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REGIONAL INTEGRATION IN LATIN AMERICA



- Convergence and regional disparities
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ACCOUNTING FOR SMART CITIZEN KNOWLEDGE IN CONTROVERSIAL DECISION-MAKING PROCESSES: A CASE OF WASTE OIL WATER INJECTION IN NORTH EAST TWENTE, THE NETHERLANDS

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Introduction

In transitioning to smart, sustainable, inclusive societies, regional decision-makers continually take judgements concerning highly complex and controversial questions. Part of a region's 'smartness' is in its policy capacity to bring relevant, detailed knowledge about these issues to best understand the controversy and take the best decisions for their citizens (Swyngedouw, 2005, Bevir and Rhodes, 2010). However, policy knowledge validity has become increasingly defined in formal 'expertise', making it harder for holders of vernacular knowledge (e.g. community groups, individual citizens) to contribute to decision-making (Isenhour, 2011). A key issue here is that for policy-makers facing urgent pressures, citizen-knowledge (diffuse, unruly and unknown), is difficult to fit neatly into policy processes (Mouffe, 2000).

Consequently, policy-makers may choose to not account adequately for that citizen knowledge (Holden, 2011), raising the spectre of negative consequences despite the 'region' holding the necessary knowledge to avoid those problems, a clear *governance failure*. A 'smart city knowledge architecture' is the sum of formal/ informal connections and meeting points (and lacunae) between different kinds of experts (policy, academic, citizen) where controversies are discussed and decisions taken (Brenner et al, 2012). Truly smart regions develop appropriate 'knowledge architectures' to use vernacular-citizen knowledges to optimise decision-taking. Our research question is: "How can regional policy-makers use citizens' knowledge to improve decision-making in controversial regional issues?"

We address this using a case study based on waste water injection into

depleted gas fields in Twente (East Netherlands), exploring a knowledge architecture which emerged as decision-makers attempted to deal with a specific 'controversial entanglement'. By exploring its underlying structures and dynamics, we contribute to understanding effective citizen engagement in smart city-region strategy development. We highlight the importance of citizen knowledge intermediaries (e.g. the media, political parties and citizen gatherings) in helping decision-makers to judge citizen knowledge claims' validity. We argue that these knowledge intermediaries need to be more systematically understood to deliver 'smart' city-regional governance drawing fully on citizen knowledge.

Waste Water Injection in North East Twente

We consider this in one controversy where citizens mobilised to challenge a professional expert consensus that the activity was safe (waste water injection). The region, Twente in the east of the Netherlands, has seen the Provincial executive (Overijssel Province) in recent years seeking to innovate in its governance approach for governance to be more

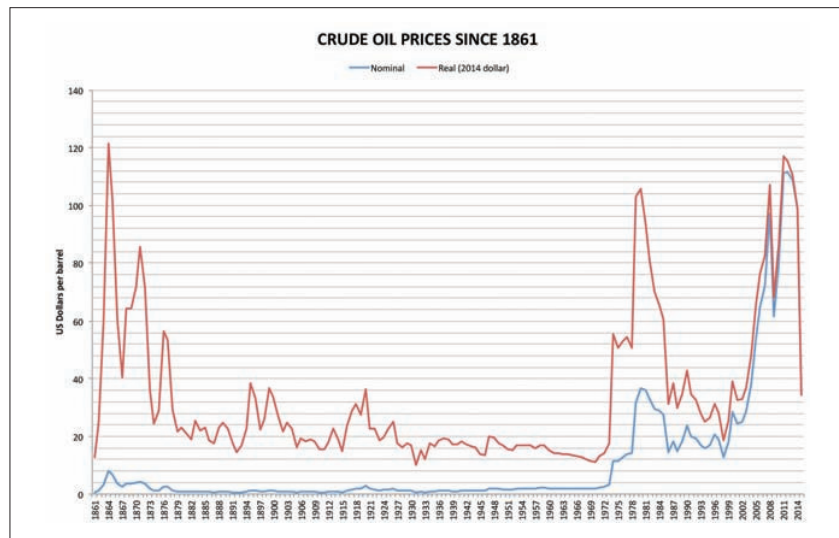
'smart', (in its own words) in partnership with municipalities, and in which the regional knowledge institutions (University Twente, Saxion) have been extremely proactive in working to support that activity.

Our case is of underground waste water storage, injecting water polluted as a by-product of steam oil extraction into exhausted oil fields. From the late 1940's, natural gas was discovered in deep-lying sediments in the north east of the Netherlands, including in Overijssel. Although a number of these fields were quickly exhausted, the infrastructure connecting the wells to the Netherlands gas pipeline network remained. In neighbouring Drenthe, 250m barrels of oil were extracted from the Schoonebeek field (from 1947). Production was suspended in 1996 because the remaining 750m barrel reserves were too viscous to profitably extract given historically low oil prices (see Figure 2). However, oil price rises following the Second Gulf War meant steam new water extraction techniques made previously inaccessible reserves more cheaply extractable, offering a new profitable future for the Schoonebeek field.

Figure 1: The position of Twente in Europe



Source: ITC, 2005 (Courtesy of Faculty ITC, University of Twente)

Figure 2: Crude Oil Prices since 1861

Source: https://commons.wikimedia.org/wiki/File:Crude_oil_prices_since_1861.png

From the mid-2000's, the Dutch oil company NAM (*De Nederlandse Aardolie Maatschappij*) decided to restart extraction at Schoonebeek using steam water extraction where steam from a specialised power station is pumped into oil-bearing sediments, allowing oil warmed to 200°C to flow easily to the surface. At the surface, oil and water are separated, with oil exported via mains pipeline to Germany, and natural gas directed to fuelling the steam production centre. The re-emerging water is contaminated with mineral particles, unsuitable for reintegration into natural water resources: treating that water is extremely expensive. NAM's solution to the question of waste water at Schoonebeek was injecting it into nearby exhausted gas fields, the most suitable being north east Twente. Exhausted oilfields are sealed caverns deep underground left vacant by oil extraction, and in Twente are surrounded by anhydrite (salt) layers which guarantees water-tightness. NAM announced in 2006 a plan to pump this 'production water' through pipelines for injection in north east Twente. In 2008, NAM applied to several municipalities to change their local structure plans to permit pumping. A group of concerned local citizens appealed to the Council of State (*Raad van State*) concerning the legality of these changes but their appeal was deemed inadmissible. Once the changes were granted, NAM applied to the regulator, the State Supervision of the Mines (SodM, *Staatstoezicht op de Mijnen*), for a pumping licence,

which was duly granted following an Environmental Impact Assessment (MER) in a framework overseen by the Netherlands Commission for Environmental Assessment (*Commissie MER*). From 2011 NAM commenced both steam oil extraction and pumping 'production water' into underground north east Twente.

The emergence of waste water injection as a sensitive issue

On 1st December 2014, the provincial public TV station, *RTV Oost*, ran an item in its evening bulletin regarding oil water injection close to three areas of outstanding natural beauty (the Engbertsdijk moors, and the Mosbeek and Springendal valleys). The report, including expert comment from an Associate Professor at the VU University, suggested considerable uncertainty regarding injection's environmental consequences. NAM's initial response was to put out the argument, to regional media, on its website and through a number of residents' evenings, that the injection was demonstrably safe.

However, further problems emerged in the procedure's apparent safety. A local MP submitted 12 written questions to the Minister of Economic Affairs in January 2015 questioning the safety and the risks of injection producing earthquakes. In March 2015, a number of houses adjacent to a pumping location in a village (Rossum) suffered visible subsidence. A local political party, D66, took residents' complaints to NAM

who in response announced an action plan to address the issues of residential subsidence. A leakage in the pipeline was discovered near Hardenberg (between Drenthe & Twente) on 16th April by a local farmer. More detailed inspection by NAM revealed that the pipes themselves had been seriously corroded by bacteria in the waste water. Later in the month, the Dutch Lower House of Parliament (*De Tweede Kamer*) convened an evidence session on oil water injection inviting experts from the Universities of Delft and Leiden, NAM, SodM, local representatives of the municipality and water board, but also a representative of concerned citizens. Following further checks, NAM announced on 5th June 2015 the suspension of oil extraction in Schoonebeek and a suspension of this waste water injection.

This suspension came after the issue became politically highly sensitive, with local, Provincial and national elected representatives putting pressure on the government. As more evidence came to light of leakages as well as irregularities in maintenance and oversight regimes, local and provincial representatives in both Overijssel and Drenthe agreed that an urgent priority was restoring citizen trust in the process. They therefore decided in August 2015 to establish an independent Commission to re-evaluate the whole waste water treatment from basic principles. The Commission planned to take a decision on the preferred option for the water treatment which allowed meaningful societal influence over the decision (rather than being purely technical and cost-benefit). At the time of writing (January 2016), a meeting of a committee of the Provincial Government declared the national Ministry should realise there was no support in the region for waste water injections and that the practice should be discontinued.

Citizen Knowledge – from consultation to decision-making

The situation in 2016 suggests that the 'correct' provincial governance decision in 2009 (the time of rezoning of pumping zones for injection) was to make the decisions subject to a politically weighted decision of competing desirable disposable options rather than a technocratic decision rule about whether one option (waste water injection) had

sufficiently safe guidelines. The core of the 2015 change was a shift from a **technocratic question** (is injection safe enough?) to a **political question** (which approach is best for citizens?). Technocratic approaches avoid decision-makers becoming bogged down in every single case. However, they simplify by restricting which knowledge is considered, which is professional knowledge from the beneficiary and regulator (not citizens). In political decision-making, the role of expert is destabilised as politicians try to work out which of competing claims is most valid.

We stylise this switch from rejecting citizen knowledge to destabilising professional knowledge as a four stage process. In stage 1 (2004–2008), decision makers were unaware that the decision was controversial, and chose to deal with approvals for pumping and rezoning as technocratic rather than political questions. In stage 2 (2008–2011), decision-makers taking those technical decisions excluded citizen knowledge; both municipalities and province used the EIA evidence to simply discount competing citizen claims. In stage 3 (2012–2014), decision-makers gradually became aware that the citizen knowledge and activism reflected a general political controversy that would not simply vanish. In stage 4 (2014–date), decision-makers sprang into action, mobilising locally, creating a coalition together with a neighbouring province (Drenthe) forcing responses from SodM, the Ministry and NAM.

The challenge here is developing appro-

priate governance mechanisms to accelerate progress through these stages where necessary for timely decision-making for optimum regional governance. We must note that the regional decision-making structures are embedded in a national system where the national treasury depends heavily upon hydrocarbon exploitation profits leading to a systematic tendency to favour NAM as a major contributor here. Nevertheless, ‘smart’ city-regional governance would have been best served by choosing a political approach (weigh competing knowledges against each other) rather than a technocratic approach (allowing one to demonstrate compliance with safety regulations). So how can ‘smart’ regional decision-makers use existing citizen knowledges without enmiring regional decision-making in endless contestation?

Waste Water Injection as a smart city knowledge architecture

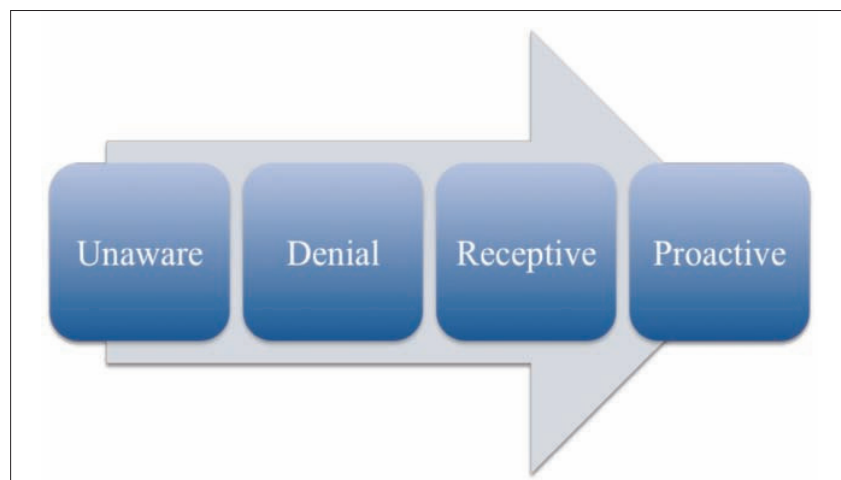
One might argue that it was only through the provincial broadcaster’s (*RTV Oost*) dogged work that the public became aware of waste water injection, leading to local politicians mobilising and in little more than a year uniting around a strong provincial consensus that injection was undesirable. This contention overlooks the fact that citizens had five years earlier made serious attempts to make these arguments in public – including appealing to the Dutch Council of State. Could a better regional knowledge architecture have brought this citizen knowledge to regional decision-makers’ attention sooner in ways

that would have led to better decision-making? Even if the chronology of the mobilisation and permit-granting prevented decisive action, there was sufficient citizen knowledge in the public domain after 2010 for decision-makers already to have recognised the issues’ political saliency.

A group of concerned local citizens had in both permit granting processes sought to have their knowledge claims heard but had been overruled in both cases. This group argued that the environmental impact assessment (EIA) had glided over a number of problematic issues, notably regarding sediment composition and NAM’s technical experience to oversee injection. In the local planning processes, although local authorities received their evidence statements, they weighed them against NAM’s own expert opinions and overruled them. The Province appeared to be unable to deal with claims that contradicted or pointed to problems in the EIA, to the Province, a foundation of their decision-making was that an EIA was an independent and authoritative assessment of the risks, following a standard procedure. In effect, local decision-makers in each case ignored local expertise and privileged external expertise, expertise that was later apparently to prove misplaced, leading to a strong provincial mobilisation to attempt to correct problems. One might likewise point to the citizens’ failure to find the correct access point on time, having gone round Province, municipalities, regulator (SodM) and eventually the Dutch Safety Board (*Onderzoeksraad voor Veiligheid*) with a changing dossier of evidence. Also, in contrast to the EIA following an established methodology (from the CE consultancy), their evidence was a partial mix of literature review, their own research and indeed their own experiments (for example testing whether local salt in stone samples would be dissolved by production water).

Nevertheless, the citizen knowledge’s validity was later acknowledged in the speed with which regional partners mobilised to take action against the waste water injection. Whilst in 2011, local partners had rejected citizen knowledge as not fitting within the professional expertise model, in 2015 local partners used this citizen-knowledge to argue that the uncertainty surrounding the expert knowledge meant that there was no support for waste water injection. NAM’s

Figure 3: The four stages of shift from technocratic to political decision-making.



Source: authors’ own design

assertion that injection was safe was destabilised, becoming regarded not as an objective statement of fact but rather a subjective assertion on which it was reasonable for policy-makers to take a judgement. Ultimately, local decision-makers proved themselves “smart” in availing themselves of citizen knowledge, albeit somewhat later than had the appropriate connections been made in the late 2000’s as citizens sought to contest NAM’s claims with their own knowledge. Considering how citizen knowledge acquired a political salience in the 2010’s provides a means to develop an archetypal knowledge architecture for smart city-regional governance.

Towards knowledge architectures for smart city-regional governance

Central in this knowledge architecture was a citizen action group: individuals who engaged strongly with the issue and mobilised a set of knowledge (‘counter-claims’) which disputed claims made by actors in the technocratic decision-making process. Around this citizen action group were various different bodies critically testing these counter claims, judging them as having a degree of merit compared to the original compliance claims. Firstly, was the regional media which undertook its own research into the claims and realised that the citizen knowledge indeed offered a *prima facie* case of questions to answer, regarding the incompleteness and inconsistencies in the expert professional knowledge, thereby raising the possibility that the injection process was not as safe as compliance claims suggested. Second, were political parties, which channelled local concerns and anger at particular local problems, such as leakages or subsidence into higher level action at the Provincial and parliamentary level. Third, were civil society mobilisations, where larger groups of concerned citizens came together around events such as information evenings or consultations around the waste water re-evaluation committee. Finally, were the decision-making bodies themselves, which in the case of the Netherlands were formed of coalitions between various political parties each seeking to placate their own supporters and maintain their own legitimacy.

This categorisation provides the basis to answering the initial research question, namely how can regional policy-makers

use citizens’ lay knowledges in taking decisions regarding complex, controversial regional issues? The critical issue here involves being able to identify those issues demanding political decision-making rather than just technocratic compliance approaches. Citizen knowledge is mobilised by challenging the technocratic compliance claims and forcing politicians to take their responsibilities for making a choice between competing alternatives. Making better use of citizen knowledge in effectively distinguishing those issues which require a political treatment helps improve the overall quality of decision-making. In our waste water injection case, a variety of intermediaries between concerned citizens and decision-makers – media, political parties and civil society – performed a sorting and judging of the validity of the claims and counterclaims. They performed a comparable function to the intermediaries used in the compliance claims, such as the independent environmental impact assessment (MER) following a consultant’s methodology, or the cost-benefit analysis of competing solutions offered by NAM.

We contend that more thought needs to be given to the issue of knowledge intermediaries and their functioning in these complex issues. We are not arguing that attention is paid uncritically to citizens who mobilise but rather that smart cities will develop effective knowledge architectures to evaluate those claims. If citizen claims are simply ignored, then the governance knowledge becomes limited to experts in the official bodies, who in turn become dependent on the experts provided by those agents that they are seeking to regulate. We are not proposing that the knowledge architecture that emerged in Twente is necessarily an ideal type, but provides a starting point for developing alternatives perspective on mobilising citizen knowledge via various civil society intermediaries, including political parties, citizen mobilisations and regional media. It is possible to consider other kinds of intermediaries, such as social media, social entrepreneurs, or regionally engaged experts. Future work should therefore attempt to bring these into a more systemic perspective and help to give city-regional decision-makers with the appropriate knowledges they require to take ‘smart’ decisions for all their citizens’ benefit.

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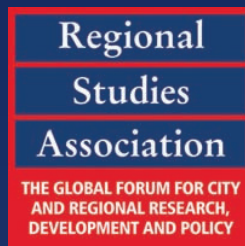
THE VOICE OF THE MEMBERSHIP

This volume of *Regions* celebrates the launch of the Regional Studies Association – Latin America Division last year. In this issue, current regional problems faced by countries in Latin America and the Caribbean are discussed, focusing on barriers to regional integration within and between countries. The articles, edited by Pedro Amaral, present experiences of Argentina, Brazil, Chile, Ecuador and Mexico, in addition to a summary of the challenges to regional integration of the region as a whole.

Latin America and the Caribbean as a region is better-integrated and less unequal than it was 20 years ago. However, given its strong reliance on commodities' exports, the recent economic crisis, followed by a significant fall in raw materials' prices may compromise further development in the region. As the articles in this issue seek to demonstrate, the path to resilience and development is based on increased integration, social justice and environmental sustainability.

In our *In Depth*, Paul Benneworth and Willem-Jan Velderman examine citizen engagement in smart city-region strategy development using the case study of waste water injection into depleted gas fields in Twente, the Netherlands.

In the *Research Notes* section, the region of Apulia, Italy is used to examine the potential conflict between the EU Cohesion Policy objective of reducing regional disparities and that of investments in research and innovation to enhance growth. Chiara Pancotti, Emanuela Sirtori and Silvia Vignetti discuss the extent to which this "Innovation Paradox" can be addressed by adopting the "smart specialisation" approach to regional development.



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