43.530 --> 0:17:53.690

Participant7

**I just don't know how much I see that as being part of the trust picture, although for sure it's there's there's a link there I think trust ultimately gets established and most when there's collaboration.**

0:17:54.370 --> 0:17:54.550

Interviewer

Yeah.

0:17:54.660 --> 0:17:55.690

Participant7

Uh, so?

0:18:8.940 --> 0:18:9.120

Interviewer

Yeah.

0:17:55.700 --> 0:18:9.230

Participant7

So I'm of the view that by an extremely long way, the biggest investor in nature in this country is, in essence is, in essence the water sector, right, contributing.

0:18:9.240 --> 0:18:20.130

Participant7

I'm impacting and also the detrimentally impacting by nature of but also by in terms of the investment of trying to improve that like these are eye watering sums of money.

0:18:20.330 --> 0:18:20.510

Interviewer

Yeah.

0:18:20.400 --> 0:18:25.180

Participant7

So to me it is about they.

0:18:25.190 --> 0:18:35.230

Participant7

They have to be part of the picture and that spin needs to be kind of optimized such that it really gets into these types of solutions because there's an enormous amount of money there.

0:18:35.840 --> 0:18:36.40

Interviewer

Yeah.

0:18:35.780 --> 0:18:36.350

Participant7

Umm.

0:18:36.760 --> 0:18:56.800

Participant7

And so if that money can then be invested in a way that brings the communities into the decision making processes and actually into the into the actions and on the ground, including through multiple levels of sources of data that I think can help build trust.

0:18:56.870 --> 0:18:59.230

Participant7

But it's not straightforward case if you look at for example.

0:19:5.380 --> 0:19:5.570

Interviewer

Yeah.

0:18:59.250 --> 0:19:6.600

Participant7

I don't know if you saw this, but there was Thames water, smarter water catchments program is a smart word.

0:19:6.610 --> 0:19:13.60

Participant7

Yes, there was three of them, and the evenlode the other.

0:19:13.70 --> 0:19:14.190

Participant7

The other two called anyway.

0:19:14.200 --> 0:19:14.780

Participant7

It doesn't matter.

0:19:14.790 --> 0:19:15.440

Participant7

It was three of them.

0:19:17.330 --> 0:19:21.810

Participant7

You know, many great schemes, building and trust them.

0:19:21.820 --> 0:19:24.580

Participant7

You know, it's like liberative and building trust and this and the other.

0:19:24.890 --> 0:19:26.520

Participant7

And then Thames water.

0:19:26.530 --> 0:19:31.290

Participant7

Put their draft determination business plans in something changed, and Evenlode publicly pulled out.

0:19:32.140 --> 0:19:32.320

Interviewer

Yeah.

0:19:33.440 --> 0:19:40.170

Participant7

You know, because they were just like, well, I mean, you kind of you've changed, you've changed, you've changed things, you know, with despite everything going on.

0:19:40.250 --> 0:19:51.300

Participant7

So so I mean, why am I saying that is because I'm saying that **even if there's lots of money there, that still doesn't mean that people are actually trusting enough to use it or or or to or or to kind of really run with it.**

0:19:51.390 --> 0:19:52.580

Participant7

But but I do.

0:19:58.310 --> 0:19:59.330

Interviewer

Oh yeah, absolutely.

0:19:52.590 --> 0:19:59.960

Participant7

I do think that the trust comes from the work from the working together, not just from from comparing data, but it's but it's.

0:19:59.970 --> 0:20:2.900

Participant7

But it's key because the data is the water companies.

0:20:3.140 --> 0:20:6.390

Participant7

I mean, if anything, the data people just goes see you're messing things up.

0:20:7.120 --> 0:20:8.280

Participant7

I don't think they're gonna go off.

0:20:8.290 --> 0:20:12.770

Participant7

Things are much better than what your data suggests, but it might be additional by complementary.

0:20:12.780 --> 0:20:18.310

Participant7

It might be it might be partially contradictory, but I think it's it's it's.

0:20:18.380 --> 0:20:19.790

Participant7

Yeah, it's the collaboration that's key.

0:20:20.390 --> 0:20:21.80

Interviewer

Yeah.

0:20:21.540 --> 0:20:25.250

Interviewer

And also the the the level that the data's out.

0:20:25.860 --> 0:20:26.40

Participant7

Yeah.

0:20:33.540 --> 0:20:33.710

Participant7

Yeah.

0:20:38.880 --> 0:20:39.110

Participant7

Yep.

0:20:25.500 --> 0:20:42.520

Interviewer

So a lot of sort of river data it the data point spans actually a lot a large stretch of river, whereas citizen science state or local data may be able to pinpoint that more accurately to say, well, this is where the issue is because they've got that local knowledge.

0:20:44.110 --> 0:20:44.260

Participant7

No.

0:20:44.530 --> 0:20:45.890

Interviewer

I am.

0:20:48.40 --> 0:20:49.240

Interviewer

I'm aware that and said half an hour.

0:20:49.970 --> 0:20:50.350

Participant7

Yeah.

0:20:50.360 --> 0:20:51.940

Participant7

I mean I this is a good.

0:20:51.950 --> 0:20:53.50

Participant7

I mean, I do have to go.

0:21:1.200 --> 0:21:1.380

Interviewer

Yeah.

0:20:53.60 --> 0:21:1.660

Participant7

But I mean I I am, I mean, I'm up for, for for like scheduling a follow up with that's help only if that's helpful.

0:21:2.200 --> 0:21:2.590

Interviewer

OK.

0:21:4.260 --> 0:21:4.950

Participant7

So you want to get to.

0:21:3.120 --> 0:21:5.390

Interviewer

Well, I'll see where we we get to, yeah.

0:21:8.510 --> 0:21:23.950

Interviewer

And then I think we've, we've touched on this a little bit, but looking at sort of future planning and the the 25 year environment plan put in place to to extend that future view of the water industry.

0:21:24.540 --> 0:21:25.370

Interviewer

How?

0:21:26.200 --> 0:21:28.120

Interviewer

How effective do you think that's been?

0:21:29.70 --> 0:21:31.580

Interviewer

And do you think it's doing what it's set out to do?

0:21:34.540 --> 0:21:37.290

Participant7

Umm hmm, it's a good question.

0:21:37.640 --> 0:21:38.230

Participant7

I mean it.

0:21:38.240 --> 0:21:40.170

Participant7

It's it is, but part of the picture.

0:21:45.890 --> 0:21:46.110

Interviewer

Yeah.

0:21:40.240 --> 0:21:46.380

Participant7

I think it's an important point is a limit to what you're gonna hang off any individual piece of legislation, though it's a big one.

0:21:46.390 --> 0:21:47.190

Participant7

That's an important one.

0:21:50.470 --> 0:21:51.940

Participant7

I'm not deep expert on it.

0:21:51.990 --> 0:22:2.100

Participant7

I do think it has a good elements to it and the fact that we've got one is a is a good thing and the fact that we're gonna be environmental improvement plans are coming off.

0:22:2.110 --> 0:22:4.520

Participant7

It is a good thing, umm.

0:22:7.330 --> 0:22:8.120

Participant7

If you really.

0:22:21.780 --> 0:22:21.980

Interviewer

Yeah.

0:22:11.20 --> 0:22:23.620

Participant7

If you're really looking for something that truly unlocks and enables integrated solutions that are focused on the system and on the outcomes, it's probably a bit too outputs focused in some ways and.

0:22:25.610 --> 0:22:39.280

Participant7

That has its merits, but I mean I I I we are even put it in an Arup publication that that is that you that you might like actually it's pretty high level but you know I said it earlier in terms of systems thinking.

0:22:41.780 --> 0:22:55.710

Participant7

If you've got X amount of money to spend, and you know you're really pushing the envelope on one part of the picture, at some point you know you you just, it becomes more and more inefficient in terms of improving the overall picture.

0:22:55.720 --> 0:22:59.660

Participant7

And so the Environment Act, I think to some extent perpetuates that a little bit.

0:23:0.300 --> 0:23:0.510

Interviewer

Yeah.

0:23:0.560 --> 0:23:3.730

Participant7

Umm, so yeah, it has.

0:23:3.740 --> 0:23:6.50

Participant7

It has adopted, but I think it has its downsides.

0:23:7.850 --> 0:23:8.110

Interviewer

OK.

0:23:7.370 --> 0:23:11.220

Participant7

By the way, I'm speaking about the part of the environment that I'm that I'm that I'm most familiar with.

0:23:11.230 --> 0:23:18.100

Participant7

I'm not familiar with its full breadth because I know it has a number of indicated loss of number of kind of I will, uh, sectors kind of thing.

0:23:20.680 --> 0:23:20.880

Interviewer

Yeah.

0:23:18.110 --> 0:23:25.810

Participant7

But yeah, in in general I think I think that's yeah, which I think is a problem with storm overflows as well.

0:23:25.820 --> 0:23:28.620

Participant7

No, I think it's very much signifies that issue.

0:23:29.380 --> 0:23:29.560

Interviewer

Yeah.

0:23:32.50 --> 0:23:32.650

Interviewer

UM.

0:23:34.930 --> 0:23:37.210

Interviewer

And I I think kind of link to that.

0:23:41.400 --> 0:23:43.50

Interviewer

And how?

0:23:43.500 --> 0:23:51.990

Interviewer

How far ahead do you think we currently plan and how far ahead do you think we we ideally should plan anymore?

0:23:53.760 --> 0:23:54.290

Participant7

Umm.

0:23:56.570 --> 0:23:59.260

Participant7

Well, we plan out quite a long way.

0:23:59.610 --> 0:24:3.400

Participant7

I mean and also depends a bit on on which parts you're talking about.

0:24:12.830 --> 0:24:13.10

Interviewer

Yeah.

0:24:3.410 --> 0:24:26.240

Participant7

I mean, if you're talking about the kind of water resources side, kind of the supply side, so to speak with you know, we plan out the 2050 uh and actually if you look at off what's very latest it's that is also putting some of the invite the more kind of side that you're looking at a bit more and that kind of environment to spend.

0:24:26.290 --> 0:24:29.630

Participant7

It's also asking it to be put out the front for the targets.

0:24:44.790 --> 0:24:45.10

Interviewer

Yeah.

0:24:55.330 --> 0:24:55.510

Interviewer

Yeah.

0:24:30.460 --> 0:24:56.650

Participant7

Uh to be, you know, going out to 2050, so there's quite, there's quite a significant level of long term planning to some extent how however if you look at the winep programme you know right, I mean that's much more short term list actually which is kind of one of the problems because some of these things that you you and I would like to see more of take more time than what those timelines allow for.

0:24:57.280 --> 0:24:59.910

Participant7

So, so, so.

0:24:59.920 --> 0:25:0.870

Participant7

So what am I saying?

0:25:0.880 --> 0:25:1.470

Participant7

I think so.

0:25:1.480 --> 0:25:5.740

Participant7

We do, we do some quite some local Jain, I think we certainly do it where it.

0:25:9.340 --> 0:25:25.180

Participant7

I think we need to have longer, longer timelines in on the kind of on the water on the wastewater kind of winep side of things, but not necessarily it doesn't all have to go either 2050 and but we are we're pretty short short term list I think in our on that side of things.

0:25:25.760 --> 0:25:27.50

Interviewer

Yeah, yeah.

0:25:27.60 --> 0:25:32.300

Interviewer

I mean my my view from working in in the sector was that and.

0:25:38.810 --> 0:25:39.20

Participant7

Yep.

0:25:34.590 --> 0:25:41.260

Interviewer

On the wastewater side particularly, we tend to act reactively, so you can only do something if you know there's already a problem.

0:25:41.650 --> 0:25:41.830

Participant7

Yeah.

0:25:42.140 --> 0:25:52.20

Interviewer

And actually doing something proactive because you can see a problem building for the future is is not really supported by the regulations and is very hard to do.

0:25:52.560 --> 0:25:52.780

Participant7

Uh.

0:25:52.950 --> 0:25:55.610

Interviewer

I'm worse.

0:25:55.620 --> 0:25:55.820

Interviewer

Yeah.

0:25:55.830 --> 0:26:7.900

Interviewer

On the water side it it's there's a higher risk there, isn't there it it's a less so it's a less risk averse business to something going wrong because they something goes wrong.

0:26:7.910 --> 0:26:8.480

Interviewer

You run out of water.

0:26:9.300 --> 0:26:12.420

Interviewer

No, you you've gotta deal with that concern.

0:26:16.500 --> 0:26:17.550

Interviewer

Yeah, yeah.

0:26:11.510 --> 0:26:18.980

Participant7

Yeah, I mean, listen, people would get very human versus nonhuman very quickly if that goes wrong, which is on the water resource side.

0:26:18.990 --> 0:26:19.610

Participant7

I think we are.

0:26:19.620 --> 0:26:25.770

Participant7

We are in the place of really managing risk, whereas on the order of wastewater, we're really in this in the face of being surrounded by issues.

0:26:26.840 --> 0:26:27.80

Interviewer

Yeah.

0:26:26.430 --> 0:26:30.20

Participant7

Umm, so I've gotta I've gotta go.

0:26:30.30 --> 0:26:31.560

Participant7

And a couple very quick questions like so.

0:26:31.640 --> 0:26:31.800

Interviewer

Yeah.

0:26:31.570 --> 0:26:32.590

Participant7

So are you?

0:26:32.660 --> 0:26:33.140

Participant7

Who?

0:26:38.120 --> 0:26:38.290

Interviewer

Yes.

0:26:55.340 --> 0:26:55.990

Interviewer

Yeah.

0:26:33.180 --> 0:26:56.950

Participant7

So if you got any of this visualization kind of done like I'm trying to think of, I I'm trying to think if I can pull you into anything in terms of some of the stuff that we're doing to descend that either there is not like that might be of interest to kind of be be, yeah, so, so you're visualizations you've got, you've got a way of visualizing this kind of conceptually or or for a particular catchment or or.

0:26:58.990 --> 0:26:59.450

Participant7

Yeah. OK.

0:26:56.320 --> 0:27:7.450

Interviewer

And it's conceptual, so I'm looking looking at the relationships conceptually using system mapping and supports loop diagrams and and that sort of visualization tool.

0:27:14.430 --> 0:27:15.400

Participant7

I said it's very soon.

0:27:18.640 --> 0:27:18.920

Participant7

Is that?

0:27:8.150 --> 0:27:18.950

Interviewer

Umm, which I'll about to well, hopefully we'll be publishing a paper on very soon and well, it's it's with the peer review at the moment.

0:27:18.960 --> 0:27:22.40

Interviewer

So hopefully the month or so.

0:27:21.810 --> 0:27:25.270

Participant7

I'm I'm assuming they also to be no, but are are you able to share that?

0:27:26.170 --> 0:27:27.20

Interviewer

Not until it's published.

0:27:28.100 --> 0:27:29.450

Participant7

And how about the visualizations?

0:27:30.120 --> 0:27:36.220

Interviewer

And and then the oh the, the the maps, the system maps.

0:27:35.910 --> 0:27:36.590

Participant7

Yeah.

0:27:36.690 --> 0:27:41.160

Participant7

And I mean, I honestly, I don't know if this could go anywhere, but we are.

0:27:41.210 --> 0:27:48.970

Participant7

We're a potential project, something off that is very much in in this space, and it might be it might be useful to know where all my also be at.

0:27:48.980 --> 0:27:57.180

Participant7

It might be an opportunity for you to kind of put some of this inserted into into, you know, and all the ground initiative kind of thing.

0:27:57.550 --> 0:27:57.880

Interviewer

Umm.

0:27:57.430 --> 0:28:1.40

Participant7

Most of the limit to what I can say about it at this point, but I've gotta check with a few others.

0:28:1.50 --> 0:28:5.540

Participant7

But but if you, I mean it could be quite quite useful like think could be quite cool for you.

0:28:5.650 --> 0:28:7.780

Interviewer

Yeah, I'm at the moment.

0:28:12.630 --> 0:28:12.960

Participant7

Have you?

0:28:7.790 --> 0:28:13.740

Interviewer

I'm I'm really focused on writing up because I, yeah, I've really got a few months to to write everything up and and get it done.

0:28:12.970 --> 0:28:14.790

Participant7

Are you're a full time writing basically.

0:28:14.990 --> 0:28:16.240

Interviewer

Yeah, I am now.

0:28:19.390 --> 0:28:19.780

Participant7

Uh.

0:28:26.490 --> 0:28:26.970

Participant7

All this.

0:28:21.690 --> 0:28:27.240

Interviewer

Say I am looking for ways to implement it when I finish so.

0:28:29.150 --> 0:28:33.800

Participant7

I have you got something like like, I mean, I mean, if you're like I'm.

0:28:33.810 --> 0:28:37.700

Participant7

I'm I'm not doing anything else for the next few months, then I might even go any further on this.

0:28:37.910 --> 0:28:39.620

Participant7

But I mean, it could be quite it could.

0:28:39.630 --> 0:28:41.360

Participant7

It could be interesting and it could be useful.

0:28:41.410 --> 0:28:44.680

Participant7

I mean, but you'd probably have to push it out of it, but I don't know if you're anywhere.

0:28:44.770 --> 0:28:46.670

Participant7

If you would even remotely entertain that.

0:28:47.350 --> 0:28:51.200

Interviewer

And yeah, I've got no cluster for the next few months because I'm just.

0:28:50.820 --> 0:28:51.310

Participant7

Umm.

0:28:55.520 --> 0:28:56.220

Participant7

Yeah. OK.

0:28:51.250 --> 0:28:58.420

Interviewer

Well, I'm trying to get it all written up before school holidays start is my main focus because I've got young children.

0:28:59.0 --> 0:28:59.700

Participant7

Yeah, I.

0:28:58.690 --> 0:29:1.770

Interviewer

So yeah, that's my my deadline.

0:29:3.540 --> 0:29:3.830

Interviewer

And.

0:29:4.150 --> 0:29:4.330

Participant7

OK.

0:29:8.900 --> 0:29:9.610

Participant7

I gotta go.

0:29:9.980 --> 0:29:10.240

Interviewer

OK.

0:29:9.880 --> 0:29:10.850

Participant7

But it was a good conversation.

0:29:10.860 --> 0:29:11.570

Participant7

I enjoyed that.

0:29:11.960 --> 0:29:12.450

Interviewer

Yeah.

0:29:12.420 --> 0:29:12.930

Participant7

I don't know.

0:29:12.520 --> 0:29:13.250

Interviewer

Thank you very much.

0:29:13.260 --> 0:29:13.470

Interviewer

It's.

0:29:12.940 --> 0:29:13.550

Participant7

I mean, did we?

0:29:13.480 --> 0:29:14.700

Interviewer

Yeah, it's been really interesting.

0:29:13.600 --> 0:29:16.680

Participant7

Did did we cover the the recover it?

0:29:16.690 --> 0:29:17.110

Participant7

Kind of thing.

0:29:17.120 --> 0:29:18.110

Interviewer

We we have done.

0:29:18.120 --> 0:29:18.590

Interviewer

Yeah.

0:29:18.470 --> 0:29:19.440

Participant7

OK, brilliant.

0:29:18.960 --> 0:29:20.520

Interviewer

Yeah, it's been great.

0:29:19.870 --> 0:29:22.70

Participant7

Well, I have good luck with it.

0:29:22.690 --> 0:29:23.40

Interviewer

Thank you.

0:29:22.520 --> 0:29:25.50

Participant7

And do send me your paper when you gets published.

0:29:25.430 --> 0:29:25.640

Interviewer

Yeah.

0:29:26.760 --> 0:29:28.420

Participant7

Or or or when you are at.

0:29:35.100 --> 0:29:35.320

Interviewer

Yeah.

0:29:28.950 --> 0:29:44.40

Participant7

I mean, if when you're at a point of being able to share it, even even if it's not fully published yet, do do send it along because there might, there may be there, even if it's a very limited amount of there may be something really in this, what are you gonna do next, you know?

0:29:45.100 --> 0:29:52.470

Interviewer

I'm I'm hoping to do 5050 apartment post Doc and work with the Rivers trusts more.

0:29:53.140 --> 0:29:53.480

Participant7

Right.

0:29:53.580 --> 0:29:57.170

Interviewer

Is is my aim something doing some work with self Cumbria Rivers trust?

0:29:57.420 --> 0:29:57.720

Interviewer

Quite a lot.

0:29:57.570 --> 0:29:57.980

Participant7

I'm here.

0:29:57.990 --> 0:29:58.400

Participant7

OK.

0:29:58.890 --> 0:29:59.420

Participant7

OK.

0:29:59.470 --> 0:30:1.220

Participant7

OK, which university was it again?

0:30:1.230 --> 0:30:1.590

Participant7

Remind me.

0:30:1.790 --> 0:30:2.750

Interviewer

It's University of Birmingham.

0:30:3.480 --> 0:30:4.710

Participant7

I've brimingham OK.

0:30:5.10 --> 0:30:5.800

Participant7

Yeah, I go.

0:30:5.850 --> 0:30:6.560

Participant7

Excellent.

0:30:6.650 --> 0:30:8.90

Participant7

Listen, good luck.

0:30:8.800 --> 0:30:9.110

Interviewer

Yeah.

0:30:9.470 --> 0:30:10.460

Participant7

Pleasure to meet you.

0:30:10.660 --> 0:30:10.970

Interviewer

Yeah.

0:30:10.710 --> 0:30:12.860

Participant7

And I'm sure we'll we'll be in touch again.

0:30:10.980 --> 0:30:14.480

Interviewer

And you and yeah, because keep in touch.

0:30:14.630 --> 0:30:15.100

Participant7

Yes.

0:30:14.710 --> 0:30:15.580

Interviewer

Thanks very much.

0:30:15.150 --> 0:30:16.40

Participant7

Alright, take care. Bye.

## **APPENDIX F: EXPLORATION OF SYSTEM MAPS**

---

A presentation has been created within Kumu to provide a guided exploration of system maps. This is accessible through the link below and has been provided as images herein.

Link: <https://BryonyB.kumu.io/exploring-the-surface-water-system?token=kb7meDvBx8THjtQ8>

# Exploring the surface water system

*A multiple perspective and environmental justice-led approach*

START PRESENTATION

## Considering multiple perspectives within the surface water system to move towards a goal of environmental justice

### Environmental justice

Movement to address the conflation of social (in)justice and environmental degradation

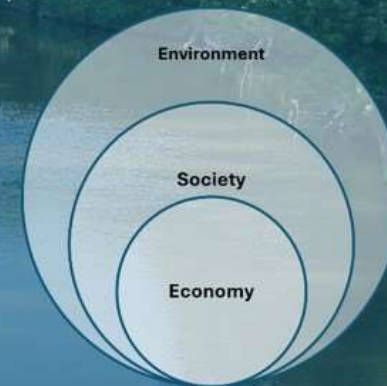
#### Definition:

*“equity in the distribution of environmental benefits and harms for human and other-than-human beings”*

(Simpson et al., 2023  
doi:10.1016/j.landurbplan.2023.104729)

Viewing the water system from various perspectives enables multiple functionalities, impacts and effects to be incorporated into the analysis.

A nested view of economy, society and environment is adopted and the relationships within each sphere considered



Within the nested view of economy, society and environment there lies a common thread of policy and governance that should be considered within each of these perspectives.

## Exploring each perspective in turn

Considering the water system from these three perspectives.

A goal has been defined for each perspective incorporating the principles of environmental justice

1 - environmental - mechanisms to enable equitable, functioning societal and environmental systems to perpetuate

2 - society - public health for all is delivered through water and sanitation services, equity over health and wealth distribution both now and for future generations

3 - economy - non-human living organisms in the ecosystem(s) are biodiverse, resilient and can be sustained into the future.

Within these policy and governance are a common thread connecting the impacts of actions across human and other-than-human users.

[← BACK](#)

[NEXT →](#)



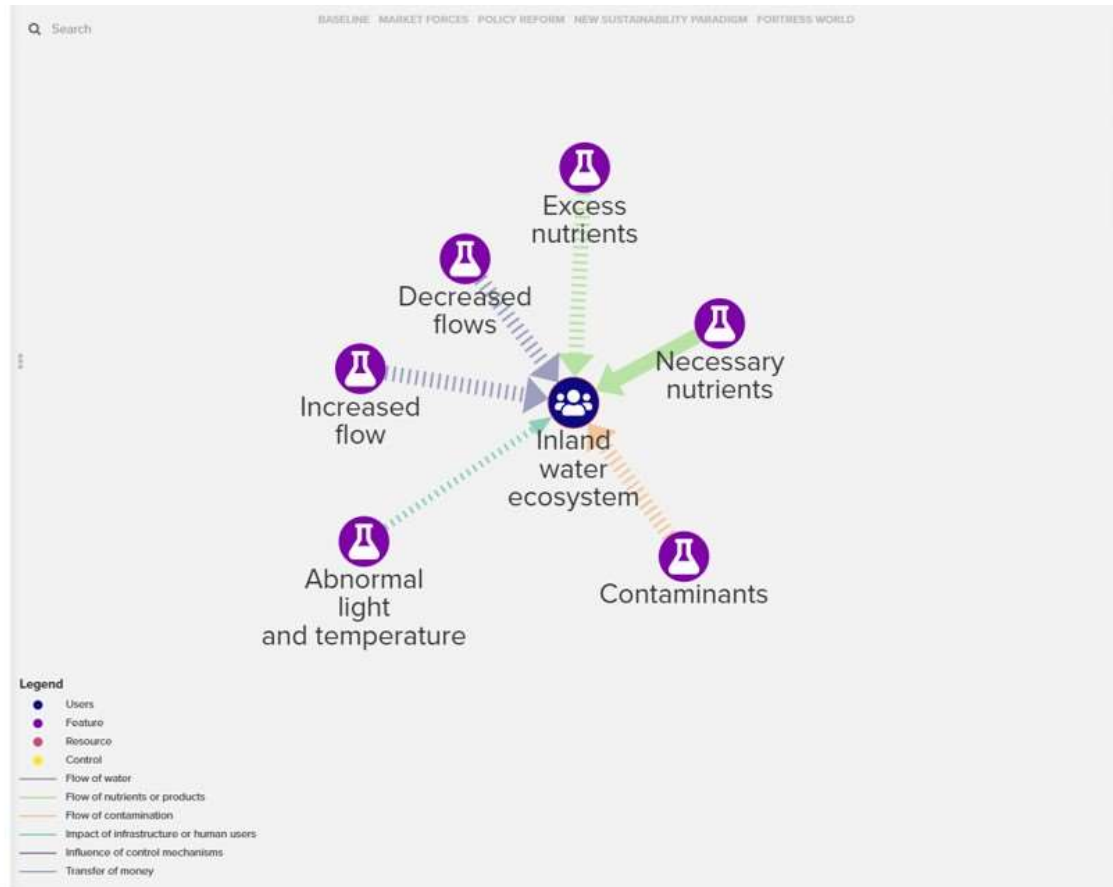
# Environmental perspective

## Inland water ecosystem

The collection of living organisms whose habitats are surface waters, i.e. lakes and rivers.

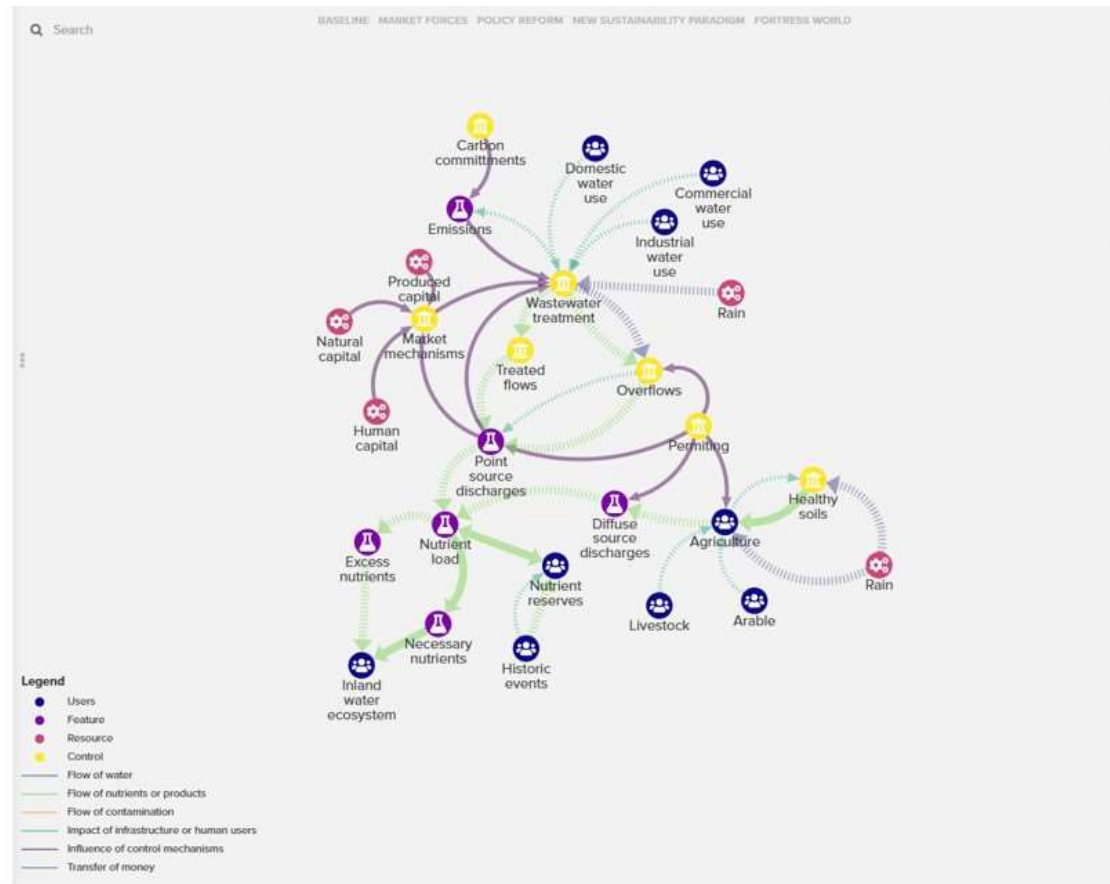
To enable this ecosystem to thrive:

- water flows need to be maintained within a normal range for this system, or part of a system
- sufficient nutrients (dissolved oxygen, carbon, nitrogen, and phosphorus sources) need to be available to sustain varied, sustained populations. Nutrient levels are not excessive and will not cause eutrophication
- the presence of contaminants (substances which are not naturally available/present in the location) is not sufficient to cause ecological harm
- sufficient light is available to maintain plant-life, and temperature is maintained within a typical range for the ecosystem



Considering one of these branches the flow of nutrients into the water system from point and diffuse sources is represented.

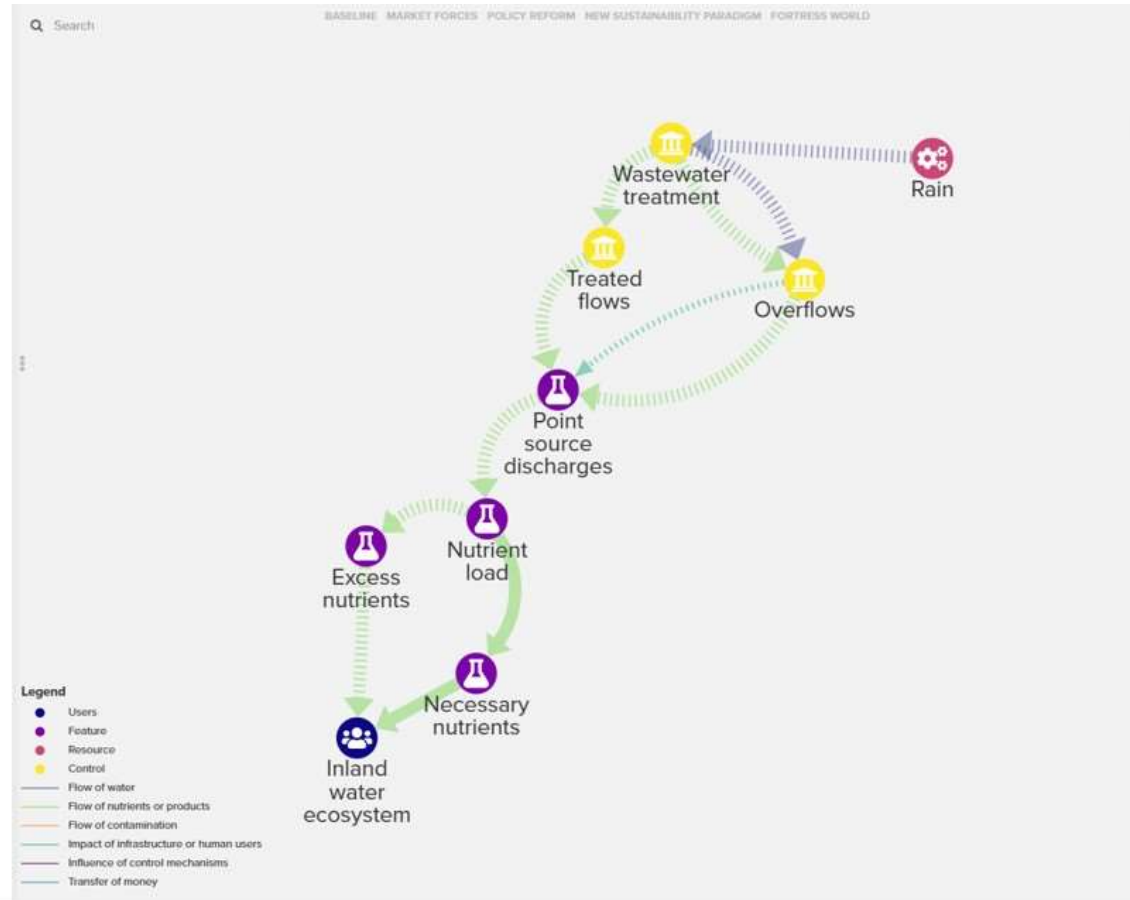
Solid lines represent relationships which support the ecosystems ability to thrive whilst dashed lines indicate those relationships which diminish this ability.



Considering one of these branches the flow of nutrients into the water system from point and diffuse sources is represented.

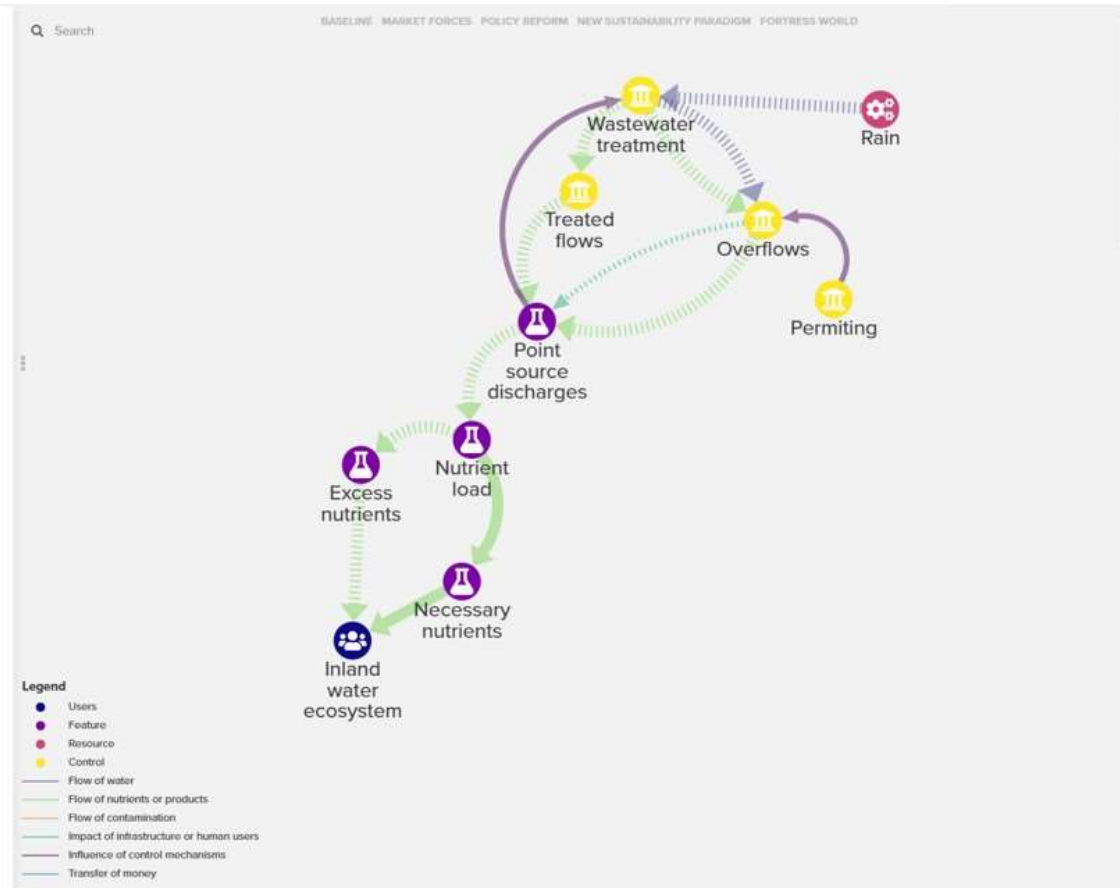
Solid lines represent relationships which support the ecosystems ability to thrive whilst dashed lines indicate those relationships which diminish this ability.

Focussing in on one pathway demonstrates how rainfall provides a flow of water (wide dark blue arrows) into the wastewater treatment network and system increasing the risk of this being overloaded leading to the operation of overflows. Both treated wastewater and overflows are sources of nutrients (wide green arrows), although to differing degrees, leading to nutrients being present in the water environment through point sources. This increases the nutrient load, which if above the capacity of the waterbody to deal with these nutrients results in an excessive load and detrimental impacts within the ecosystem. The impact of infrastructure is also noted (narrow bright blue arrow) depicting the role that the capacity or management of the wastewater network has on operation of overflows and therefore point source discharges.



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Expanding this system to include the role of permitting (control system - narrow purple arrow) on the operation of overflows and the composition of point source discharges. These policy interventions provide a controlling role on the system to reduce the negative impacts from wastewater as a nutrient source.



## All nodes and relationships are evidenced within the system map

### Point source discharges

Nutrient additions into the surface water system may come from discrete, point source discharges such as effluent outfalls (industrial or municipal wastewater systems).

Treatment processes and interventions can mitigate the impacts, but overall the health of UK rivers is being impacted by human activity, with over half of rivers negatively impacted by the water industry:

- State of Our Rivers: <https://theriverstrust.org/key-issues/state-of-our-rivers>
- 25 year Environment Plan: <https://www.gov.uk/government/publications/25-year-environment-plan>
- Naden, 2016 Nutrient fluxes from domestic wastewater: A national-scale historical perspective for the UK 1800–2010 <http://dx.doi.org/10.1016/j.scitotenv.2016.02.037>

Q Search

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Point  
source  
discharges

# Societal perspective

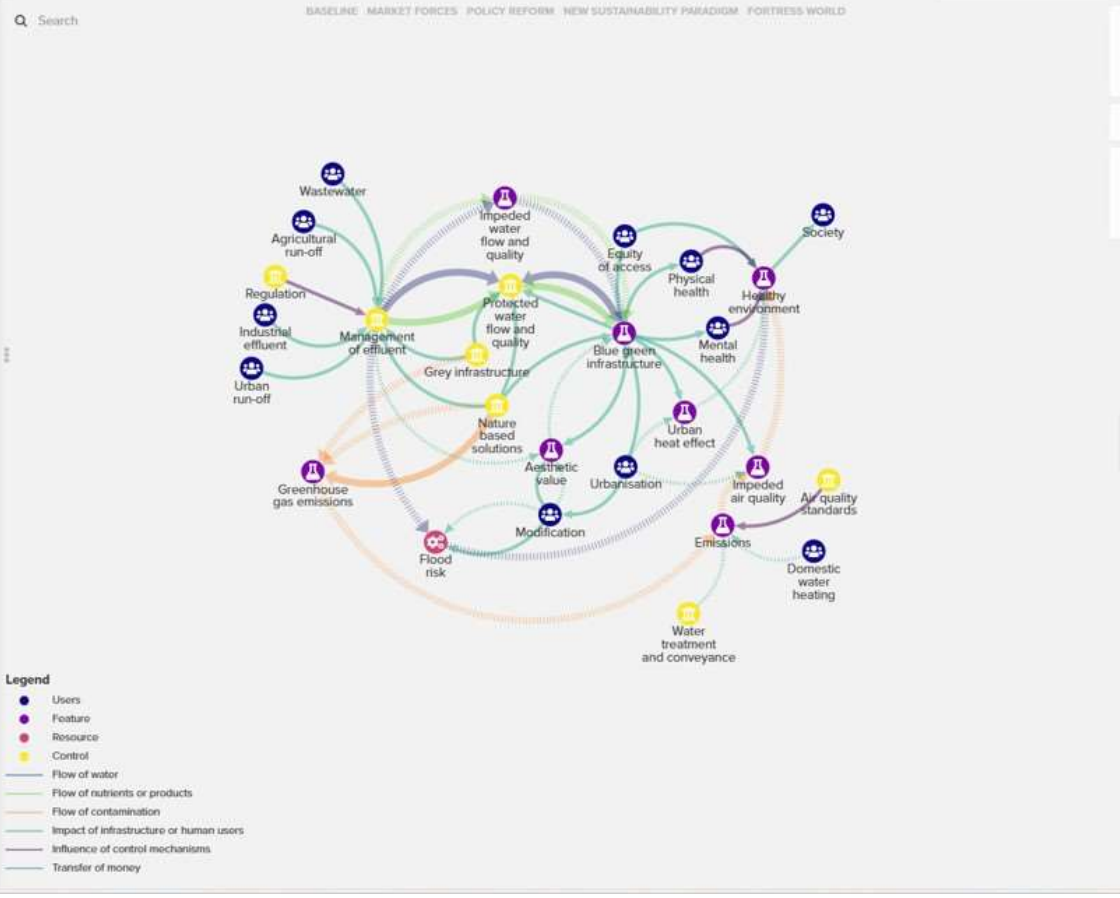
To enable society to thrive the following should be provided equitably and such that the needs of future generations can be met:

- affordable public health provision through water and sanitation services - providing safe water for consumption and activities
- sustainable water provision that can be maintained for future generations without undue technical challenge or financial burden
- healthy environment supported by blue and green spaces which provide mental and physical health benefits
- energy, food and other products to be produced without impacting the availability of water resources for others, or for future generations.





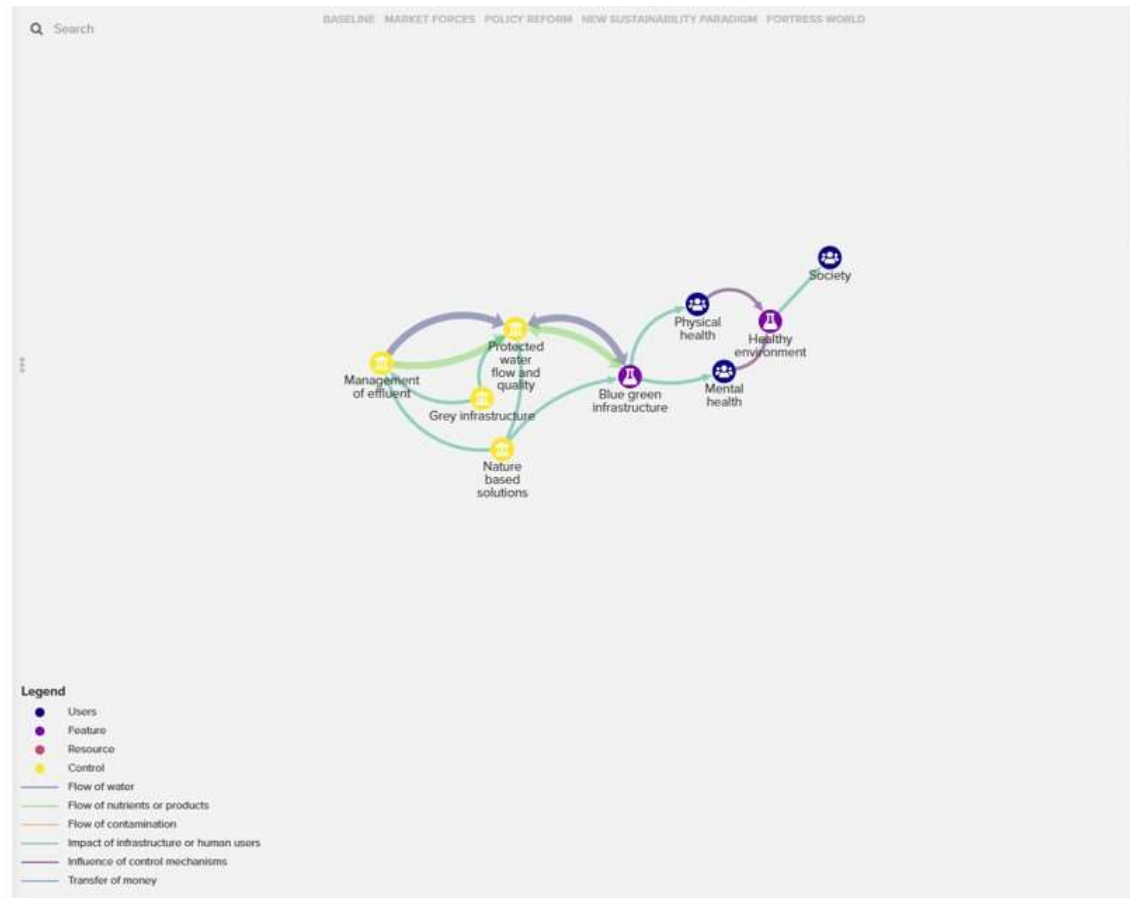
Considering a single branch for example this one, that depicts the role of water in the provision of a healthy environment.



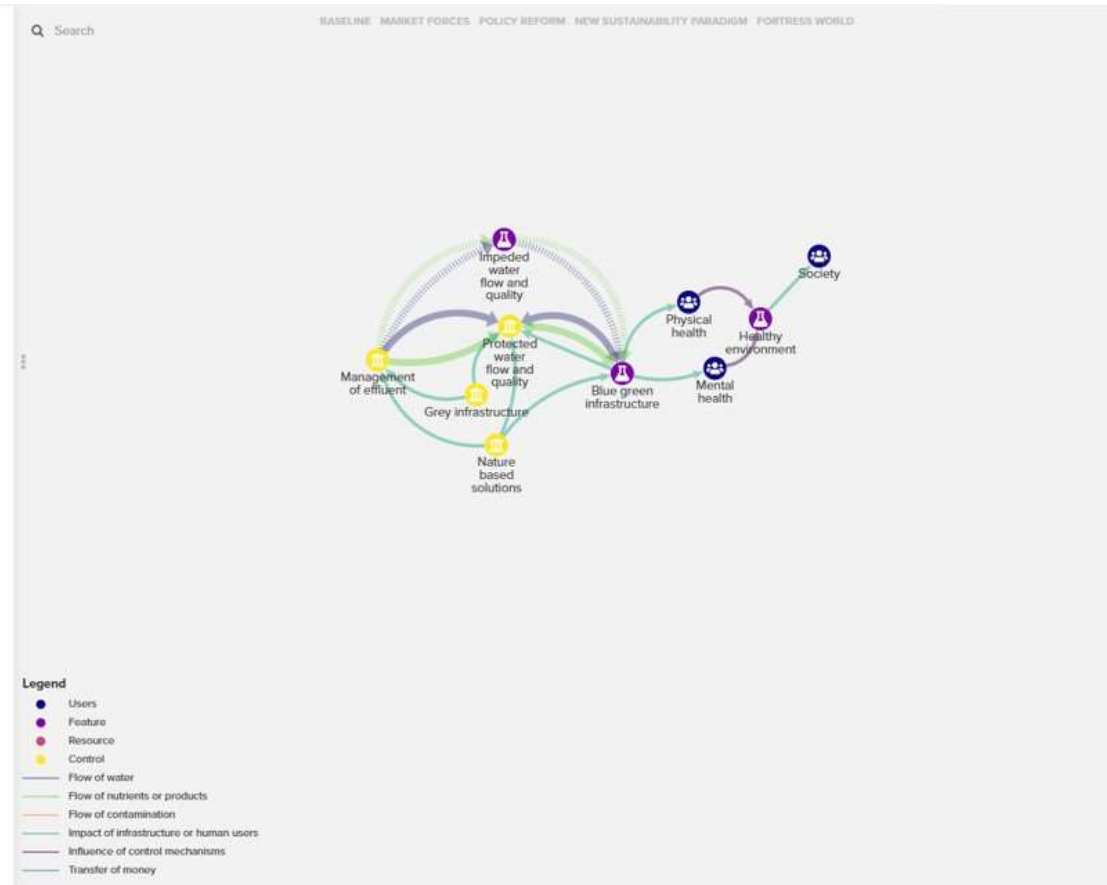
The positive impacts of effluent management are depicted through the role of grey infrastructure and nature-based solutions (narrow blue arrows) to protect water flows and quality (wide green and dark blue arrows). In doing so this protects and has the potential to enhance blue green infrastructure.

The presence of, and access to blue-green infrastructure has a positive impact on mental and physical health and also an impact on perceived quality of life.

- Bauwelinck, 2020 Residential urban greenspace and hypertension: a comparative study in two European cities <https://doi.org/10.1016/j.envres.2020.110032>
- Bell, 2008 Neighbourhood greenness and 2-year changes in Body Mass Index of children and youth [doi:10.1016/j.amepre.2008.07.006](https://doi.org/10.1016/j.amepre.2008.07.006)
- De Petris, 2021 Geomatics and Epidemiology: Associating Oxidative Stress and Greenness in Urban Areas <https://doi.org/10.1016/j.envres.2021.110999>
- Giannico, 2021 Green spaces, quality of life, and citizen perception in European cities <https://doi.org/10.1016/j.envres.2021.110922>
- Reeves, 2019 The Application of Wearable Technology to Quantify Health and Wellbeing Co-benefits From Urban Wetlands [doi: 10.3389/fpsyg.2019.01840](https://doi.org/10.3389/fpsyg.2019.01840)

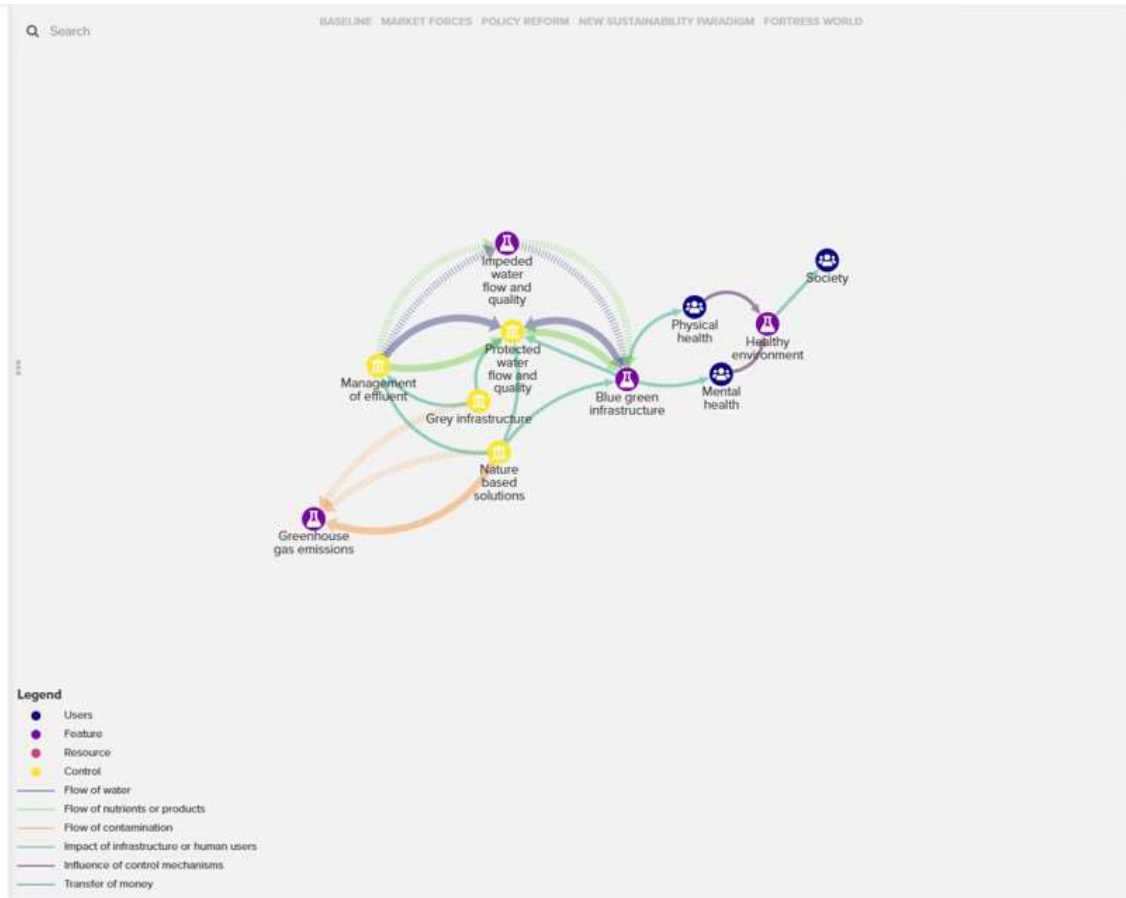


However, there is also potential for management of effluent to have impacts which impede the ability for society to thrive. This may be by decreasing the quality and flow of water which impacts blue green infrastructure.



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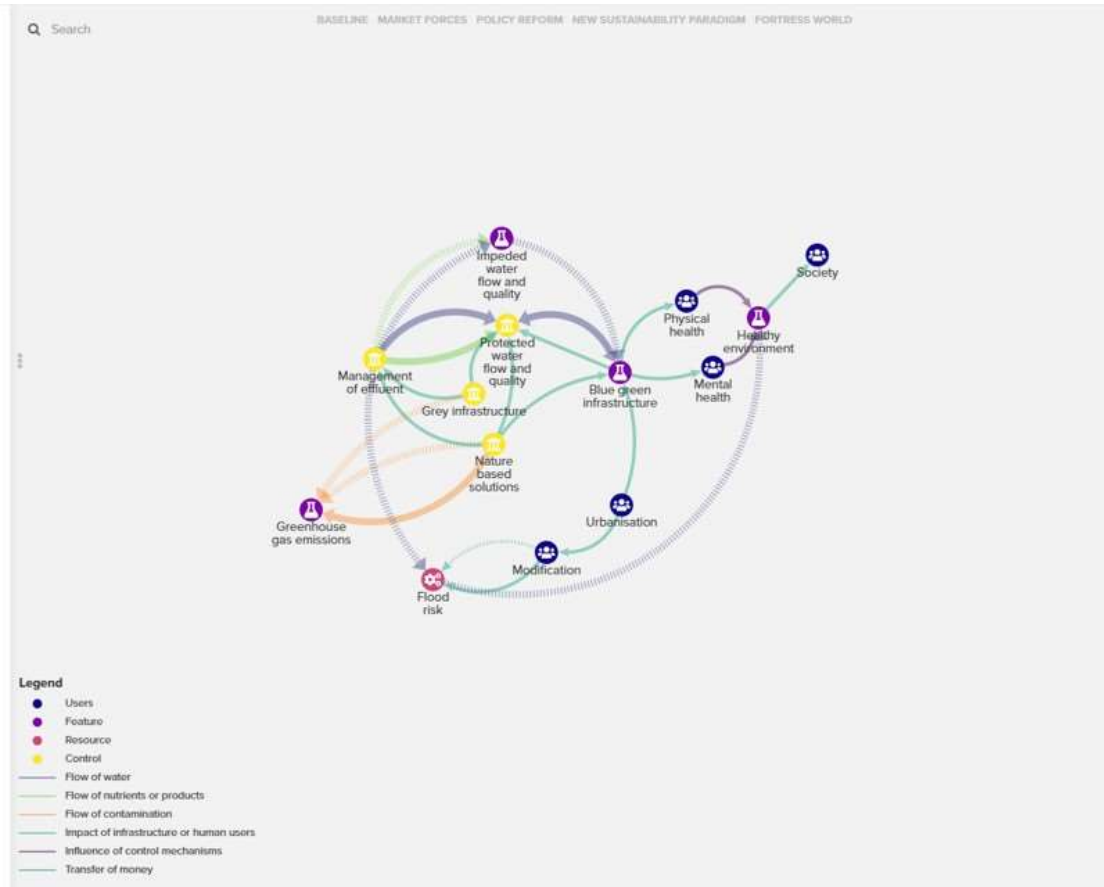
It could be through the generation of greenhouse gasses (wide orange arrows) ultimately contributing to climate change and an increase in extreme weather, putting additional strain on water and wastewater infrastructure.



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It could be through the generation of greenhouse gasses ultimately contributing to climate change and an increase in extreme weather, putting additional strain on water and wastewater infrastructure.

Management of effluent, and the water system, can also lead to an increased flood risk. This may be exacerbated by urbanisation, the level of impermeable land and the infrastructure that is in place within urbanised areas.

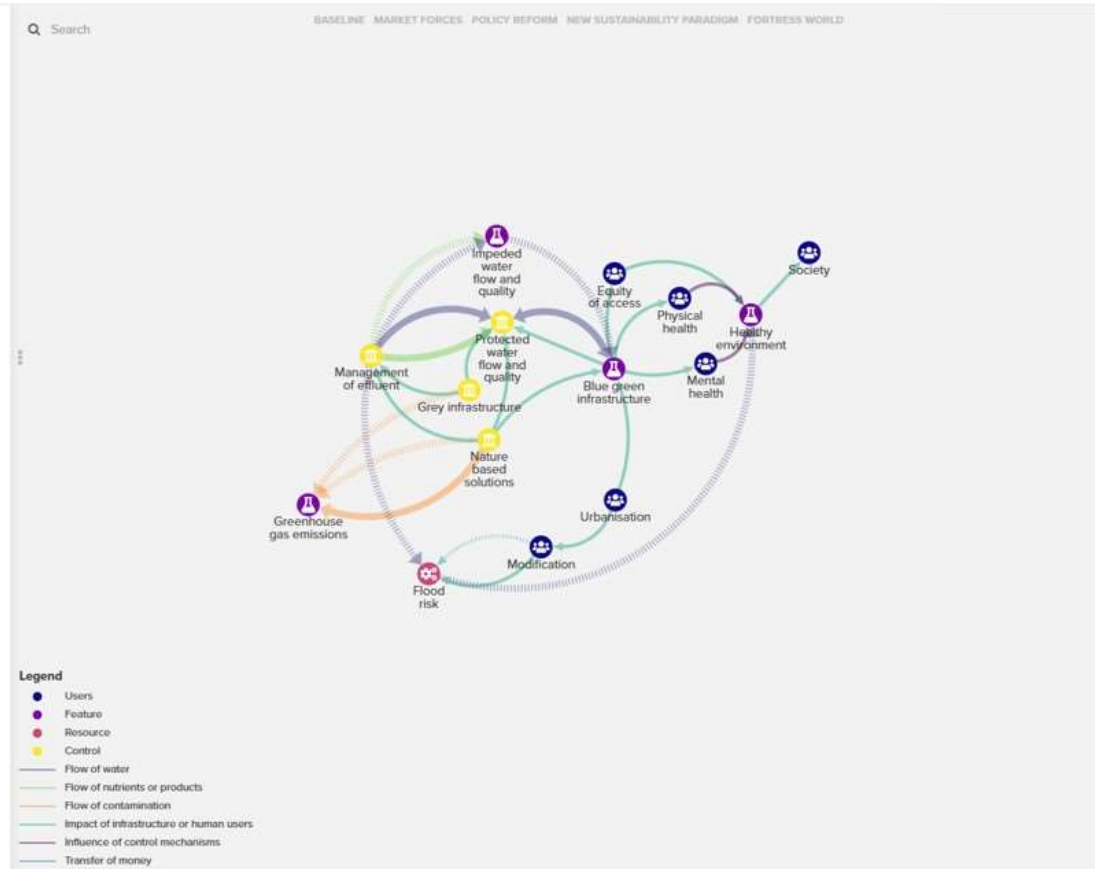


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**The equity of access to these physical and mental health benefits is critical to the consideration of justice. Although some impacts may be distributed, the ability for the whole of society to benefit from the provision of a healthy environment through the management of effluent may be impacted by many factors including proximity, income and age.**

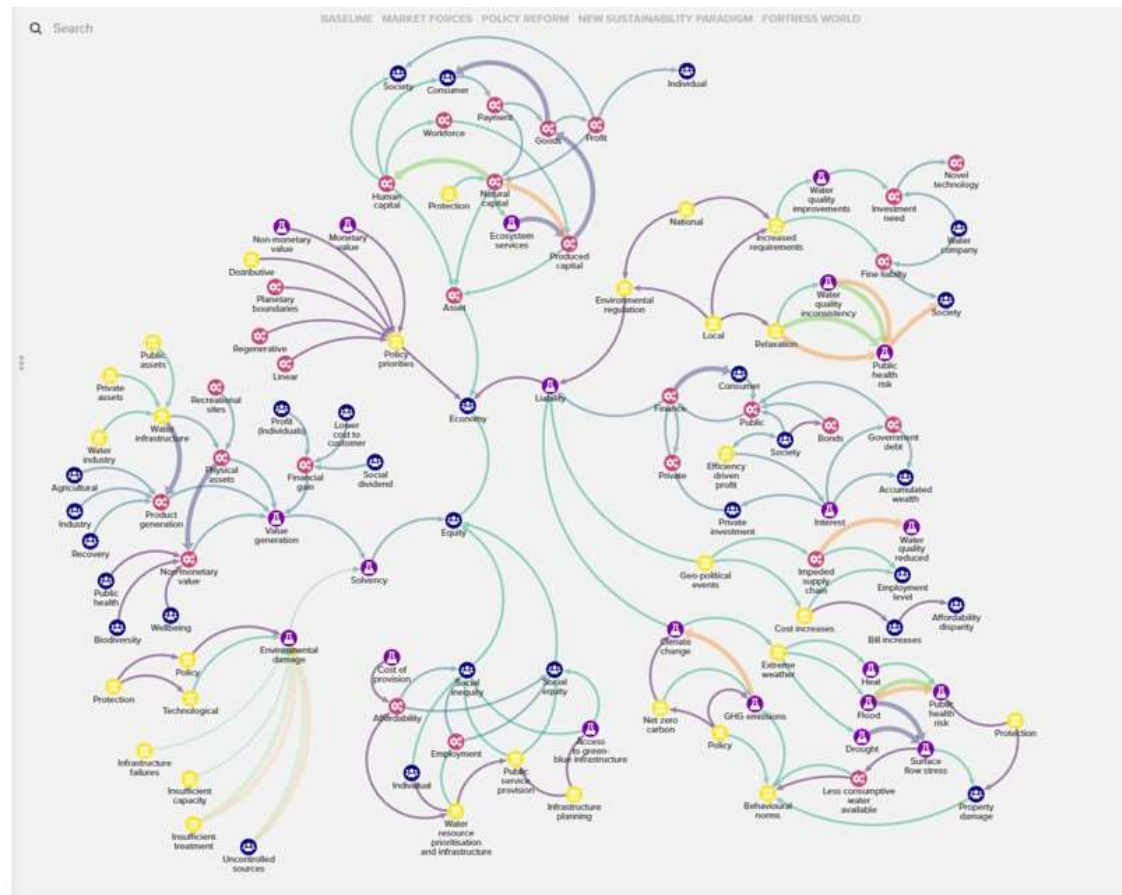


# Economic perspective

## Economic perspective of the system

Considering the system from an organisational and economic perspective highlights the role of policy priorities and the management of services, risks and opportunities.

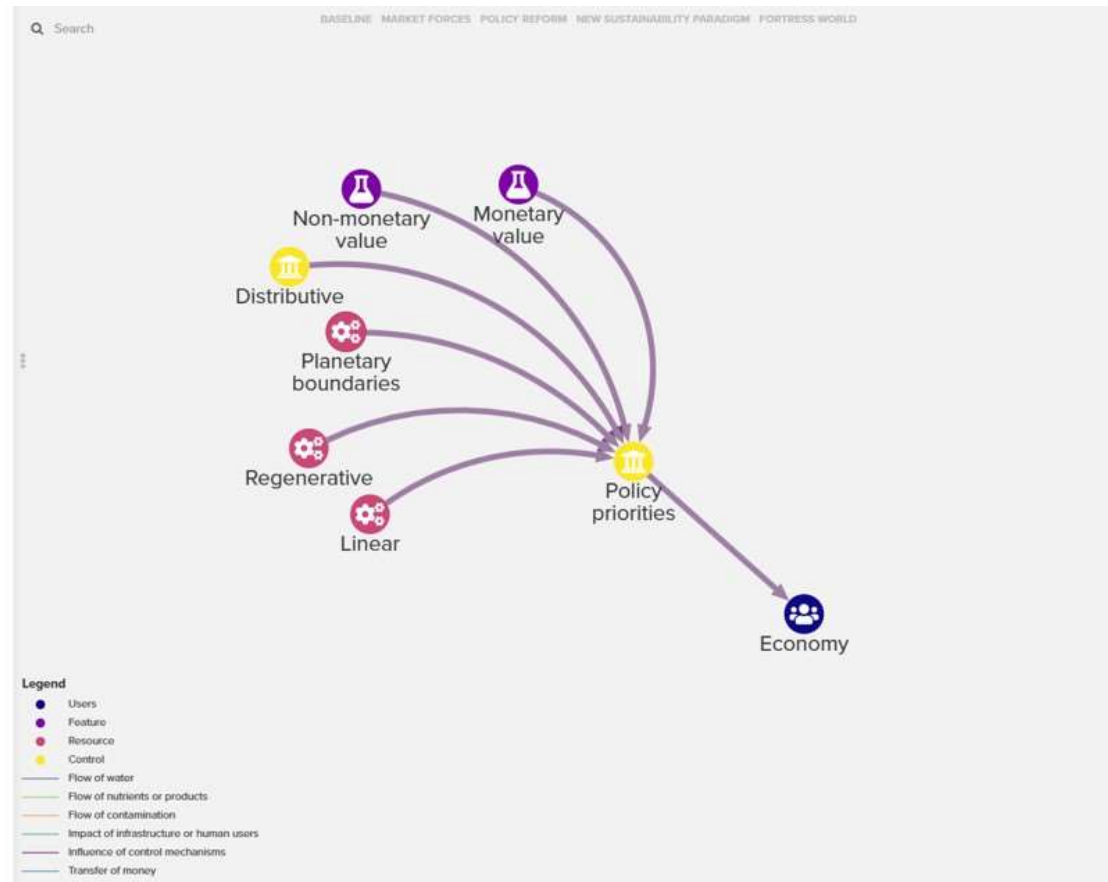
The following images provide a narrative through this system map



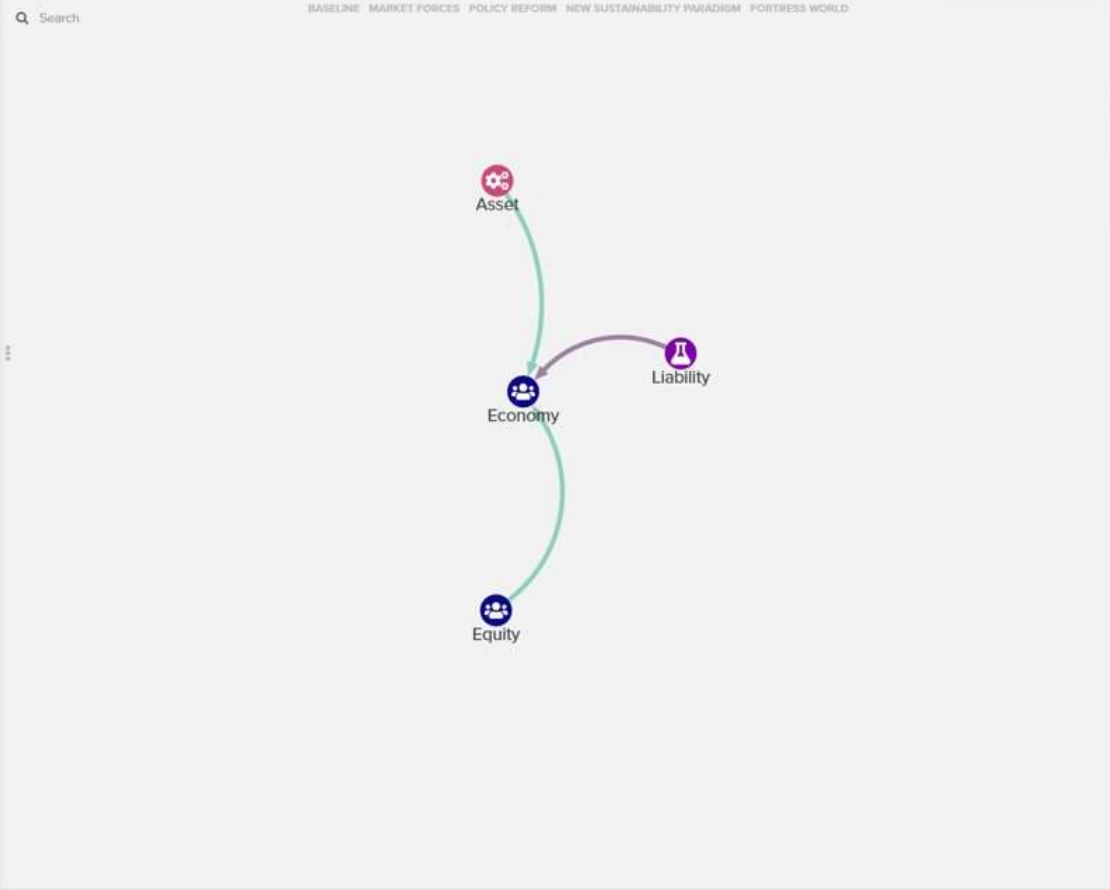
## Economy: policy priorities

Policy impacts the decision-making processes within the water sector. These structures at global, national and organisational scales impact the priorities within management of the water system.

The prioritisation of monetary and non-monetary value impacts the mechanisms which are used to incentivise actions. The degree to which a distributive economy is aspired to impacts the mechanisms to provide and pay for water services. Finally consideration of planetary boundaries and the degree to which a regenerative or linear economy are aspired to determines the consideration and acceptance of product recovery from water and wastewater systems. This may include for example the recovery of energy from biosolids, nutrient recovery from wastewater, or water re-use.



At the scale of providing water services relationships can be categorised into those that impact the asset portfolio, those that a liabilities for continuing operation and equity.

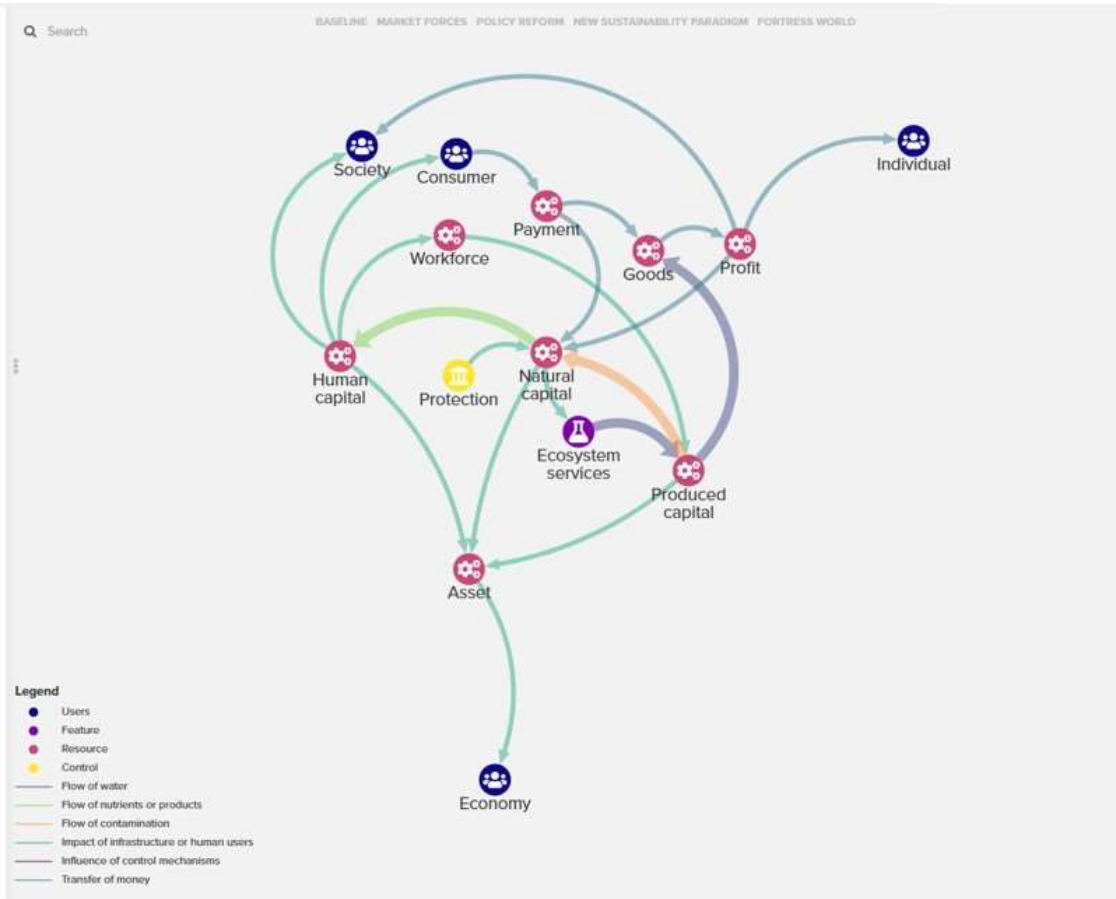


Considering the branch of this system map that relates to assets depicts the contribution water systems provide to human, natural and produced capital.

*Human capital - health, education, aptitude and skills*

*Produced capital - tangible and alienable assets*

*Natural capital - value placed on natural resources*



Considering the branch of this system map that relates to assets depicts the contribution water systems provide to human, natural and produced capital.

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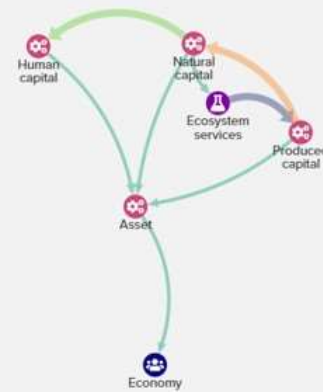
**This demonstrates the role of natural capital as a source of ecosystem services and the provision of water for the generation of produced capital. This in turn generates contaminants that impact the environment and stocks of natural capital which is also a provider of products to support human capital.**

Q Search

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**Legend**

- Users
- Feature
- Resource
- Control
- Flow of water
- Flow of nutrients or products
- Flow of contamination
- Impact of infrastructure or human users
- Influence of control mechanisms
- Transfer of money



Considering the branch of this system map that relates to assets depicts the contribution water systems provide to human, natural and produced capital.

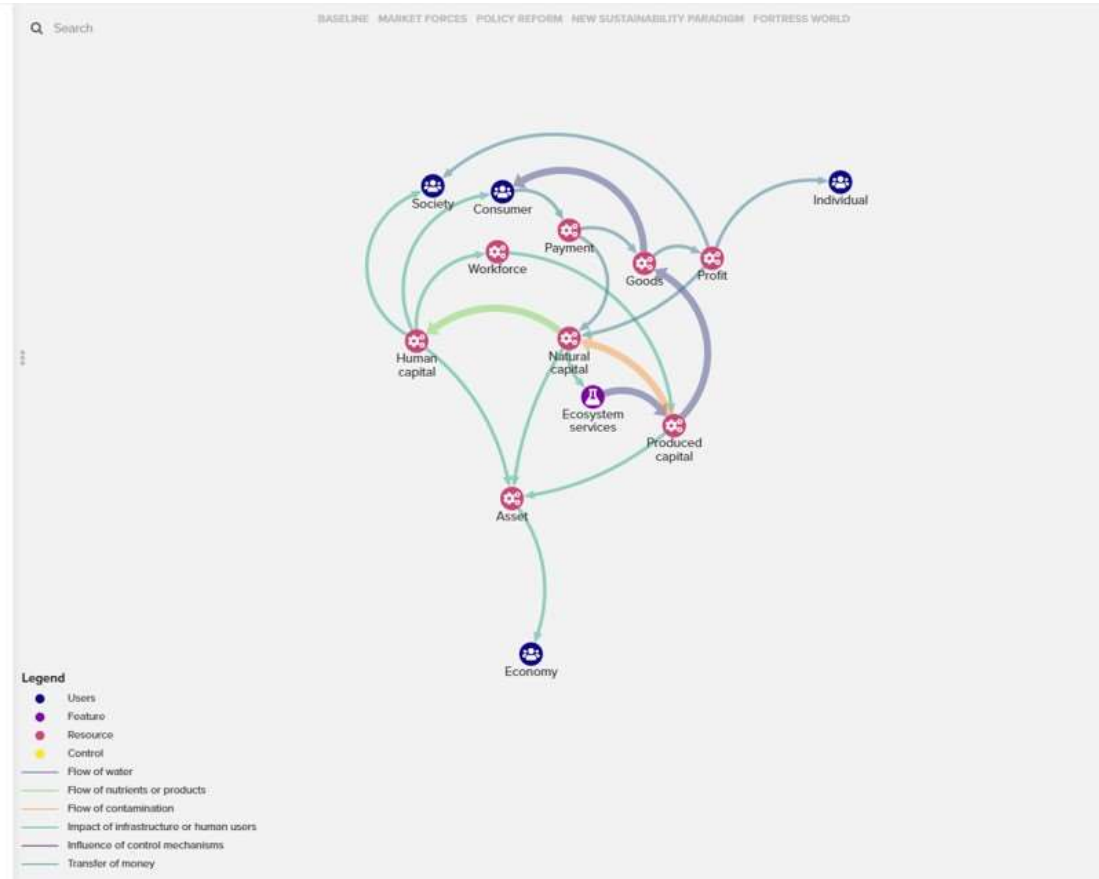
*Human capital - health, education, aptitude and skills*

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*Natural capital - value placed on natural resources*

This demonstrates the role of natural capital as a source of ecosystem services and the provision of water for the generation of produced capital. This in turn generates contaminants that impact the environment and stocks of natural capital which is also a provider of products to support human capital.

**Produced capital leads to the (virtual) transfer of water into goods as well as to the consumer (both directly and virtually). Payments serve to impact natural capital.**



Considering the branch of this system map that relates to assets depicts the contribution water systems provide to human, natural and produced capital.

*Human capital - health, education, aptitude and skills*

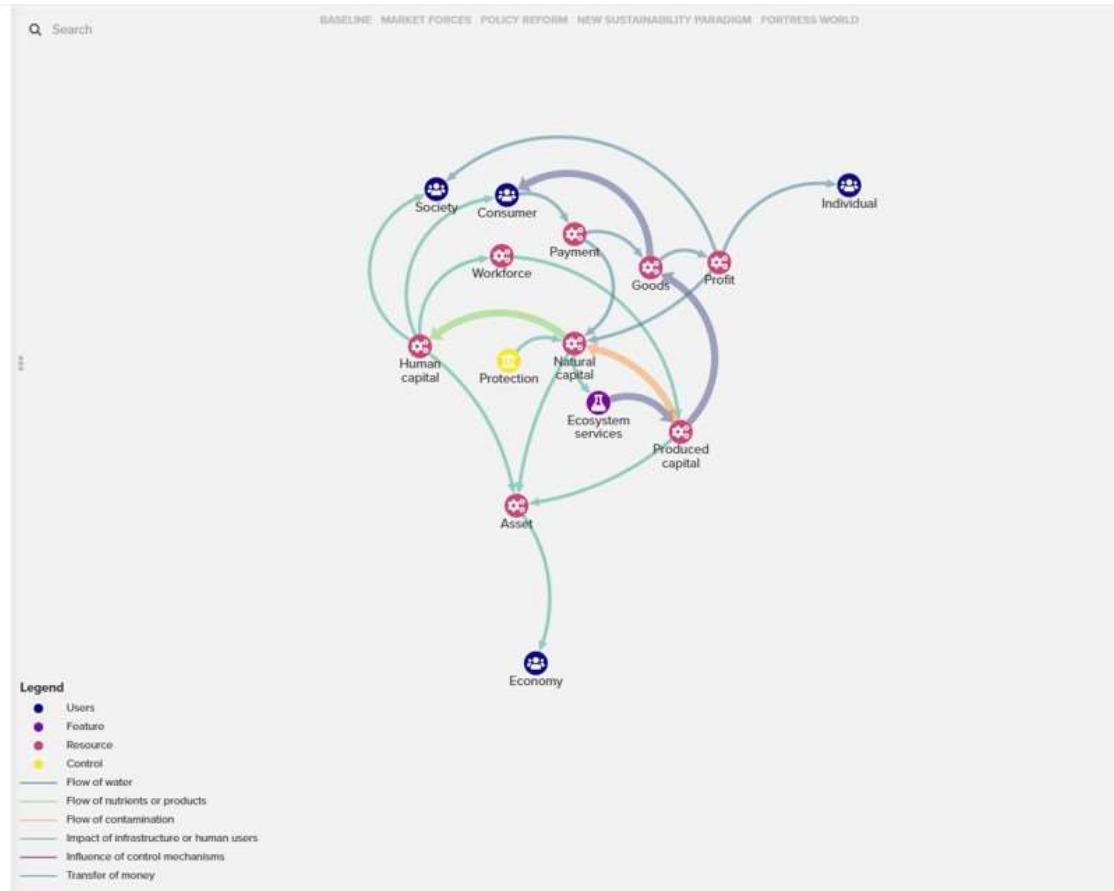
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This demonstrates the role of natural capital as a source of ecosystem services and the provision of water for the generation of produced capital. This in turn generates contaminants that impact the environment and stocks of natural capital which is also a provider of products to support human capital.

Produced capital leads to the (virtual) transfer of water into goods as well as to the consumer (both directly and virtually). Payments serve to impact natural capital.

**Regulation and policy provides a mechanism for protection of natural capital.**



---

These highly detailed system multi-perspective system maps incorporate and allow interrogation of the complexity of the system. By considering the perspectives separately the cross-connections and common leverage points become more apparent.

These system maps form a mechanism for enabling localised collaboration and the creation of bespoke system maps, through participatory development, which reflect specific concerns within a waterbody or operational catchment. Additionally they have been fundamental to developing further tools including a conceptual model and indicator system.

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# APPENDIX G: THE WATER PIVOT: TRANSFORMING UNSUSTAINABLE CONSUMPTION TO VALUING WATER AS A RESOURCE FOR LIFE



## OPEN ACCESS

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## The water pivot: transforming unsustainable consumption to valuing water as a resource for life

Bryony M. Bowman<sup>1\*</sup>, Ian Abbott-Donnelly<sup>2</sup>,  
Jean-François Barsoum<sup>3</sup>, Peter Williams<sup>4</sup>, Dexter V. L. Hunt<sup>1</sup> and  
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Water is a resource essential for all life and on which society depends but undervalues. This paper presents theories on methods to pivot from linear, extractive uses of water to considering water as a high value, circular resource. Analysis of the literature, which is primarily focused at the abstractor scale, has highlighted the prioritization of human water rights over environmental needs without incorporating the ramifications of environmental degradation and the complexities of applying a market-driven approach to a heterogeneous resource particularly at the domestic consumer level. A discussion of the relationship between society and water, in particular mechanisms that have been used to reduce water consumption, highlights the complexity of this issue and the need to consider fairness and equity at the global and local scales. A comparison of global, urban water supply and sanitation costs shows the extensive variation in the amounts of water consumed and the prices paid at the domestic consumer scale. Finally, a series of hypotheses are presented that, with local development, testing and refinement, are posited to bring about change in the value society places on water.

### KEYWORDS

fairness, justice, price, resource management, value, water resources, ecological economics

## 1. Introduction

Water is an essential component for life across all of nature and has been recognized as a human right in the UN Sustainable Development Goals, SDG6 (United Nations, 2015). However, human activity, industry, agriculture and urbanization all disrupt the natural water cycle, both through direct impacts (Naden et al., 2016; Bell et al., 2021) and through the consequences of climate change altering the frequency, severity and location of rainfall (IPCC, 2021). This is not wholly a new phenomenon with increasing levels of nutrients, accompanied by decreasing populations of fish and other aquatic species, seen across the UK since the industrial revolution (Bell et al., 2021). Indeed, the convergence of increasing development and reducing environmental quality, particularly water quality, has been observed around the world with examples including China (Rasiah et al., 2013; Xu and Benck, 2013; Yan et al., 2017; Li et al., 2019), USA (Lattano et al., 2021) and France (Thaboult et al., 2021). In the UK improvements have been observed since the start of the 1900s with the introduction of wastewater treatment requirements and, more recently, regulations on the use of phosphorus in detergents (Naden et al., 2016) and the introduction of the Urban Wastewater Treatment Directive (Directive 91/271/EEC, 1991) and Water

Framework Directive (Directive 2000/60/EC, 2000). However, it remains the case that most rivers across the UK and the rest of Europe do not meet the required standard for good chemical or ecological status (Marcal et al., 2021).

In addition, the majority of the world's water basins are classed as water scarce (Reddy et al., 2015), with impacts on consumptive and non-consumptive users (for explanation of key terms see Table 1). This is a situation that is rapidly deteriorating: in 2015 it was reported that 2% of USA watersheds had withdrawals, through municipal and industrial users alone, that are greater than the renewable supply (Reddy et al., 2015). By 2019 predictions across the contiguous states within the USA estimate that 83 out of the 204 freshwater basins will experience some degree of monthly shortage by 2045, with this increasing to nearly half by 2070 (Brown et al., 2019). Globally 70% of consumptive water use is for agricultural irrigation (Wada et al., 2011; Zhao et al., 2020) and within the USA ~82% of all water use is for agriculture and thermoelectric power generation (Luby et al., 2018). Competition and prioritization of water resources between different users is therefore a complex issue within which there is a wealth of research—see for example Gurlek and Ward (2009), Piniewski et al. (2014), Kumar et al. (2016), Wada et al. (2017), Ahmadi et al. (2020), Tomlinson et al. (2020)—including the consideration of separate water sources for different uses (United Kingdom Water Partnership, 2015; Oteng-Peprah et al., 2018; Arden et al., 2021). The basis for rights to water are frequently, particularly across the global north, related to either a

riparian doctrine or doctrine of prior appropriation, both of which prioritize human use over ecological benefit (Prankiewicz, 2019). However, degradation of the environment has impacts in terms of ecosystems services and therefore ramifications for society and the economy (Costanza et al., 2017; Dasgupta, 2021). Incorporation of environmental impacts in water prioritization assessments has been incorporated into some assessments for example Hatamkhani et al. (2023) and others by these authors.

Regulations such as the EU Water Framework Directive (Directive 2000/60/EC, 2000) and US Environmental Protection Agency Effluent Guidelines (United States Environmental Protection Agency, 2022) along with policies promoting cleaner production and sustainable development in China (Song et al., 2018; Li et al., 2019) aim to provide protection through legal obligation, although there are concerns that this is neither sufficient, nor quick enough, to improve the water quality in our lakes, rivers and seas (Lozano et al., 2021; Environment Agency, 2022). Additionally water protection and availability is not universal: around the world 2.2 billion people do not have access to clean drinking water and 4.2 billion people do not have access to safely managed sanitation (United Nations, 2015). Therefore globally there is currently disparity in the distribution, use and protection of water, which without intervention will continue to grow in the near and far future.

There are, therefore, a multitude of pressures on water quality and quantity exacerbated by human activity. Our collective

TABLE 1 Glossary of key terms.

	Term	Definition
General terms	Pivot projects	A global collaboration that seeks to use diverse viewpoints and holistic approaches to help solve the world's ecological challenges.
	Pivot	An abrupt change compared to current trends.
	Watercourse	Surface water system, including tributaries, rivers, streams and lakes.
	Watershed	Entire catchment that drains into one body of water, including land area. Also, river basin or water basin.
	Water resource	Above or below ground body of water that acts as a water resource for people or nature. Includes rivers, lakes and aquifers.
Water use	Consumptive water use	Use of water such that it is not returned to the original water resource for immediate re-use as it has evaporated, transpired, been incorporated into goods or products, or been consumed by humans or livestock.
	Non-consumptive water use	In-stream use of water, or diversion of water where that water does not change in quantity or quality and is returned to the same point.
	Embedded (virtual) water	The water required to generate products.
Justice	Environmental justice	Movement to address inequity in environmental hazards and benefits, to prioritize intergenerational environmental and social equity.
	Water justice	The ability for all people to access clean water for consumption and recreational purposes as a human right.
Economic terms	Marginal price	The difference between the cost of production and the price at which a product can be sold.
	Price elasticity	The price difference needed to elicit a change in consumption. For example, if price elasticity is high then small changes result in changing consumption patterns, if price elasticity is low then even large price differences do not lead to changing consumption.
	Rising block price/Rising block tariffs	Charges attributed to a unit of water changes with cumulative consumption during a given time period. For example: 60.8 per m <sup>3</sup> up to 25 m <sup>3</sup> /month and £1.40 per m <sup>3</sup> thereafter.
	Shadow price	Monetary value assigned to provide an estimated economic cost for a characteristic with a cost that cannot be easily determined and in the absence of correct market prices.

relationship with the water environment needs to change for our mutual benefit. Whereas much of the existing literature is positioned at the abstractor scale, this research focuses on domestic consumption and influencing mechanisms applying a systems approach. The objective of this paper is to explore the environmental and justice impacts of water use, in particular the impacts of domestic water pricing mechanisms and propose a series of approaches to transform unsustainable consumption to society valuing water as a resource for life. This paper firstly discusses societies' relationship with water at a domestic user scale, including mechanisms that have been used to drive behavior change to reduce water consumption. Secondly, it provides a brief exploration of global approaches to water pricing. Finally, a series of hypotheses are proposed to stimulate testing and development at a local scale with the aim of driving a shift from unsustainable water use to society valuing water as a resource for life.

## 2. Method

Pivot Projects (<https://www.pivotproject.org/>) is a global collaboration that seeks to use diverse viewpoints and holistic approaches to help solve the world's ecological challenges through identification of a pivot: a means to bring about an abrupt change as opposed to a transition. Collaborators participate in topic-focused groups ranging from education to energy, sustainable infrastructure and 15-minute cities. The authors of this paper form a group within Pivot Projects that specifically focused on the area of water; they have backgrounds in water and wastewater treatment, smart water, smart cities, innovation, disaster relief and environmental stewardship. A process of collective knowledge-sharing within this group and exploration of ideas and connections was used to discuss potential methods to enable a pivot to sustainable water use in which water is valued by society as a resource for life (Figure 1). The approaches used to facilitate these discussions were based on soft systems methodologies (Checkland and Scholes, 1999), and participatory systems dynamics modeling (Pulichinotta et al., 2021). Additionally, visualizations were generated to explore interconnected points of influence within the complex, adaptive system of domestic water consumption using systems mapping techniques (van Rooyen et al., 2020; Gittins et al., 2021). A number of tools were used to facilitate this process including Spark Beyond ([research.sparkbeyond.com](https://research.sparkbeyond.com/)), an artificial intelligence (AI) research tool that uses natural language processing (NLP) to mine information from the internet, and Kumu relationship mapping software (<https://kumu.io/>) as a method of visualization and evidencing connections in a collaborative forum. Kumu has been utilized as a visualization tool due to the range of features offered and the benefits of generating an interactive open-access model (Arena and Li, 2018; McCullough, 2019; Pedersen Zari and Hecht, 2019). Through this process a key area of potential influence was identified as 'price of water as a mechanism for reducing consumption'. While this is superficially unsurprising, it was important that it emerged from the systems analysis, not least because it also leads directly to consideration of the value of water.

A search of academic literature was undertaken focused on the value of water and pricing mechanisms using Web of Science,

Google Scholar and including articles identified by Spark Beyond. Search terms of "water", "price" and "value" were used to identify relevant research within literature databases. This was used to understand the current knowledge in this area and identify how this could be used to increase the value attributed to water. A comparison of global domestic water prices and rates of consumption has been conducted to explore the variation of price and consumption globally (Section 3). Countries and cities were selected to provide a range of climates, socio-economic systems and water payment regimes. The selection was limited to those areas where water and sanitation is provided to a large proportion of the urban population (>80% with water supply and 40% sanitation provision based on data from World Bank, 2022) and where data could be sourced with reliability. Therefore this analysis seeks to provide an indication of the relationship between consumption and water price across the globe, however does not reflect the variation caused by non-centralized water services which may have substantial price differences, supply restrictions and inequitable access impacts (Ntengwe, 2004; Oprysko et al., 2009; Plappally and Lienhard, 2012; Ahmad, 2017; Murwirapachena, 2021).

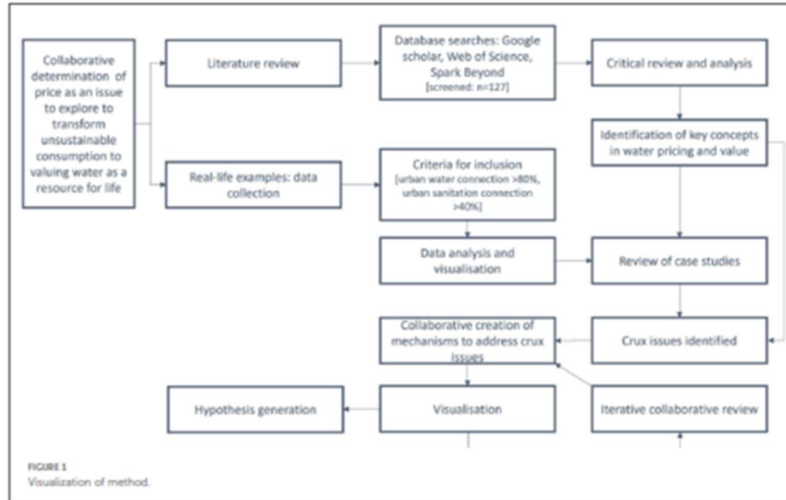
A collaborative process was used to build from this body of knowledge to identify crux issues and from these generate a series of hypotheses, facilitated by the use of Kumu. These hypotheses postulate how pricing mechanisms and structuring of the distribution of water could be used to facilitate a pivot to sustainable, and valued, water consumption. It is considered unlikely that there is a single approach that could act as a worldwide panacea, however common themes and thought processes are relevant globally to drive discussions at a country, region or catchment scale. Five hypotheses are presented (Section 4) which are complementary and act as a starting point for specific discussions that can take account of local cultural, climate and economic requirements.

## 3. Results: our relationship with water

### 3.1. The value of water

The issue of the value of water can be traced back to Adam Smith's *The Wealth of Nations* (1776). Smith noted the diamond-water paradox in which greater value is ascribed to the non-essential diamond rather to life-preserving water (Investopedia, 2021). Since then, economists and others have theorized over different approaches to considering value and the influence this has on consumption. Numerous approaches could be used to influence the consumption of water at both industrial and domestic user scales. These range from raising awareness through education and public campaigns, to fitting water saving devices such as in Australia during the Millennium Drought (Rogers et al., 2020) and South Africa in Cape Town's Day Zero (Booyesen et al., 2019; Gittins et al., 2021). Alternatively, more overt methods can be used to directly influence consumption either through assigned quotas (Shi et al., 2014) or markets and pricing mechanisms (Brookshire et al., 2004; Olmstead and Stavins, 2009; El-Khattabi et al., 2021). It is in these latter areas on which this paper will focus.

At a local scale, overexploitation has been observed to increase public perception of value (Roobavannan et al., 2020). Additionally,



given that water is traded between nations in an embedded form (Roson and Damania, 2017; Wang et al., 2018; Serrano and Valbuena, 2021) and through transboundary watercourses (Plappally and Lienhard, 2012; Yu and Lu, 2018), the global interaction of water policy becomes an area of potential sensitivity. Therefore different cultural contexts, and desired goals, are likely to influence the success of the approaches considered in previous studies. How these fit in a global context is also important.

Assigning quotas, or command and control methods, can be used to facilitate efficient, predictable sharing of resources (Shi et al., 2014). They are considered to be quicker and easier to implement compared to exploring the use of alternative water resources (Hunt and Shahab, 2021), including recycling (Blackmore et al., 2020) or allowing market forces to influence multiple users of the resource (Munasinghe, 2010). However, studies have also found command and control methods to result in greater economic losses and therefore to be more expensive to society (Olmstead and Stavins, 2009; Luby et al., 2018).

Restrictions in water consumption have the potential to impact crop selection and agricultural irrigation practices (Castellano et al., 2007; Shi et al., 2014), which could have economic effects (Shi et al., 2014; Yan et al., 2020), or promote a transition from domestic production to imported goods (Luckmann et al., 2016) with subsequent equity and green-house gas emission implications at the local and global scales. Water efficiency measures are frequently reliant on the adoption of technological changes. This has inherent risks in leading to technological lock-in (Markolf et al., 2018), has the potential to limit innovation (Olmstead and Stavins, 2009) and not lead to the expected savings due to behavioral changes

(Olmstead and Stavins, 2009; Hunt and Rogers, 2014; Hunt and Shahab, 2021). It also has the potential to increase inequity due to a requirement for new technology to meet the restriction. It has been suggested that a palatable approach would be the combination of technology with behavioral approaches (Hunt and Shahab, 2021; Murwirapachena, 2021), which could align with market-based policies akin to other environmental initiatives (Gugler et al., 2021).

A market-driven and liberal policy has been shown to increase welfare (Luckmann et al., 2016); indeed there are many studies based on a market- and price-driven approach (United States Environmental Protection Agency, 2002; Brown, 2006; Castellano et al., 2007; Bjornlund and Shanahan, 2015; Reddy et al., 2015; Luckmann et al., 2016; Luby et al., 2018; Bierkens et al., 2019). However, a difficulty arises in that water is a provider of both private and public goods and services, and as such markets are considered to be poor providers of information on either the value of water or optimal allocation (Reddy et al., 2015). Options to use payment for ecosystem services have been discussed (Pissarra et al., 2021) in which downstream users of water systems compensate headwater farmers to adopt agroforestry and sustainable forestry practices. The conversion of environmental impacts into a monetary variable for inclusion in economic analysis (Hatamkhani et al., 2023) risks the commodification of nature (Farley and Costanza, 2010) and excludes from the assessment further impacts to the community. Alternatively, a multi-capitals approach to assessing value is gaining traction (Fenech et al., 2003; Kanakoudis et al., 2011; Acosta et al., 2020; Dasgupta, 2021; Mellander and Jordan, 2021; British Water, 2022), which allows a complete understanding of value to be considered alongside fiscal measures.

The price elasticity, namely the price difference needed to elicit change in consumption, is variable based on the timescale under consideration for impact (Scheierling et al., 2006) and the sector, along with the ability to pay increased prices (Olmstead and Stavins, 2009; Berbel and Exposito, 2020), or cope with interruptions in supply (Brown et al., 2019). Therefore the success of price measures is mixed and highly dependent on the price elasticity of water use (Shi et al., 2014; Kertous et al., 2022). At the domestic scale, water use is generally considered to be inelastic (Olmstead et al., 2003; Luby et al., 2018), and therefore to effectively influence water consumption different factors become significant for different users and cultural contexts.

Water price elasticity is linked to the shadow price, which in turn is influenced by the marginal product value (Shi et al., 2014; Bierkens et al., 2019). As such it has been suggested that increasing block pricing, i.e. increasing the unit rate for water based on consumption, can be ineffective as it changes the marginal cost of water (Olmstead and Stavins, 2009). A difficulty arises when considering the value of water when we contemplate the diversity of source water quality (Piper, 2003; Brown, 2006), varied uses of water within society including agriculture, industry and municipal use (Brown, 2006; Castellano et al., 2007; Bjornlund and Shanahan, 2015; Blackmore et al., 2020), and the cultural significance of waterbodies (Shriver and Peaden, 2009; Auerbach et al., 2014; López Moreira M et al., 2018) and users within nature. This heterogeneity means that the water market does not lead to a single price for water (Brown, 2006); indeed when water is considered a public good it typically has a lower price associated with it (Shi et al., 2014). However, much of the discussion (Brown, 2006; Scheierling et al., 2006; Bjornlund and Shanahan, 2015; Bierkens et al., 2019) is focussed on the shadow price of water and the use of markets at abstractor, or organizational, level and not how this translates to the domestic consumer. This reflects a view of water as an economic good rather than a public good and human right. Although in many ways analogies may be sought between water pricing and carbon pricing, in that markets in both cases could be used as mechanisms to change environmental impacts, it is in this area that the two diverge. Whereas a unit of greenhouse gas, for example a kilogram of carbon dioxide equivalent, has a similar climate change impact anywhere in the world, water has an almost infinite number of possible prices depending on local conditions, availability and requirements.

There are justice considerations (for discussion of justice principles see: Neal et al., 2014, 2016; Sultana, 2018; Menton et al., 2020; Shrimpton et al., 2021) when setting water prices to reduce consumption. If the difference in shadow price compared to the current price is too great this can have inequitable and unjust economic and societal impacts. There is a risk of inter-sectoral inequity when applied at the organization level (Shi et al., 2014) and community level inequity (Ntengwe, 2004; Olmstead and Stavins, 2009; Heino and Takala, 2015; Luby et al., 2018; Kertous et al., 2022) if the pricing structure is established without justice principles at the forefront. Furthermore there are additional restrictions in the implementation of changes to water pricing due to institutional rigidity within the political economy and governance systems (Mumssen et al., 2018).

Price measures to discourage consumption inevitably lead to increased revenue in the short-term (Olmstead and Stavins, 2009);

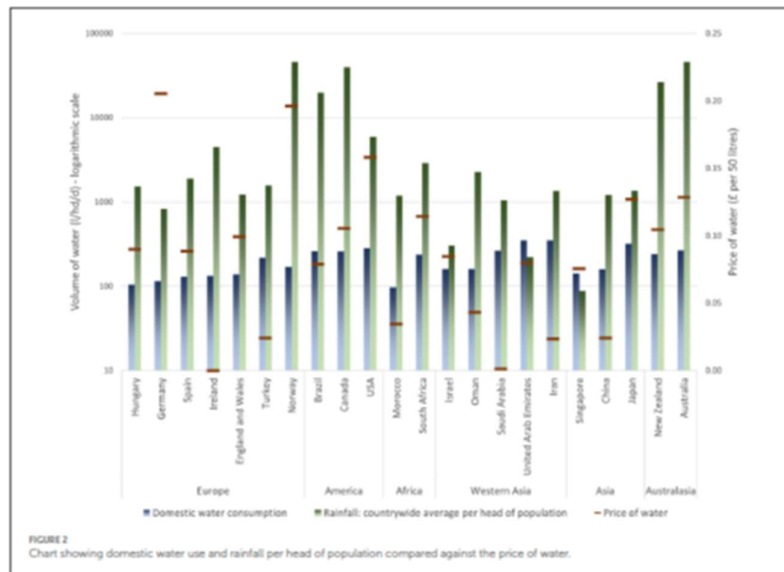
which body becomes responsible for these sums is uncertain and there are justice considerations to this. There are options to reduce poverty through the redistribution of wealth and provision of additional societal benefits (Olmstead and Stavins, 2009; Luckmann et al., 2016). Therefore, although pricing and market mechanisms are frequently viewed as the most effective method of reducing consumption, they are not methods without implications for fair and equitable use of water. The hypotheses presented in Section 4 discuss how price could be an aspect in a wider framework that considers the specific cultural, economic, climate and environmental influences within a region.

### 3.2. Pricing structures and availability

At a local level, reliability of supply is a key factor in consumer willingness to pay for water alongside awareness of water quality and knowledge of water service. However this willingness to pay is tempered by the ability to pay (Ntengwe, 2004; Adeoti and Fati, 2022; Ahmed et al., 2022). Where infrastructure and regulation are sufficiently developed, such that access to clean water and sanitation is locally universal, understanding of the volume of water consumed, the price of this water and subsequently the value it provides can be seen to be lacking. This is observed throughout the population, including amongst an environmentally aware sample group, where there is frequently little recognition of either the amount of water used, or the cost of that water (Heino and Takala, 2015; Lucio et al., 2018; Hunt and Shahab, 2021).

A comparison of domestic water use, the price of water and the amount of rainfall in various countries around the world highlights that there are various approaches to assigning a monetary value to water. To enable comparisons, data has been collected from a sub-set of urban areas in countries with extensive access to safely-managed drinking water and sanitation services, as documented by the World Bank (2022). The collection of data based on established, centralized distribution excludes the prices paid by populations where this is not the case. Therefore it does not take account of the substantial price increases when private water vendors are utilized in place of, or to supplement, centralized infrastructure (Opryszko et al., 2009; Plappally and Lienhard, 2012; Ahmad, 2017), or the impact of intermittent or restricted supply caused by the lack of, or inequity of access to, centralized services (Ntengwe, 2004; Murwirapachena, 2021). Consequently, this analysis provides an indication of the relative value ascribed to water services, but does not seek to demonstrate the full range of prices paid for water globally, or the value placed upon water in all circumstances.

As can be seen from Figures 2, 3, and Table 2, the data collected focuses on the global north, reflecting availability of extensive piped supply of water and sanitation services in these areas. A comparison of average rainfall in each country and the rate of consumption (Figure 2) highlights that in the United Arab Emirates and Singapore the amount of surface water and groundwater renewed by rainfall is less than the amount required for domestic consumption alone, not including the amount required for industrial, energy and agricultural sectors. For current levels of consumption to remain viable, the use of desalination and wastewater effluent reuse are required in these regions. A



comparison of rainfall by country is a crude measure and may be misleading, particularly in countries with a large surface area and those with dense populations in small pockets of land for which average rainfall may not equate to available water supplies, or in areas with extensive evapotranspiration or sporadic rainfall. Additionally, the impact of temperature on water consumption has not been explored here. These factors may explain why there is no universal relationship between rainfall, consumption or water price. Finally, it is noted that per capita consumption ranges between 97 liters/person/day (Morocco) and 350 l/person/day (United Arab Emirates). This illustrates that the relationship of water availability and water price is complex—being influenced by population density, surface area, level of economic development and geography, among other factors.

Prices of water are stated per 50 liters (Table 2, Figures 2, 3) as this is the minimum volume of water considered required (Kanakoudis et al., 2011; Hunt and Rogers, 2014; 50L Home Arcadis, 2021) with prices calculated to incorporate actual rates of consumption. Prices range from free at the point of use (Ireland) or £0.001/50 liters (Saudi Arabia) to £0.21/50 liters (Germany). Comparatively low water prices are observed across Western Asia despite water stress in this region (Wada et al., 2011), and substantial heterogeneity of water price is observed within countries such as the USA, Australia and Japan. Low prices may imply that the cost of providing water services is subsidized, thereby

creating a hidden cost that is not directly charged, and therefore not visible, to consumers. A discussion of a small number of specific examples of pricing structures follows.

### 3.2.1. Centralized funding: example from Ireland

Water supply in Ireland has undergone some recent changes; previously delivered through local government and funded via central taxation, water services are now delivered across the country through Irish Water. Originally planned to be funded through direct billing of the 80% of the population that is provided with centralized services, public outcry (Rodríguez-Sánchez et al., 2018) led to an agreement that government subvention would provide baseline funding, equivalent to 74% of revenue needs (2019–2024) (UISCE Eireann Irish Water, 2018). Excess water use (over 213 m<sup>3</sup> per year for a 4-person household, equivalent to 146 l/person/day) is charged, under a ‘polluter pays’ principle, with a cap on the total charge per year (UISCE Eireann Irish Water, 2021). These events demonstrate the difficulty in changing water pricing structures due to rigidity in the political economy and in public acceptance of changes.

Due to the lack of direct billing of water there is an argument that the cost of water becomes hidden and there is a disconnection between domestic water use and the costs associated with water use, including environmental impact and thereby the value of water.

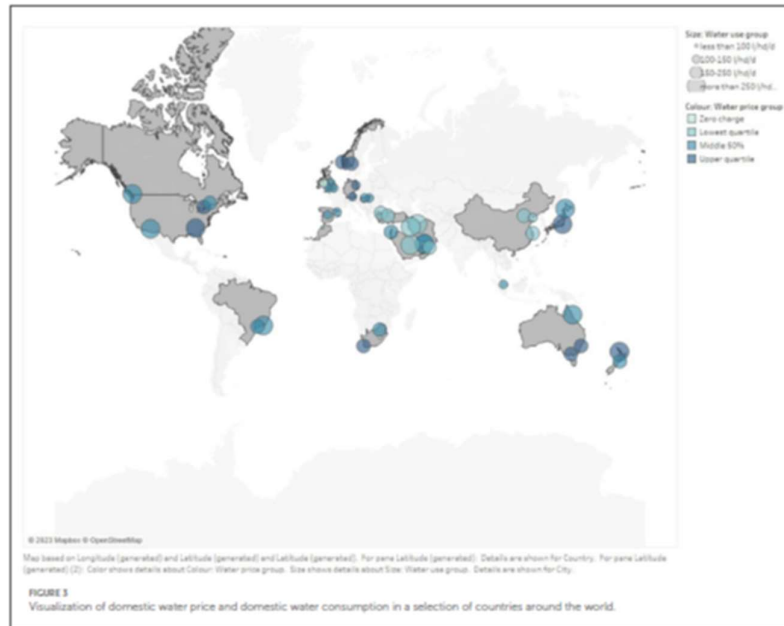


Figure 2 shows that the per capita consumption of water in Ireland is comparable to the rest of northern Europe. It remains to be seen whether domestic consumption remains constant in Ireland at a time when there are widespread campaigns to reduce consumption in comparable countries, or if this disconnection leads to levels of demand from domestic users in Ireland remaining constant.

### 3.2.2. Direct billing: example from England and Wales

In contrast to Ireland, the water industry in England and Wales was privatized in 1989, in line with the political trend of the time, to stimulate investment from private sources for the continued provision of water and to drive improvements in wastewater treatment (Byatt, 2013; Bayliss, 2014). The primary function of the UK water industry, and specifically licensed water companies, is to perform their statutory duty to provide potable water and sanitation services to the population; this is overseen by several regulators and advisory bodies. Ofwat, as the economic regulator, has a focus on the ongoing financial viability of privatization as well as ensuring value for money for customers (Bayliss, 2014; Department For Food and Rural Affairs, 2022). Recent investigations by the Consumer Council for Water (CCW) have

indicated that 10% of households regularly struggle to pay bills (Consumer Council For Water, 2021), therefore fairness of bills is a concerning issue. CCW defines water poverty as water bills totalling more than 5% of household income after housing costs have been paid; this is comparable to the UN recommendation of water services costing <3–5% of household income, although noting that this is an imperfect metric (United Nations Childrens Fund (UNICEF) and The World Health Organisation, 2021).

Currently bills in England and Wales average at £394/household/year which is 1.4% of the median income level across the UK; however for the more vulnerable in society, i.e., those on minimum wage, the national living wage, or Universal Credit the picture changes. For those households, water bills rise to between 3% and 12% of income depending on age, the number of people in the household and the income level. It is estimated (Consumer Council For Water, 2021) that 6% of households in England and Wales spend more than 5% of income on their water bill. Contrast this with the 10% that views bills as unaffordable and it appears that there is a discrepancy between the threshold for water poverty and the value which the public ascribes to water. This could be related to the perceived abundance of water in the country (Praskievicz, 2019), or that water was delivered as a public service within living memory of the majority of the population.

TABLE 2 Summary of domestic water consumption and cost of water in selected countries and cities.

Country/city	Domestic water consumption (l/person/day)	Water price per 50 liters (E/50 l)**	References
Australia, Cairns	400	0.09	Cairns Local News, 2021
Australia, Mooner Valley	200	0.14	Rogers et al., 2020
Australia, Sydney	200	0.13	Sydney Water, 2022
Brazil, Rio de Janeiro	301.3	0.10	Economist Intelligence, Unit, 2010, p. 91
Brazil, São Paulo	155	0.05	Economist Intelligence, Unit, 2010, p. 99
Canada, Ottawa	179	0.10	Ottawa Insights, 2017
Canada, Toronto	210	0.13	City of Toronto, 2022
Canada, Vancouver	390	0.09	Sustainable Vancouver, 2020
China, Beijing	154	0.03	CEIC Data, 2021a
China, Dalian	120	0.02	Huang et al., 2015
China, Shanghai	204	0.02	CEIC Data, 2021b
Germany, Berlin	115*	0.22	Environment Agency, 2008
Germany, Munich	115*	0.19	
Hungary, Budapest	105*	0.10	
Hungary, Debrecen	105*	0.08	United Nations Economic Commission For Europe, 2010
Iran, Kermanshah	350*	0.02	Tehran Times, 2020
Iran, Tehran	350*	0.03	
Ireland	133	N/A	USCE Eireann Irish Water, 2019
Israel, Jerusalem	160	0.08	Vanham et al., 2014
Japan, Sapporo	320*	0.11	
Japan, Tokyo	320*	0.14	United Nations Educational Scientific Cultural Organisation, 2006
Morocco, Rabat-Sale	97.1	0.03	Bourekkafi et al., 2021
New Zealand, Auckland	253	0.14	Auckland Council, 2022
New Zealand, Wellington	227	0.07	Learnz, 2022
Norway, Bergen	180*	0.14	Statistics Norway, 2022
Norway, Oslo	160	0.22	OECD, 2016
Oman, Muscat	160	0.04	Alhawasba, 2019
Saudi Arabia, Riyadh	265	0.001	Arab News, 2014
Singapore	141	0.08	Singapore's National Water Agency, 2022
South Africa, Cape Town	237*	0.16	Marwitsapachena, 2021
South Africa, Pretoria	237*	0.07	
Spain, Barcelona	132	0.10	Tello and Oton, 2011
Spain, Madrid	127.1	0.07	Carrasco and Buzo, 2018
Turkey, Ankara	246	0.02	Turkish Statistical Institute, 2021
Turkey, Istanbul	190	0.03	Turkish Statistical Institute, 2021
United Arab Emirates, Ajman	350*	0.07	
United Arab Emirates, Dubai	350*	0.09	The National News, 2012
United Kingdom	130.4	0.10	OFWAT, 2020
USA, Atlanta	283*	0.27	
USA, Phoenix	283*	0.05	Laby et al., 2018

\*Average consumption across the country has been used. \*\*Derived from International Benchmarking Network for Water And Sanitation Utilities (IBNet).

Nevertheless, it is evident that at a national scale, current water bills are inequitable in the degree of impact they have. In addition, the mechanism of customer-driven adoption of water metering is increasing the financial burden to those less able to pay, and bill payment support is geographically varied (Bayliss, 2014; Consumer Council For Water, 2021) thereby increasing inequity across the country.

### 3.2.3. Rising block tariffs and seasonal charging: example from USA

Rising block tariffs are seen in various forms around the world, including within 14 of the 22 countries compared previously in Section 3.2. There is variation both within and between countries as different urban areas adopt varying charging regimes. The data presented here is not sufficiently detailed to draw conclusions on the impact of pricing strategies; however existing literature has postulated that price measures may be ineffective due to inelasticity of use with respect to price at current levels (Olmstead et al., 2003; Luby et al., 2018), heavy users not identifying that they pay higher prices (El-Khattabi et al., 2021), or specific local and cultural conditions (Reddy et al., 2015).

Examining water prices in the USA, it becomes apparent that there are vast differences in pricing strategies. Luby et al. (2018) found a negative relationship between water price and water scarcity that persisted when accounting for variation in the cost of living. Despite water charges in Phoenix being lower than across much of the USA, the policy of enabling affordable water for essential inside use with increased charges for higher water users, including seasonal variation of rates, has gained support as a method of reducing consumption. However, this is coupled with indirect unjust impacts as higher water charges have a greater influence over behaviors of less affluent parts of the community. In this case this is exhibited as converting lawns to desert landscaping whilst more affluent areas maintain existing behaviors and high water demanding lawns and plants. This exacerbates the urban heat island effect and inequitably impacts the community (Sorensen, 2019).

### 3.3. There is no silver bullet

This analysis demonstrates that there is extensive global variation in the amount of water consumed, the price and price structures, even within those areas where access to piped, clean water and sanitation is near universal. The implementation of payment for water services is linked to the political ideology of that time and place, this has implications for the value society places on water and justice implications due to the potential for variable impacts across society.

Whilst the value of water is commonly defined by the economic value it generates, this fails to recognize the wider values that water provides unless a multi-capitals, or payment for ecosystem services policy, is adopted. Value is also frequently biased toward human prioritization over ecological benefits. How the price of water impacts different communities and sub-populations means

that a justice approach is needed to enable intergenerational equity and environmental, or water, justice.

## 4. Discussion: five hypotheses for change

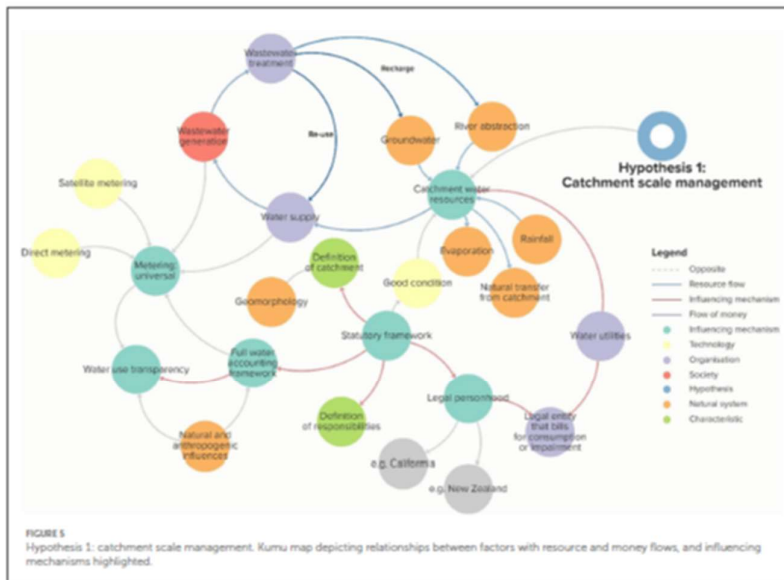
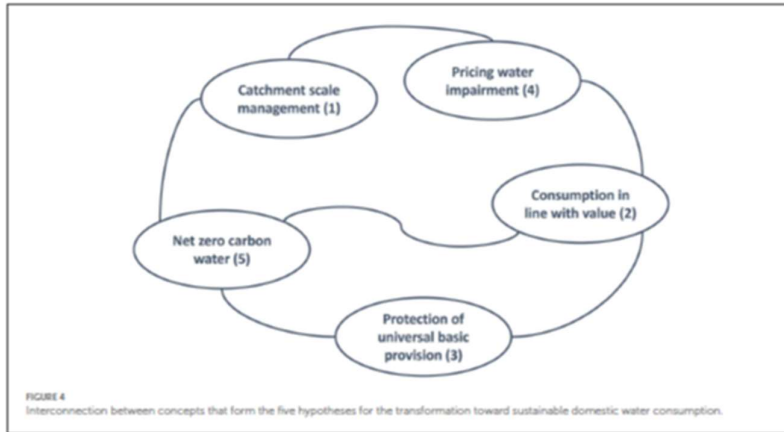
Multiple influences and impacts result from the interconnections between people and water consumption. These have been explored using system mapping and influence diagrams in an iterative process to generate a series of interconnected concepts (Figure 4) that are posited to drive a transformation toward sustainable water consumption at the domestic scale. This section details five hypotheses (available at <https://kumu.io/BryonyB/water-pivot-hypotheses>) that have been developed to promote the value of water (see Sections 4.1 to 4.5). These hypotheses set out a framework for discussion and are proposed to be tested and developed at a local scale to incorporate specific cultural, economic, climate and environmental influences.

### 4.1. Hypothesis 1: catchment-scale management

Viewing water at the scale of the catchment and employing a systems thinking approach provides the ability to consider multiple users of water within a catchment and ensure that this resource is managed, across existing boundaries (utility, commercial or regulatory), for the protection of the ecosystem as well as ensuring long-term supply of water now and for future generations. In turn, this enables the incorporation of justice themes through both environmental and water justice. Importantly this must incorporate the whole water cycle within a catchment, including the usage cycle.

Figure 5 depicts the premise for catchment-scale management that is proposed. This diagram depicts water use cycles alongside the inputs and outputs to catchment water resources. It also proposes a governance mechanism that incorporates legal personhood, water use recovery and a full water accounting framework. Within this diagram the blue arrows summarize the flow of resources through the natural and human usage cycles within a catchment. The red arrows portray protections provided through governance systems, including regulation-based management of water resources. The first of these to consider is the generation of a statutory framework to (1) define the catchment, and (2) specify the agencies and governments that are required to collaborate, their responsibilities and the means of collaboration. Within the statutory framework it is proposed that legal personhood for the catchment is sought. This enables the catchment, and the ecosystems held within the catchment, to be directly represented in court and enable inclusive institutions (Smith, 2017; Clark et al., 2018; Willems et al., 2021; Global Alliance For The Rights Of Nature, 2022).

Within the statutory framework there is an additional need to define a legal entity, acting as agent for the environment that is able to bill users for consumption and impairment. In such a way this governance structure enables the true value of water to the environment and society to be represented in the usage cycle. It



also enables the price of water to be set as high up the value chain as possible, echoing the structure of many carbon pricing mechanisms which have been found to be effective (Gugler et al., 2021).

In order to facilitate catchment scale management, data is required on water within the catchment and the use of that water in terms of both quantity and quality. This should form a complete water accounting framework to provide transparency over water use and impairment, encompassing both natural and anthropogenic influences. Water accounting frameworks are under development; for example, Water Accounting (Water Accounting Team At The Delft, 2023), Water Sensitive Cities (Rogers et al., 2020) and others (Statistics Canada, 2003, 2019; Castellano et al., 2007; Abolafia-Rosenzweig et al., 2021; Belmans et al., 2021; Fridman et al., 2021) including a patent for Water Accounting (Abbot Donnelly et al., 2013). These are data-dependent frameworks and as such, particularly when attributing water use at the domestic household level, there is a requirement for universal metering. Although there is opposition to metering, primarily focused on its ability to elicit change and potential to lead to regressive outcomes (Dresner and Ekins, 2004), a combination of universal, accurate, granular use data with pricing mechanisms based on justice principles is suggested to overcome these concerns.

#### 4.2. Hypothesis 2: consumption in line with value

This concept centers on two key aspects; firstly, the water guardian an entity which acts as a hub between the catchment legal entity and the water abstractor. This relationship relays the value attributed to various types of water use based on the catchment value. Secondly, it includes the variable cost of consumption as a mechanism for wealth redistribution in the form of a social dividend.

If we are to value water as a resource and reflect the complete value that water provides to nature and humans, both directly and through ecosystem services, then it is a logical consequence that consumption of water is prioritized in line with the value this consumption provides. This requires the ability to define and measure the value of the catchment across the realms of environmental, societal and economic value (for example via ecosystem services (Costanza et al., 2017; Pissarra et al., 2021) or a multi-capitals approach (Dasgupta, 2021; British Water, 2022) as part of a total cost recovery model (Rogers et al., 2002; Kanakoudis et al., 2011; Mumsen et al., 2018; Berbel and Expósito, 2020).

The next stage is to prioritize water use for the highest value activity within the catchment, including use by nature. Prioritization for infrastructure decisions has been assessed including environmental impacts converted to an economic value (Gurluk and Ward, 2009; Kumar et al., 2016; Costanza et al., 2017; Pissarra et al., 2021; Hatamkhani et al., 2023). This concept is here taken further to apply prioritization across domestic consumption and propose methods of influence in the form of water pricing. However, variable domestic water pricing has been applied, for example through pricing structures to reduce consumption in Phoenix, USA. In this case justice issues have arisen where the impact is disproportionately felt by a subsection of the community

(Sorensen, 2019). The final part of the concept presented here, a social dividend, provides a method of wealth redistribution to counter this effect.

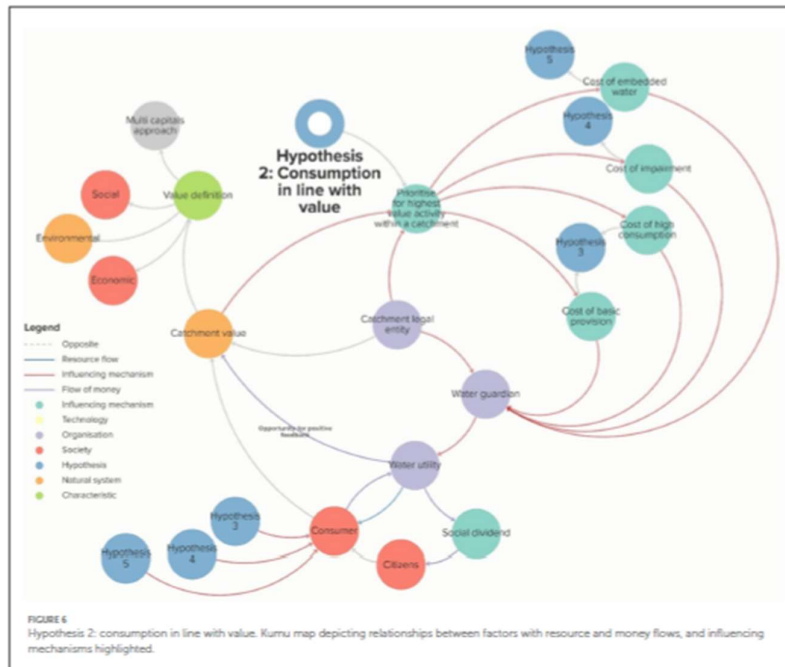
It is proposed that prioritization is provided through pricing mechanisms. The price should, in this case, include a number of aspects: (1) cost to enable basic provision (see Hypothesis 3) (2) cost of high consumption (see Hypothesis 3) (3) cost of impairment (see Hypothesis 4) and (4) cost of embedded water and achieving net zero water (see Hypothesis 5). Each of these aspects will be explored further in Sections 4.3 to 4.5. Somewhat controversially for a catchment pricing structure to represent value, all users would have a charge attributed to them including private water well users.

Figure 6 highlights influence mechanisms to incorporate the value of water into prioritization of water resources within a catchment (shown as red arrows in the diagram). In this depiction the prioritization of water use, driven by the cost these activities have on the value of water, alongside the inherent value of the catchment, is presented to the water guardian. The water guardian acts as an agent for the catchment forming the link between the catchment legal entity and the organization responsible for the extraction of water and its return, vis-à-vis the water utility, industrial user or private water supplier. This organization is charged based on the amount of water that is used and on the potential for damage via impairment of the watercourse.

Funds that are generated are used to pay operating expenses and a social dividend, which is paid to the whole of society impacted by that catchment based on the damage caused to the water resource (Bayliss, 2014; Luckmann et al., 2016). This is envisioned as a price discovery mechanism to influence the water utility, industrial user or private water supplier to act to protect the watercourse. In the case of water utilities and industry, although the price will be passed on to the customer, the cost of impairment will be returned to society in the form of a social dividend, and price protection at consumer level is provided (Hypothesis 3). As will be discussed in Section 4.3, pricing water at consumer level based on consumption will also allow wealth redistribution when large water users are also in a higher income bracket and their behavior less impacted by price rises. There is an opportunity for the organization responsible for the extraction of water, and its return, to invest in both their conveyance and treatment facilities, and in the wider catchment in order to mitigate the potential for damage and improve catchment resilience to future water use (Lee et al., 2018; Du Plessis, 2022). This is an opportunity for positive feedback as it would in turn increase the value held within the catchment and improve the resilience of the water system to external shocks.

#### 4.3. Hypothesis 3: protection of universal access to basic provision

UN SDG 6 (United Nations, 2015) states that the provision of water and sanitation is a human right. It is therefore necessary that access to a basic provision of water is provided universally. Figure 7 proposes a mechanism to ensure a basic provision of water across the population regardless of affluence, this aims to counter the justice implications observed in the UK and Phoenix (Section 3.2.2

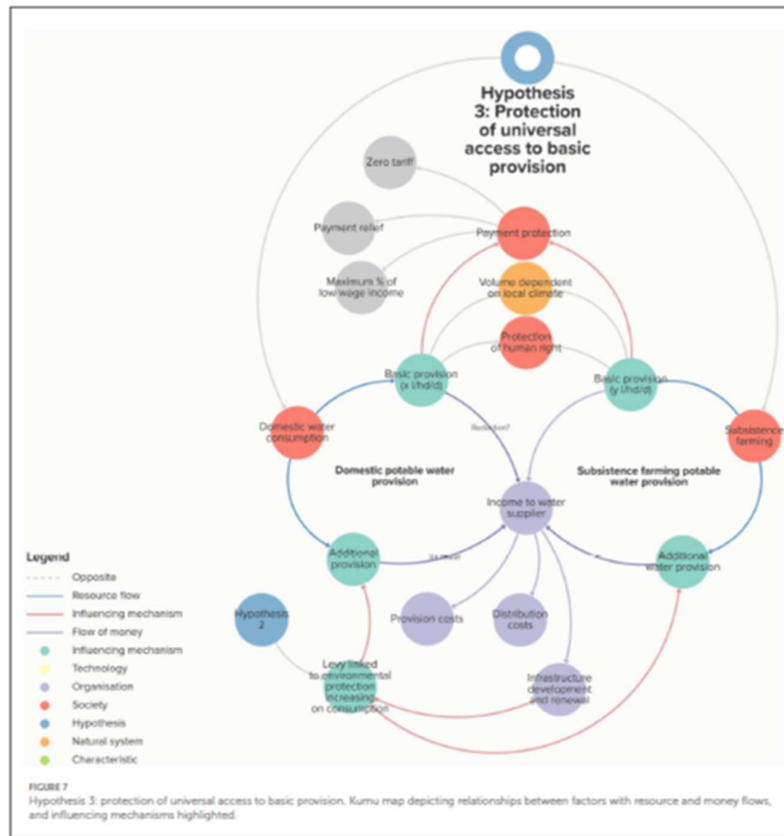


and 3.2.3). The volume of water that constitutes a basic provision is dependent on a number of factors including climate, cultural norms and access to technology that supports low water use. A number of studies have explored the topic of a basic provision, indicating that this could vary between 50 and 125 liters/person/day (Hunt and Rogers, 2014; 50L Home Arcadis, 2021). Comparing this to the average consumption currently ranging between 97 and 350 liters/capita/day in the analysis in Section 3, it is apparent that globally consumption is far greater than the basic provision. However, basic provision at a domestic level is not the only consideration; subsistence farming carries additional water needs, and additional value. Therefore, the volume deemed necessary as a basic provision for subsistence farming would be greater than for domestic use and subject to climate considerations.

Depending on the location, culture and historic relationship with water, there may be a need to provide payment protection through a variety of means in order to preserve the value of water within society (Figure 7). Indeed the impacts of an inability to pay for water increase mental and physical health burdens (Winkler et al., 2023). Therefore to ensure equity of access to a basic level

of provision payment protection is required, this could be through zero tariffs, payment relief or by setting the price of basic provision relative to a proportion of income. Some regions have payment protection in place for example zero rate tariffs in Japan, Brazil and South Africa (International Benchmarking Network For Water And Sanitation Utilities, 2022) and bill payment support in the UK, although this has received criticism for geographical inconsistency (Consumer Council For Water, 2021).

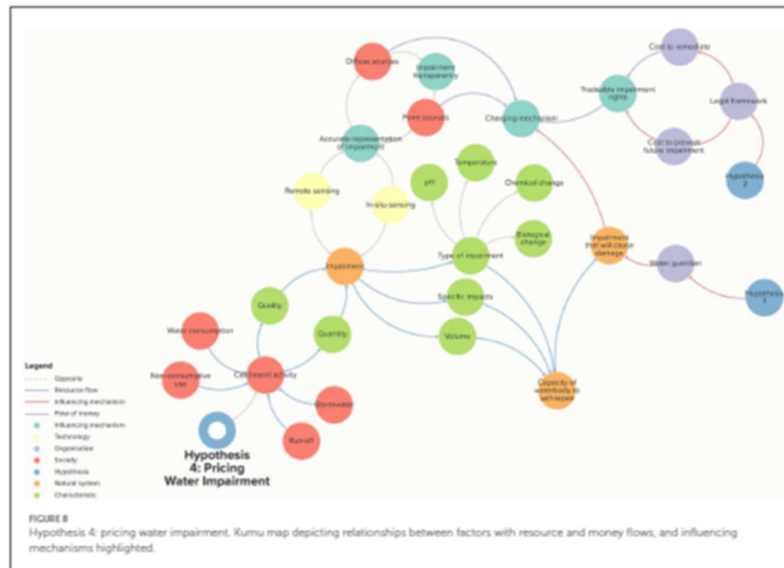
Conversely, the price of water use in excess of the basic provision would be set according to Hypothesis 2. This offsets the risk to maintaining conveyance and treatment infrastructure through reduced revenue, whilst ensuring that the value of water throughout the catchment, and the potential harm caused by excess water use, is translated into water pricing. This mechanism balances the viewpoints of water as a public good and as an economic good by applying different pricing mechanisms across varying consumption levels to reflect these use-types. Linking this to the mechanism proposed in Hypotheses 2 and 5 provide methods of embedding just approaches into pricing to ensure public goods are provided with equity both within and between communities.



#### 4.4. Hypothesis 4: pricing water impairment

Pricing water based on the quantity that is used is a relatively straightforward mechanism, albeit one that requires measurement of consumption. However, this addresses part of the potential for harm to the catchment. There is substantial risk of water use, and subsequent return to the watercourse resulting in impairment due to changes in the characteristics of water (Rasiah et al., 2013; Xu and Berck, 2013; Naden et al., 2016; Han et al., 2017; Li et al., 2019; Bell et al., 2021; Lozano et al., 2021; Marcal et al., 2021; Thiebault et al., 2021).

Figure 8 depicts the flow of water through a series of mechanisms and descriptors that demonstrate the potential environmental harm due to human influence on the quality of water entering the waterbody. The impairment can include quantity and quality aspects such as modification of the chemical and biological content, pH and temperature. The actual harm these changes can elicit is mitigated by the capacity of the catchment to self-repair. Changes over this threshold have the ability to cause harm, and this harm may limit the ability of the catchment to self-repair into the future, thereby reducing resilience (Adams et al., 2020; Canning and Death, 2021). The inclusion of payments for ecosystem services into economic



analysis has predominantly been applied at the abstractor level (Costanza et al., 2017; Hamann et al., 2020; Gomes et al., 2021; Pissarra et al., 2021; Hatamkhani et al., 2023), and has the potential to commodify nature (Farley and Costanza, 2010). Through interaction with the proposal in Hypothesis 1 the water guardian determines the value which should be accrued through the pricing mechanism relating to impairment. As in Hypothesis 1, transparency is required over the sources and scale of impairment in order for the charging mechanism to be applied appropriately. This would be achieved through a combination of remote and *in situ* sensing that would be formulated into a representation of impairment.

Finally, there is the representation of tradeable impairment rights that could be implemented through a market mechanism such as EnTrade (Gosal et al., 2020; Rodgers and Kendall, 2023). This would utilize transferable impairment rights with a strike price established following the pricing strategy set out through these hypotheses.

#### 4.5. Hypothesis 5: net zero carbon water

The drive to net zero carbon is incorporated in Hypothesis 5. The water sector is a contributor to greenhouse gas emissions through energy use and process emissions (Aboobakar et al., 2013; Brotto et al., 2015; Water UK, 2020); however, this increases

substantially once domestic heating of water is included (Water UK, 2020; 50L Home Arcadis, 2021). As such commitments have been made to reach net zero within the water industry (Water UK, 2020; Global Water Intelligence, 2022), at the organizational level with commitments such as the UNFCC Race to Zero and international commitments (United Nations, 2023).

The water industry has the potential to mitigate the carbon impact of water through organizational, societal and technological solutions, including the use of nature-based solutions (Haddaway et al., 2018; Deire et al., 2019; Ritson et al., 2021; Tao et al., 2021; Thomassen et al., 2021). However, to address the impact of water consumption and impairment at a global scale, the influence of embedded, or virtual, water also needs to be considered (Reimer, 2012; Roson and Sartori, 2014; Wang et al., 2018; Serrano and Valbuena, 2021; Novoa et al., 2023). It is postulated that this could be achieved through an international water trading mechanism that links Hypotheses 3 and 4 with a climate impairment pricing structure (van den Bergh et al., 2020; Hu et al., 2021; Kornek et al., 2021).

In Figure 9 the red arrows represent the influence of commitments at global, national and local scales. This feeds into an agent for the climate, which could be the same or separate to the water guardian. The object of this entity would be to influence water users through a climate impairment pricing structure. This pricing structure is proposed to be developed in line with existing carbon accounting frameworks that may be in place, or in line



indigenous communities, to enable inclusive institutions; (2) universal metering to provide consumption transparency; (3) water prices to reflect harm to the environment; (4) social dividend so that high water use or impairment leads to benefits across society; and (5) recognition of the value of water embedded in globally exported goods.

In recognition of the influences of climate and culture on these mechanisms, this paper does not claim to present a worldwide panacea or to stipulate how this should be achieved in all cases. The local context is a vital part of effective water management, especially as this context is changing with the impacts of climate change, and as such needs to be incorporated and reflected in the development of influencing mechanisms. Instead, it posits a series of important system-scale ideas to be explored and tested with the aim of pivoting from a simplistic, linear extractive use of water, to begin working with water as a high value, circular, resource for all of life within a catchment.

### Data availability statement

The original contributions presented in the study are included in the article. In addition, kumu diagrams are openly available at the following link: <https://kumu.io/BryonyB/water-pivot-hypotheses>.

### Author contributions

BR, IA-D, J-FB, and PW collaboratively designed the method and conceptualization of the hypotheses presented herein. BB conducted the detailed analysis and investigation as part of her doctoral studies under supervision of DH and CR and wrote the

first draft of the manuscript. All authors contributed to manuscript revision, have read, and approved the submitted version.

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### Conflict of interest

J-FB is employed by IBM. Pivot Projects is a voluntary collaboration of which BR, IA-D, J-FB, and PW are associated.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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