

Learning outcomes from participatory modelling

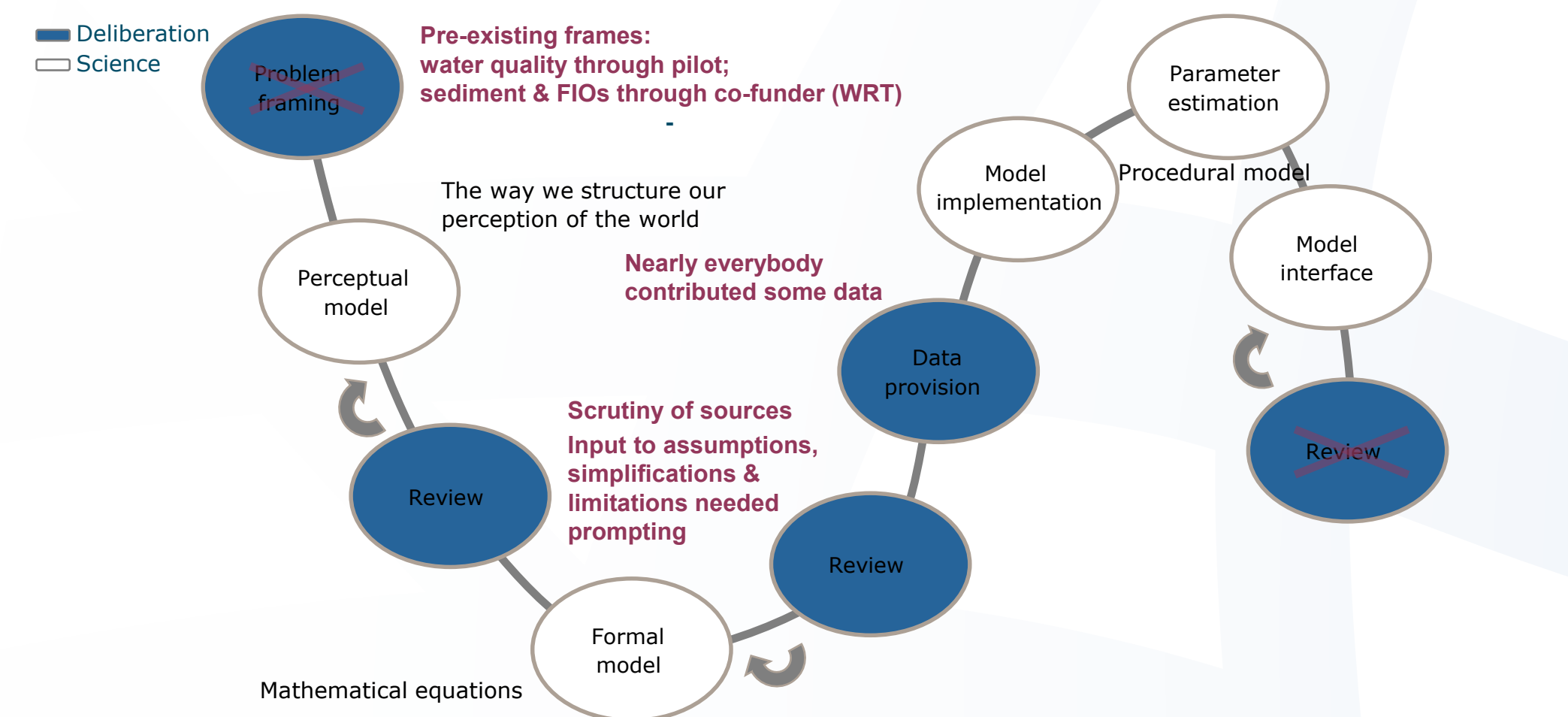
A case study in the Tamar catchment, UK

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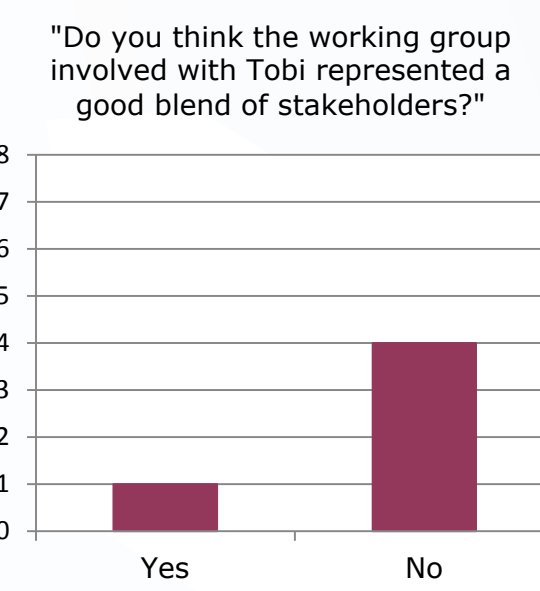
The participatory modelling process

- Context: The Tamar catchment has been a pilot of the UK government's new Catchment Based Approach, co-led by the Westcountry Rivers Trust (WRT) and the Environment Agency (EA). The 2nd author designed and facilitated the stakeholder participation element of the pilot for WRT.
- Process: The participatory modelling process was embedded in the wider participatory process of the pilot and run together with one of the pilot's working groups.
- Objectives: Co-develop a model of sediment and Faecal Indicator Organisms (FIOs) to extend an existing model of phosphorus and nitrogen that had been developed in a similar fashion.
- Funding: Natural Environment Research Council with co-funding from WRT.
- Structure: 5 meetings (2 via Skype) from 2-5pm at central locations in the Tamar valley, facilitated by the 2nd author.
- Evaluation: Ex-post summative evaluation through semi-structured interviews with the 8 core participants that attended most meetings (out of 19 participants in total), carried out by the 2nd author.



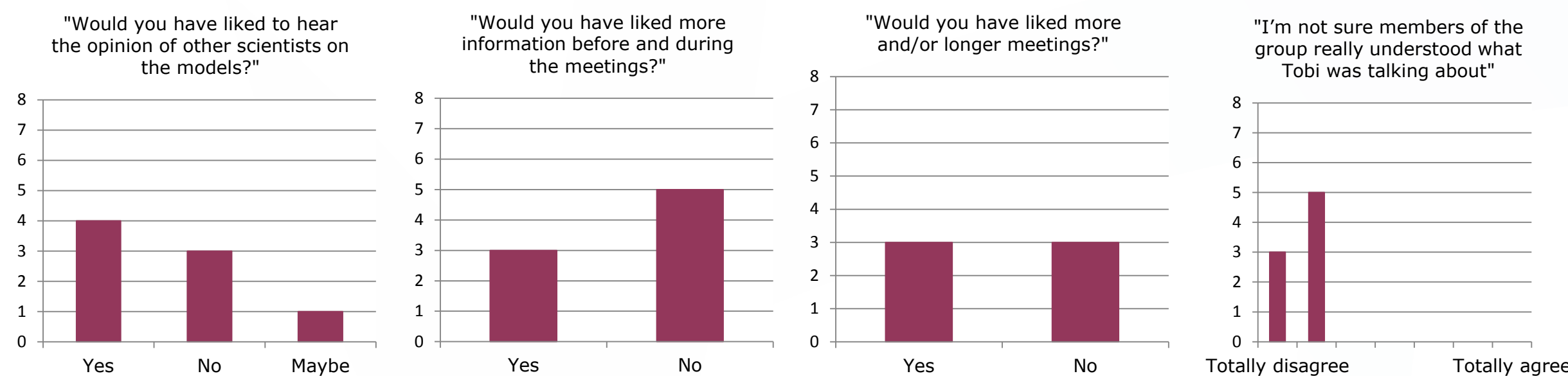
Fairness of the process

- The participants were self-selected following a wider stakeholder meeting at the beginning of the pilot. Attendance at that meeting was by invitation and public advertisement, supported by personal engagement.
- The participants at various stages were: 3 WRT staff, 2 Plymouth City Council employees, 2 EA officers, 2 Natural England officers, 1 Southwest Water employee, 1 Cornwall County Council employee, 3 farmers, 1 Plymouth University student, 1 Plymouth University lecturer, 1 resident representing angling interests, 2 residents without other affiliations.
- Participants felt that there were too few representatives from local government, the water company, residents and the National Farmers Union.



Competence of the process

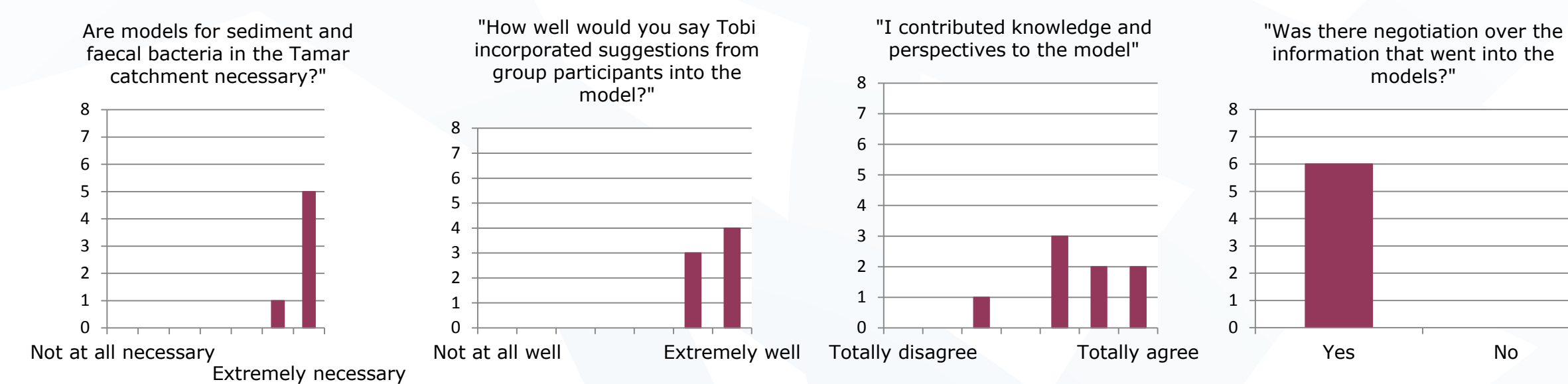
- Participants felt that involving other scientists, while generally preferred, might have rendered the meetings too specialist and competitive, possibly discouraging other stakeholders to speak.
- Some participants were content that they did not understand all details.
- Barriers to participation, besides time, were identified to be occasional technical difficulties and the slide show style of presentation.



Learning by the model

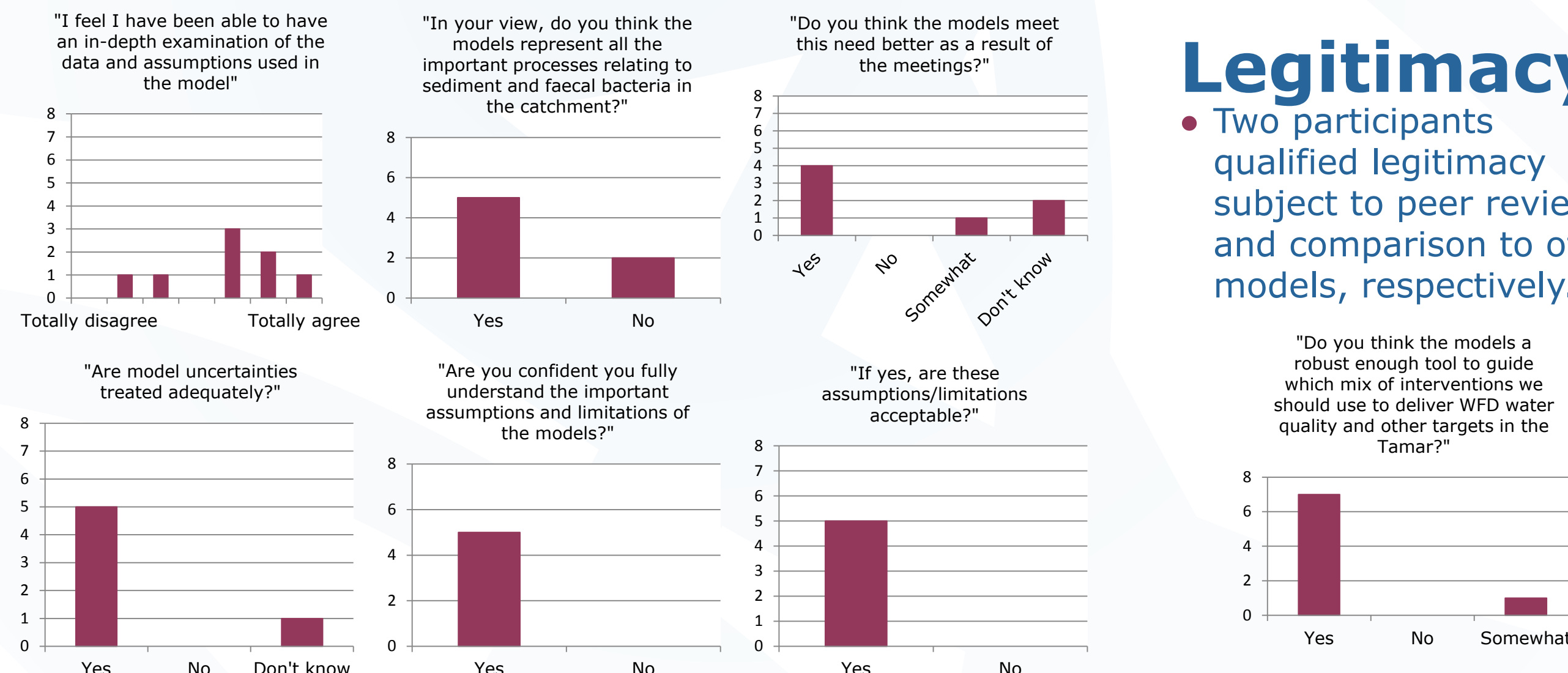
Salience

- The models were deemed useful as scientific evidence base, for appreciating the scale of catchment interventions that may be necessary and for targeting funding.



Credibility

- The higher depth of scrutiny scores were probably from those participants who did not want to understand every detail. There certainly was a lot more detail that could have been examined, but the participants did not necessarily think this was a problem.
- Important benefits of the participatory modelling were identified to be the input of local data (substantive benefit) and buy-in and ownership (instrumental benefits).
- The participants appreciated the transparency and openness with which the assumptions and limitations were laid out, even if in principle they could be improved, especially the input data.



Legitimacy

- Two participants qualified legitimacy subject to peer review and comparison to other models, respectively.

Conclusions

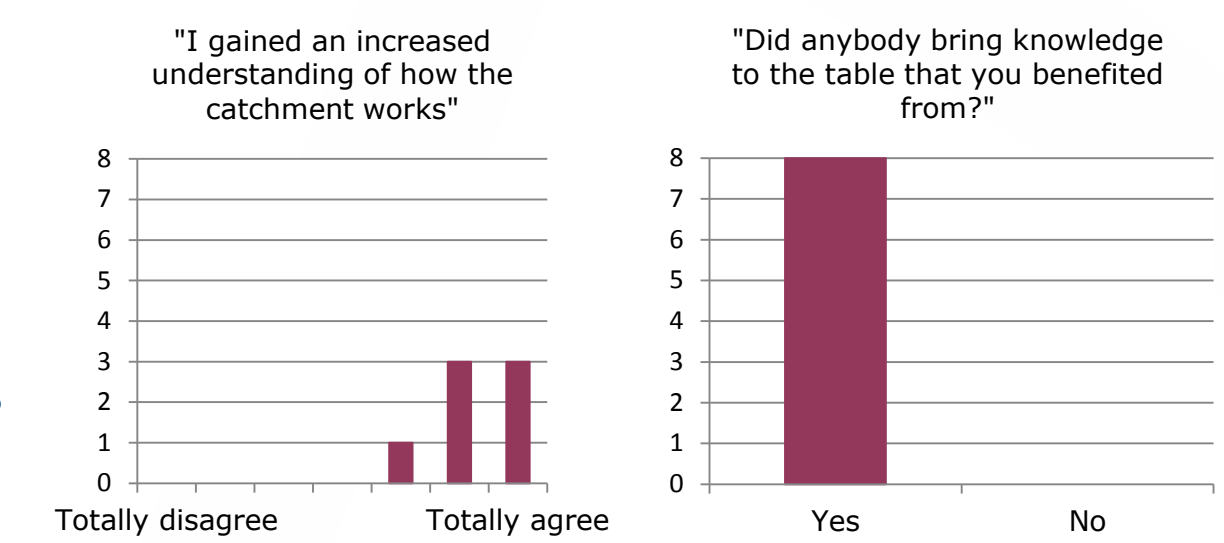
Fairness, pre-framing, realism & salience

- Lack of fairness was an issue of running the participatory modelling as a sub-process of the wider pilot of the Catchment Based Approach, where the participants of the modelling process were largely self-selected. This also meant that a framing of the issue to be modelled pre-existed.
- However, the pilot lent this case realism and salience and probably motivated the participants to engage with the technical nature of modelling, which can otherwise be very artificial.

Learning by the stakeholders

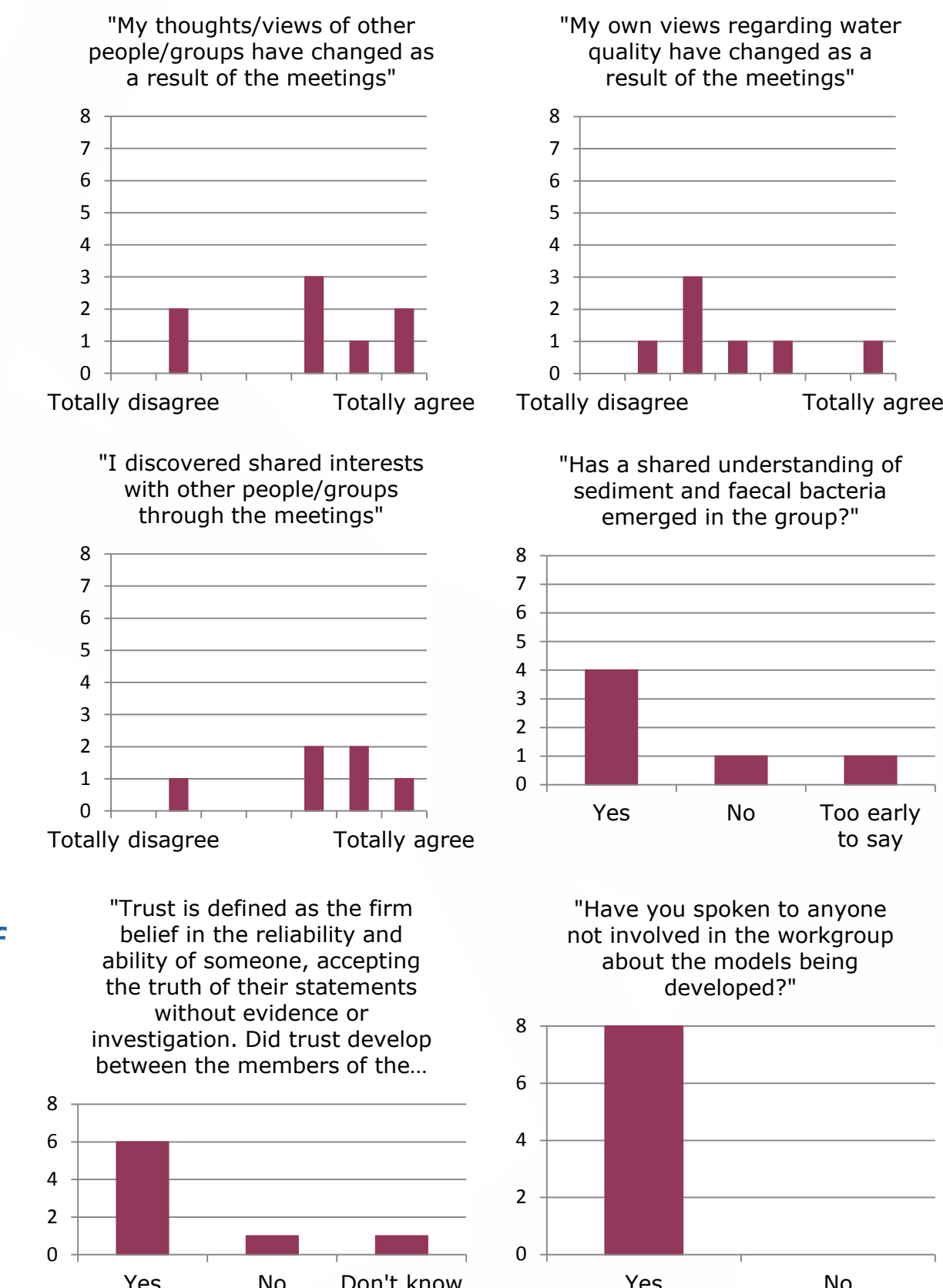
Instrumental learning

- Key learning points mentioned were the complexity and interrelation of catchment activities, the contribution of different sub-catchments and land uses to pollution and the effects of interventions.
- The group setting was seen as beneficial for unlocking other people's knowledge. However, one participant raised concerns about the sustainability of the process given the effort of meeting face to face. Another participant would have liked more formal presentations of viewpoints rather than informal group discussions.



Communicative learning

- Participants learned to appreciate the modes of working and business constraints of others.
- Some participants described a change in their personal behaviour (e.g. in using detergents) and in institutional practices (prompted by members of the group querying data from that institution).
- Participants were generally impressed by the lack of finger-pointing at the meetings.
- When trust was recognised then on a personal level and facilitated by the openness of others (reciprocity).
- Participants communicated elements of the modelling to others, ranging from family members to work colleagues. This demonstrates genuine engagement of the participants (beyond the meetings) and diffusion of the work into wider society.



Depth of scrutiny

- Scrutiny remained shallow and was largely limited to the perceptual model, pollution sources & data.
- Deep scrutiny of model assumptions, simplifications & limitations needed prompting. This over-emphasised the role of the scientist.
- Time was an important competence constraint.

Trust

- Participants did develop trust in the models. Often the mere opportunity for scrutiny seemed to build trust, rather than the depth of scrutiny, which was the original proposition.
- However, this may have been trust in the modeller rather than the models. At one point we sensed a "blind faith" in the modeller.
- How durable then is this trust and hence the acceptance of the models? Once value conflicts emerge, will they still be fought over "facts"?
- Can we really pre-empt this contestation of models in the political arena, which is one instrumental argument for participatory modelling?