

Knowledge and power in an overheated world



Edited by Thomas Hylland Eriksen
and Elisabeth Schober



KNOWLEDGE AND POWER IN AN OVERHEATED WORLD

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TABLE OF CONTENTS

1. Introduction: Knowledge regimes in an overheated world.....p. 7

Thomas Hylland Eriksen and Elisabeth Schober

2. Movements on the Mountain: regimes of sovereign sustainability in Nepal.....p. 20

Ben Campbell

INTRODUCTION

POST-AGRARIAN VILLAGE LIFE

MORAL ECONOMY OF SUBSISTENCE: CONTEXTS OF WAR, MIGRATION, FEDERAL INDIGENEITIES, AND

CLIMATE CHANGE

ENERGY AND POWER

REGIME TRANSITIONS

MOVEMENT ON THE MOUNTAIN: REGIME RESISTANCE AND FLOWS.

CHRISTIANITY AND GLOBAL CITIZENSHIP?

CONCLUSION

REFERENCES

3. The Frailty of Power. Electricity Generation and Sustainable Livelihoods in Zambales, Philippines.....p. 46

Elisabeth Schober

ABSTRACT

INTRODUCTION: A SOLID FACT ON THE GROUND?

THE PHILIPPINE DOUBLE-BIND BETWEEN ECONOMIC GROWTH AND ECOLOGICAL SURVIVAL

AN ANTHROPOLOGY OF LABOUR, ENERGY AND INFRASTRUCTURE
TWO ENERGY DISPUTES
CONCLUSION
REFERENCES

4. Conflicting regimes of knowledge about Gladstone Harbour: A drama in four acts.....p. 72

Thomas Hylland Eriksen

ABSTRACT
ACT 1. THE EARLY DAYS OF DREDGING, AND INTRODUCING THE DRAMATIS PERSONAE
ACT 2: THE END OF COMMERCIAL FISHING IN GLADSTONE
ACT 3: DISAGREEMENTS AMONG THE EXPERTS
ACT 4: THE BUND WALL SCANDAL
EPILOGUE: ON TRUST, POWER AND KNOWLEDGE
REFERENCES

5. Tinkering with Knowledge: Representational Practices and Scaling in U.S. Think Tanks.....p. 98

Christina Garsten

ABSTRACT
INTRODUCTION: THINK TANKS AS 'SITES FOR NORMALITY'
THIN KNOWLEDGE, THICK DESCRIPTION
BRICOLAGE AND THE CREATIVE TINKERING WITH KNOWLEDGE
REPRESENTATIONAL PRACTICES: 'DISTANCIATION' AND 'PROXIMATION'
DISRUPTION
CONCLUDING NOTES: POLICY BRICOLEURS AND THE MAKING OF SOFT POWER
REFERENCES

6. Safety in Numbers: why everyone listens to economists.....p. 126

Desmond McNeill

ABSTRACT

INTRODUCTION

VALUING TIME SAVINGS

VALUING HUMAN LIFE

VALUING NATURE

VALUING FUTURE GENERATIONS

SAFETY IN NUMBERS

REFERENCES

1. Introduction: Knowledge regimes in an overheated world

Thomas Hylland Eriksen and Elisabeth Schober

Suddenly, we seem to live in a time dominated by ‘fake news’, ‘alternative facts’, conspiracy theories, scepticism of scientific research, partial accounts parading as ‘the real truth which has hitherto been concealed from us, the people’, revolts against allegedly smug academic elites and distant political elites – a time where YouTube videos claiming research into climate change to be a scam get far more viewers than videos presenting the science of climate change. In this world, where the authority of science and empirical methods is being questioned and where even world leaders may brush aside uncomfortable facts as ‘fake news’, it is increasingly difficult to know whose knowledge to trust. This insight is the starting point of this slim collection of articles, which has grown out of a workshop organised by the ERC AdvGr project ‘Overheating: The Three Crises of Globalisation’ in Oslo in 2015¹. We are very pleased to be able to offer these texts as a free e-book, not least considering the fact that its subject-matter is knowledge. In this introduction, we give a brief outline of the study of knowledge regimes in anthropology and related disciplines before presenting the e-book, but first, some context on acceleration and overheating is required.

The acceleration and intensification of global processes has led to “overheating” across the world, in the sense that change now takes place faster and with more wide-ranging consequences than before (cf. Eriksen 2015, 2016). Globalization, in its twenty-first century manifestation, can be described as a complex and uneven development, marked by crises which are increasingly perceived as being global in character, but which remain local in their effects. Economic downturns, inequalities

and alienation resulting from global neoliberalism, environmental destruction and climate change are all familiar sources of destabilisation in our day and age, with the nexus of knowledge and power – contested, changing, but often hegemonic – being a privileged site for the exploration of the crises of globalisation. In order to study the particular sociocultural configurations that emerge in response to fast, typically exogenous change, the contributing authors take a comparative and ethnographic approach to address the relationship between knowledge and power. We ask how different kinds of knowledge are being articulated with each other in situations of social or cultural transformation, to what extent and in what ways one form of knowledge becomes hegemonic and politically decisive, and what the conditions are for alternative modes of knowledge to figure as the basis for outright resistance or alternative courses of action.

Whether it is planned or unplanned, rapid change has unintended side-effects, is understood differently by people in different subject positions, and tends to be contested by those who are immediately affected negatively by the changes. The transformations we explore range from physical infrastructures being built to transnational policy implementation and political machinations. A couple of chapters also focus on the production of knowledge itself as a field of contestation. The cases explored are marked by great internal heterogeneity when it comes to making sense of change: actors and stakeholders not only respond in different ways, but frequently understand the situation in which they find themselves differently as well. In connection with large-scale construction projects, investors, politicians, media, NGOs and locals directly affected perceive these processes and their implications differently, drawing on different sources of knowledge and representing different interests and agendas. Frequently, ‘expert knowledge’ is contrasted with ‘experience-based knowledge’, but as will eventually be argued, different kinds of disembodied ‘expert knowledge’ may also clash, as when independent researchers reach results at odds with reports commissioned by industry or government.

The contrast between embodied and cognitive knowledge has historically been important in anthropological research on knowledge regimes and their relationship to the social world. An exceptionally rich and fertile field of research and theorising, the study of forms of knowledge has for many years raised epistemological, methodological and indeed ontological questions within the anthropological discourse about cultural diversity. The great rationality debate following Winch's (1964) critique of Evans-Pritchard's analysis of Azande knowledge about witches, summed up in the latter's assumption that witches do not really exist (Evans-Pritchard 1983 [1937]) comes to mind here (a discussion that itself was an indirect descendant of the controversy around the Sapir-Whorf hypothesis on the linguistic construction of reality). Questions concerning translation, commensurability, hegemonic knowledge and ethnocentric bias were taken up and rephrased much more recently by Viveiros de Castro (2004) and his followers, who go beyond theorising about knowledge and rationality in arguing that worlds inhabited by humans may be radically different "all the way down". Our contributors, however, assume that the relevant aspects of knowledge systems and regimes can be studied, understood and compared by using the conventional methods of anthropological fieldwork, interpretation, translation and comparison. The multiple, often converging crises of globalisation, we argue, are best addressed by understanding how knowledge constructions relate to power and change, rather than by pondering the (im-) possibility of knowing the other.

Returning to the contrast between cognitive and embodied knowledge, the Greek concept of *habitus* was most famously developed in contemporary social theory by Pierre Bourdieu (1977), who in his theory of practice sought to come to terms with power as a multidimensional phenomenon expressed through symbolic and cultural struggles even if it was constituted in politics and the economy. *Habitus*, a term with its origins in Aristotle's philosophy, was the connecting point between individual actors and the larger system, a form of internalised knowledge situated in the body that signals the implicit and nonverbal rules of a particular configuration. A close relative of Connerton's (1989) concept of habit-memory inspired by Maurice

Halbwachs' sociology of social memory, habitus or tacit, embodied knowledge has represented a methodological challenge to anthropologists; it is understood by doing, not by talking (see e.g. Hastrup and Hervik 1994). The present endeavour for the most part does not address the issue of how knowledge becomes embodied, but instead raises questions about the relationship between different kinds of knowledge regimes (which usually express themselves in cognitive ways) and their respective relationship to power. In fact, Bourdieu's (1977) distinction between *doxa* and *opinion* might be more useful for the task at hand than his concept of habitus, with *doxa* being the implicitly held beliefs that are usually not verbalised, but simply taken for granted. *Doxa* is thus unquestioned, while *opinion* is recognised as being open to disagreement.

One family of approaches that has inspired the present project is that associated with Edward Said's *Orientalism* (Said 1978) and postcolonial theory, Michel Foucault's archaeology of knowledge (Foucault 1970), James Scott's contrasting of abstract state knowledge and concrete local knowledge (Scott 1998) as well as Bruce Kapferer's studies of ideology and state power (Kapferer 2011, Hobart and Kapferer 2012). All these bids to connect ideology, knowledge and power are indebted to Antonio Gramsci's (1971) Marxist theory of hegemony, originally formulated when Gramsci was a prisoner under Mussolini's Fascist regime in the 1930s.

In addition, some other sources of inspiration for this project concern the forms of cognitive knowledge that have been studied comparatively in anthropology proper. Jack Goody's important work on literacy and the state (e.g. Goody 1977) usefully, if controversially, distinguishes between kinds of knowledge and memory produced in oral and literate settings. The title of his most influential theoretical statement on the issue, *The Domestication of the Savage Mind*, is suggestive of his project, namely to place the Lévi-Straussian (1962) comparison between the *ingenieur* and the *bricoleur* firmly on its feet in history and society. Barth's later comparison between the guru and the conjurer (Barth 1990) distinguishes between knowledge

economies and modes of transmission – the Balinese guru, he argues, derives authority and symbolic power from instructing and teaching as many as possible, while the Baktaman ritual leader in New Guinea holds his knowledge back and shares it only with a handful of high-ranking initiates.

An anthropologist who worked on a large canvas, historically as well as geographically, was Eric Wolf, whose understanding of power is worth bringing up here. Wolf distinguishes between four different modes of power: 1) power as the attribute of a person; 2) power as the ability of one person to impose their will on another; 3) tactical or organisational power that allows some to circumscribe the action of other; and finally 4) structural power, which is a form of power that regulates the political economy. This last form, Wolf argues, “is (...) power that not only operates within settings or domains but that also organises and orchestrates the settings themselves” (Wolf 1982: 586). “Structural power”, he further ascertains, “shapes the field of action so as to render some kinds of behavior possible, while making others less possible or impossible” (Wolf 1982: 587). By conceptualising power thus, Wolf shows its intrinsic relationship to knowledge, or representations of the world and human potentials, as conditions for the maintenance or transcendence of the status quo.

What arguably connects all these different anthropological enterprises mentioned here – from Goody’s sweeping regional analysis, to Barth’s comparison of knowledge regimes, to Wolf’s historical analysis of the relationship of knowledge to different forms of power, is an implicit understanding that the knowledge/power nexus is scaled in analytically significant ways. Wolf’s modes of power involve increasing degrees of distance and complexity as he shifts from purely individualised forms of power to that of potentially globe-spanning political economy. Barth, who had edited a volume entitled *Scale and Social Organization* in 1978, seems to take his argument of how guru knowledge travels across much greater social and geographical distances due to its mode of transmission into a complementary direction, notwithstanding his adherence to a very different

anthropological project than Wolf. He, too, found himself deeply puzzled by how “the stress on in-depth contextual knowledge – on which social anthropology is rightly based – results in a myopic localism, so that we can only compare places and cultures in terms of highly abstracted and partial structures” (1990: 641).

The cases we present here seek to actively avoid “myopic localism”; they are written in the awareness that not only anthropologists, but also the people we work with draw on transnational discourses about e.g. labour rights, climate change or conservation. They live in globally interconnected worlds, and are increasingly aware of some of the connections themselves. The issues faced by locals trying to make sense of global worlds may be illuminated through the concept of *clashing scales*: Local, context-specific forms of knowledge frequently contradict, or simply present a different version of reality, to the standardised, abstract forms of knowledge that may stem from the dominant global economic system and/or the state (Eriksen 2016). Long’s (1989) concept of ‘the interface’, introduced to account for the clashing worlds of native South Americans and development agencies, exemplifies a phenomenon of far more general significance than the single case he looked into: abstract expert knowledge usually overrules local, partially embodied knowledge. Clashing scales are also at the heart of James Scott’s (1999) study of state interventions as well as Lévi-Strauss’ (1977) mournful lament of the loss of indigenous worlds to the benefit of a flattening modernity. Therefore, if we are to look at knowledge and power under conditions of “overheating”, it becomes a matter of paramount importance to understand how power is scaled, and how knowledge is both transmitted along those scales and becomes entangled in the kinds of conflicts that arise when various scales are confronted.

While our approach is informed by these authors and others, it is distinctive in that it emphasises the problems associated with conflicting knowledges clashing in one and the same social field, frequently leading to open disagreement, distrust and challenges to various claims of legitimacy. When, for example, there is a perceptible gap between experience-based knowledge and expert knowledge, the decision-

making process comes under scrutiny and may be questioned or deemed illegitimate by people affected. For example, in assessing the conditions for the opening of an open-cut mine, be it in Australia or elsewhere, forms of knowledge may include that of economic profitability (the corporations, the national government), that of jobs (local politicians), that of ecological consequences (environmental NGOs), and a range of local knowledges which may emphasise, e.g., changes in the local quality of life, reduced access to water, increases in the cost of living, but also increased economic opportunities. There exist different, and often conflicting, interpretations of (and, accordingly, proposed courses of action) anything from economic crises, immigration, environmental issues and political reform to electricity generation, foreign investments and indigenous rights. In spite of the modest number of chapters, this e-book covers a broad range of empirical cases, but with a shared analytical interest in knowledge and power in situations of fast change.

In sum, then, by focusing on processes of change with global/transnational and local dimensions, we aim to explore the relationship between knowledge and interests, local and translocal levels of decision-making, and local responses to rapid change. The question 'Who to trust?' is implicit throughout, and may be supplemented by the question 'Why should I trust them?'. Situations where information is consciously held back for strategic reasons are explored, as are direct confrontations between community-based groups and external actors, but critical discourse analysis indicating the boundaries of discursive universes is also here. While we are alerted to the fact that the knowledge claims of anthropology must, inevitably, be interrogated on a par with the other situated knowledges in question, we mainly explore contrasting/conflicting knowledge regimes and their implications, with an emphasis on the power-knowledge nexus and the situated character of knowledge amidst rapid change.

In the opening piece “Movement in the Mountain” Ben Campbell takes us to rural Nepal, where the author observed a number of significant and rapid transformations to social life over several decades of ethnographic field research. Climate change has come to put an ever greater pressure on people’s ability to make a living, leading to ever more economic migration, to innovation in the realm of energy, to ethnic resurgence and to unexpected processes of religious conversion. He makes a powerful plea that anthropologists as “foragers of knowledge” do have the capacity to “subvert the orders of knowledge and power that are characteristic of metropolitan frames for thinking about matters of global concern”. Campbell further argues that our understanding of the geopolitical history of the Anthropocene can substantially be enriched (and at times even capsized) by taking the point of view to be found “at the periphery of expanding extractive fossil fuel driven empires”. By focusing on local approaches to sustainability and unlikely solutions to off-grid energy system problems that arise in the small-scale, ethnographic approaches may arguably prove to be much more capable of revealing “the breadth of knowledge and normative orientations that actually do contribute in homespun innovations” than more techno-managerial approaches to the same subject matter would.

“Where does knowledge sit?” is a pertinent question raised in Elisabeth Schober’s contribution. The role that the built environment plays in the establishment of social orders amidst rapid change is put at the forefront of her chapter “The Frailty of Power”. The Philippines has recently seen a massive increase in coal-fuelled power plants, with 42 power plants currently being in various planning stages (in addition to the 17 coal plants that already exist in the country). In our preoccupation with discourses in this post-Foucauldian era, arguably the material dimensions of power and knowledge have often been overlooked. However, Schober argues, “material facts on the ground do also purvey a kind of knowledge in the sense that they have various expertise built into them, allow for the accomplishment of certain social and economic realities, and may make competing, often smaller-scale forms of sociality around them more difficult to achieve.”

While Schober looks at how infrastructures and the material world shape power-infused relations of knowledge production, Thomas Hylland Eriksen's contribution explores the ways in which people talk about the material while not quite agreeing what the phenomenon they see in front of them actually looks like. In his investigation of the dredging of the Gladstone harbour in central Queensland, Australia, he shows how opposing knowledge regimes and various truth claims have come to compete with each other over the putative environmental damage done by the contested dredging project. With the safety of the bund wall that was built to contain the dredge spoil also in dispute, he shows that trust in the hegemonic knowledge system was severely reduced, with large-scale actors like industrial leaders and politicians often being understood as in collusion when money matters are concerned. "When your job is on the line", one informant told Eriksen, "you might not ask the hard question", a reasoning that echoes and resonates with a number of other chapters.

If politics is not what it used to be in Australia, neither is it in the United States. In Christina Garsten's chapter about think-tanks, a recent, much debated but poorly understood kind of political activity is analysed, namely the kind of institution which 'helps governments to think' – the think tank. Based on fieldwork in US think tanks, Garsten provides a fresh, critical perspective on their activities, showing how their intellectual niche, somewhere between research, journalism and PR, can exert enormous influence on politics. Yet, as Garsten points out, 'the authority upon which think tanks rely is fragile, in that it depends on the sway of their normative ideas and their ability to translate research into policy relevant knowledge that captures the attention of the media, of the public, and of decision makers', and relies not only on the internal validity of the knowledge they produce, but on its relevance and the way it is being presented by the think tanks. This is where the ethnographic gaze on the think tank becomes essential, in that it shows not only which knowledge is put to what use, but also what happens between the lines and the way in which – in Garsten's words – knowledge is being tinkered with creatively.

In “Safety in Numbers”, the closing chapter, economist Desmond McNeill raises the pertinent question as to why practitioners of his discipline have come to exercise such power in the modern world. He explores, in particular, how a monetary value is put on such seemingly invaluable matters as time, human life, or nature. He argues that the power of the knowledge produced by economists is derived from the fact that they translate normative issues into technical matters. In the way they “perform” reality by providing definite numbers in an increasingly unstable world, economists have successfully inscribed their specialised view on policy-makers and other influential actors. In such a way touching upon the crucial question of how trust (or distrust) in a knowledge regime is established, he shows that trust is often vested in abstract knowledge systems if and when policy-makers are in need of backing up their decisions through a retort to the kind of safety that numbers provide in our increasingly complex world.

In a similar vein, Saskia Sassen has recently (2014) argued that it is the very complexity of the contemporary, globalised world that opens the door to brutality against people, the environment and the biosphere. Experts can always be found, and paid, to contest the knowledge and experiences of locals affected by the changes, or that of other experts – which is a point that seems to be rather confirmed in a number of the papers collected here. McNeill’s piece, much like the opening chapter by Ben Campbell, also alerts us to the fact that the emphasis on knowledge regimes and, more broadly, the relationship of knowledge to power requires reflexivity on the part of the researcher, since the kind of knowledge represented by anthropologists and other academics is articulated with local knowledges both before, during and after our encounter with them.

Through their insistence on the multiplicity of possible interpretations of reality and their critique of hegemonic knowledge regimes, social scientists and humanities scholars working broadly within a social constructivist framework have sometimes been labelled, inaccurately, as ‘postmodernists’ and blamed in part for the erosion of faith in scientific knowledge leading to the kind of complete disdain for knowledge

and truth which is, at the time of this writing, most blatantly exemplified in the White House. As this clutch of articles makes clear, however, challenges to hegemonic knowledge regimes from scholars like ourselves do not aim to relativise all truth claims, but rather to show that they are contextual and relational. Although the following chapters were written before the Brexit vote and Trump's election, they can be read as theoretical contributions to the erection of a clear boundary between gratuitous nonsense, lies and fabrications on the one hand, and situated (cf. Haraway 1988), but documented and justified knowledge on the other hand, along the lines of Michael Herzfeld's recent (2017) account of anthropology as a realist, but not scientist discipline. Being aware that knowledge arises in a particular kind of situation, and therefore changes, is a realist attitude, not a relativist one.

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2. Movements on the Mountain: regimes of sovereign sustainability in Nepal

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Bionote: Trained in Social Anthropology (Cambridge), and with a PhD in Development Studies (University of East Anglia), Dr Ben Campbell is senior lecturer in Anthropology at Durham University. He has worked over three decades on transformations in indigenous agro-pastoralist communities in the Nepal Himalayas. He analyses local knowledge practices, alongside interactions with institutions of environmental protection and processes of political economic change in his book *Living Between Juniper and Palm: Nature, Culture and Power in the Himalayas* (Oxford University Press, Delhi). Ben has turned to research energy transitions in the period of climate change awareness and post civil war regional realignments of development agendas. Ben uses his Nepalese field experience to inform his work with the Low Carbon Energy for Development Network, and with a project 'Energy on the Move', about displaced people and informal settlers' energy practices (funded by the Development Frontiers programme of ESRC/DFID).

Abstract

Contemporary global crises manifest in Nepal's once remote regions bringing civil strife in conjunction with massive outflows of labor migrants from rural locations where villagers have experienced withering impacts of climate change on food sovereignty. Rather than a simple lack of food or other kinds of 'security', it is in a post-normal environment of relational breakdown that many people are seeking what to do, including re-building relationships with sentient landscapes. The article considers the mesocosm of state structures and socio-technical regimes for possible solutions to reorganize environments and livelihoods more sustainably, but finds mainstream secular policy discourse on climate change and renewable energy systems too technorationalist to hear idioms of power and sovereignty of indigenous people, some of whom are lured instead to Christian conversion.

Keywords: *climate change, ethnic conflict, migration, sustainability transition, Nepal*

"Power is necessary for transformation, but this may be subverted if power itself is not transformed." Stirling (2014:84)

Introduction

In the multiple crises facing contemporary societies, anthropologists can act as foragers of knowledge who bring unanticipated human perspectives on understanding the way crises take shape, matter to people, and connect in dynamic ways with other strands of globally extensive processes. Ethnographically situated participant observation can yield evidence about struggles and alliances that mobilize and reconfigure ethical and normative frameworks. These have a capacity to subvert the orders of knowledge and power that are characteristic of metropolitan frames for thinking about matters of global concern. This article connects to themes that the Overheating program has identified broadly in the area of tension between economic growth and sustainability. The introduction 'An Overheated World' presents a scalar problematic, which embraces the global scope

of economic, environmental and identity change, but seeks to ground these forces in lived experiences of relational worlds. Though the focus leaps creatively between the local and global, it only makes passing references to the mesocosm of the state (e.g. the unfashionability of socialist state ideas), the exhaustion of 'the development paradigm', and the contribution of the state (along with markets and NGOs) to disembedding processes. It is notable by contrast, how engaging with literatures on making the industrialized world a more sustainable place for human livelihoods in socio-technical systems, there is overwhelmingly a call on the 'regime' level (not necessarily mapped in terms of nation state polities, but implicitly so) to become the critical locus of 'transition'.

I applaud the freedom accorded by the Overheating problematic to think ethnographically and trans-locally, but the article is written in the hope that its exploration of local scale sustainability crises can have a bearing on the ways that regime transition is approached. Academic and practitioner colleagues attempting to influence how power-wielding regimes can make decisions that would have more sustainable outcomes, must translate their knowledge into the language of power. This reduces options and leaves certain kinds of motivating 'beliefs' outside the city hall. To have anthropological voices making the case for thinking differently about power and about locations where citizens can organize appropriately scaled regimes for their purposes, and do so in their own idioms of power and sovereignty, is worth participating in.

The ethnographic examples this article deals with come from Nepal, which enlivens the argument over appropriate scales of regime transitions to sustainability in a particular way. This is because the country is one whose history itself deconstructs the Eurocentric idea of self-contained mono-cultural national narratives of development and political autonomy. Approaching the Overheating problematic in relation to Nepal necessitates consideration of a situated geo-political history of the anthropocene, from a point of view at the periphery of expanding extractive fossil fuel driven empires. It brings attention to a landscape of self-reliant and mutually

contrastive communities of economic, environmental, and identitarian sovereignty, in which the state was till the late mid 20th century something of an arbitrary and random presence.

It has a weak central political regime and is told by powerful outsiders what it needs to do to avert crisis. Without changing the incumbent order and institutions, a cheap version of modernity paid for by outsider patrons, rather than engaging participatory citizenship, has compounded injustices of disaffected sub-national groups who have always been struggling against asymmetrical and partial effects of the state. From the global moments of 1989, a new historical turn was taken and the ensuing two decades saw regime crises of multi-party democracy, ethnic pluralism, neo-liberal Aid Budget depletion, civil war, economic outmigration, severe climate change impacts, and constitutional miasma. These events had already left the country staggering to keep on its feet, before the earthquake of April 25th 2015 struck, which this article will not address for lack of space.

My fieldwork relationship with Nepal also began in 1989, and the focus of my study was a community in a poor, culturally marginal mountain district. I arrived with an agrarian research question that was to understand how indigenous institutions of reciprocity between households and clans in the reproduction of agro-pastoral subsistence practice were affected by and contributed to rural development. Research activities included cultivating potatoes, transplanting finger millet seedlings in the early monsoon rains in large groups of rotational exchange labour, discovering the economic and symbolic values of different crop and livestock species, recording land and livestock holdings, and making a film of shamanic mountain pilgrimage. I was looking for areas in which anthropologists could engage with development issues, and bring understandings of social relationships of reciprocity to bare on subsistence livelihood processes in a ethnically marginal Tamang-speaking (a Tibeto-Burman language) community that was affected by road building and by an environmental conservation regime enforced by a national park.

The three thematic concerns of the Overheating project have aggressively come into play since that first fieldwork ended in 1991. I had observed a squeeze on subsistence livelihoods from the national park's regulations, which was justified in policy as a control on unmanageable demographic pressure on biodiversity. Conservation was putting the breaks on villagers' consumption of forest produce and biomass. This was one example of patterns of national modernization that involved the extension of a regime run by the mid-hills ethnic Parbatiya order of the Bahun-Chhetri high castes. The polity had been sustained by USAid and other donor funding during the cold war. It had brought the state along dirt roads and into concrete offices to be populated mostly with people connected to employment patrons familiar with the workings of the capital, not bringing jobs for rural district populations other than of peon-status, or primary school teaching. The Clinton era peace dividend cast a significant tranche of those rural educated classes who had found work in development projects into redundancy. Meanwhile, the end of one-party monarchical rule in 1990 freed up the marginalized ethnic groups to express their displeasure with two hundred years of indigenous suppression emanating from Kathmandu and the high-caste Parbatiyas. The People's War of 1996-2006 brought the disaffected from the rural educated classes and the indigenous and Dalit communities into common cause, and worked on the negative impression of state presence (especially corrupt police) in rural districts, where global communications had enabled people to become increasingly aware of their backwoods isolation. The educated youth turned against their parents' peasant productivism, some of them espousing environmental concerns, some discovering other places of waged work in India or further afield, while some turned to Christianity in defiance of parents and the Hindu state.

Three examples of newsworthy comment in Nepal's recent history deserve to register in terms of sensors for 'overheating'. In 2013 media stories reported Nepali and other South Asian migrant laborers dying on construction sites where football stadia were being built for the world cup in Qatar. In the run up to the 2009 COP 15 talks a cabinet meeting was held at Everest base camp to raise the profile of global

warming in the iconic peaks and glaciers of the Third Pole. In May 2008 the jettisoning of the Hindu monarchy and declaration of Nepal as a republic occurred after the Maoists became the largest party in a constituent assembly that would debate options for a federal constitution and reorganize the country along explicitly ethnic regions in the administration of a secular state.

Post-agrarian village life

Villagers I spoke with in March 2009 said not a drop of rain had fallen since the previous October. They pointed to the sky thick with smoke from the drought-stricken, burning forests and to pathetic parched field crops of wheat and barley. They said they were now 'walking dead' (*shijim praba*). Misrepresented data about rates of Himalayan glacial melt scandalously hobbled the chance of climate talks success in Copenhagen that December, yet the increasing frequency of failed winter crops spoke of the global indifference towards those on the rough, receiving end of climate warming impact. This is far higher in the Himalayan region compared to the global average. Eriksson et al (2009) calculated the increase in warming in Nepal was 0.6 degrees Celsius per decade, whereas the global average increase in warming over the previous 100 years had been 0.74 degrees.

The effects of droughts and the later onset of the monsoon were exacerbating the most profound reorientation of village subsistence in that it was not only climatic conditions for agro-pastoralism that were taking a turn for the worst. The village labour force had also turned to look away from home grown crops to feed the family, and take the migratory turn to follow the general outpouring of male workers from the national economy that had suffered massively through the civil war. With the bulk of the village labour force abroad, and people having to pay for day labour to plant the more intensive crops such as finger millet, the village women explained to me they had done the sums and worked out for 3,000 rupees invested in labour the return of harvested crop only amounted to a cash value of 1,000 rupees. In other words the financialised cash economy had finally arrived!

During field visits in 2005 and 2007 the villagers had spoken about how the civil war had affected them, that they had been forced to make donations of food and money to groups of insurgents. Some youth had left to join the Maoists in the south. On the whole the villagers had maintained a sense of distance to the conflict, and spoke of it as an internal matter of the Bahun-Chhetri dwelling downhill, closer to Kathmandu and the state. For the villagers it was not 'their' struggle. With this climate change business though, things were far more serious. The basis for Tamang subsistence systems was at breaking point. The capacity for self-reproduction through cultivating crops was critical. This was not even an issue of 'food security' as might normally be understood, as the failed wheat crop was iconic of the annual renewal of the Tamangs' cosmic food web. Wheat is the food that Tamang householders must first offer in a pot of grain to their clan god before they themselves may enjoy the new harvest. This ritual act restarted the seasonal cultivation of relationships with territorial deities, soils and field sites, animal and plant species and unseen forces. Climate changes and drought were taken as signs of relational breakdown and communicative impasse, driven by willful agents causing harm. This non-human threat was not containable as an effect of the same old structural neglect from the developmental state, but signified a post-normal environment of relational unease. The relational unease concerning correct behavior towards different categories of territorial sovereign deities led to intensive ritual attendance to healing water sources (*men chu*).

In March 2009 a terrible wind blew up one day. My host had abandoned trying to secure the roof of his house and took me to join a huddle of over twenty people cowering in a neighbor's ground-floor room. The destruction of the wind left roofing sheets and household belongings strewn everywhere. Within just a few hours, conversations up and down the valley had converged on the cause of the exceptional wind being the vengeful territorial deity (*shyibda*) above the village of Thulo Bharku, some twelve kilometers away. Fires creeping through the dry forest had reached the *shyibda's* sacred grove. The trees of the sacred grove should never be damaged or disturbed. The idea that someone might have started the fires as an act

of sneaky disobedience against the national park (which bans all use of fire) was mooted.

Visiting the drought-afflicted forest, similar conversations were heard. There are reasons why people start fires. Fire was a traditional technique for maintaining patches of grassy undergrowth beneath trees and bushes. Otherwise weedy species would grow and choke out the grasses sought out by grazing cows and yak-cow hybrids. Since the national park banned burning, the build up of combustible undergrowth makes fire a regular hazard in the spring and early summer. Naturally occurring and human instigated fires do make beneficial patches of grazing for the forest-based herders. Therefore it would be normal to ask who would benefit from any given fire? The possibility of establishing who the culprit might have been is very remote, but the speculation as to who would find economic advantage as a result of fire is inevitable. The reasons why villagers hold grievances against the park are too numerous to list, but they come down to having to pay fees and licenses for access to forest produce that people aged 45 and over still remember as mediated by their own village headmen, not the park headquarters. Giving vent with fire to grievance against the state conservation regime, however, risks running out of control and encroaching on the regime of the territorial deities.

In looking at accounts and analyses of climate change and its impact in Nepali society, there is an absence of any mention of religion or territorial deities. Instead there is an emphasis on economic rationalist approaches, as from a National Planning Commission member, Pitamber Sharma: “Climate change is about responding to losses in opportunities and at the same time recognizing and taking advantage of new prospects and opportunities”. (14)

The rest of the paper is directed to offering views of relational environmental personhood in the interconnected areas of migration, energy transition, and religion, to enquire into life in the Anthropocene. A range of social scientists committed to a new connectedness of everything are turning the page on peak fossil

fuels and political economic globalization. Palsson et al (2013), Chakrabarty (2009), Shove (2010), and Castree et al (2015) all effectively bemoan the restricted sense of 'human dimensions of climate change' found in mainstream climate research.

Moral economy of subsistence: contexts of war, migration, federal indigeneities, and climate change

Anthropology brought questions of power relations, local knowledge, and gender to challenge the dominant economic approaches to development in the Third World. These concerns now face wholesale landscape reorientations in which global markets suck in value from previously peripheral societies and territories. Labor markets in emerging industrial and energy economies have reconfigured old themes of production logics and cultural difference in the dynamics of rural social differentiation. Conflicts and insurgencies have broken patterns of institutional and socio-political embeddedness of rural persons.

The reconfigured landscape for ongoing subsistence shifts the normative axis into discrepant versions of the good life, between men and women, between elites and cultural minorities. Domestic rural livelihoods now call into play trans-nationally distributed household members, and roles performed by normative coordination of gender age and task, now depend on the ability to communicate internationally and send remittances at appropriate times. The sustainability of food production is severely compromised by the exit of domestic labor, and the unwillingness of youth and daughters-in-law to repeat their parents' peasants careers. The activities of daily life have reordered domestic functions and the companiability of livestock in the home.

The migratory turn of the domestic is at one level a new departure from old itineraries and income flows with different disembedding repercussions for persons. Looking at the other end of the migratory loop, at the destinations of migration, leads to rejecting assumptions that an economic system is drawing global participants to share in transparent and transactable kinds of pursuits and values

(Servet 2009). In their own terms, Himalayan villagers are not straightforwardly entering a market to achieve profitable outcomes in the balance of costs and benefits over a three or four year period, but are heading off to places and conditions of work about which they are poorly informed (Gardner 2014, Bruslé 2008). They are driven by the prospect of becoming a new kind of person beyond contexts of economic tradition and origin. For their families and spouses they have disappeared 'anywhere-whenever' (in Tamang *kana tangtang*), and the best they can hope for is the arrival of an occasional remittance and for a return in good state of health. Many migrants fail in both respects.

The easiest migration destination beyond India is Malaysia, where wages are in the region of £200 per month. In the Gulf they are about £400. These sums are a big draw compared to local rates of pay but the unreliability of employment contracts and regularity of payment, the danger to life, mean the migration has to be explained in other terms. I recorded the outflows of migrants when doing catch-up household surveys after the civil war. When my previous phases of fieldwork had involved charting where each household's mobile animal shelter was located in fields and forest areas, as an ethnographic sensor of subsistence life, now the crucial information was how many household members were in other countries.

The big outflow of migration took place during the civil war, but it was a combination of factors that motivated the move. For the villages located on the east bank of the Trisuli River and inside the Langtang National Park, the disembedding of livelihoods from traditional environmental entitlements was a big factor. The squeeze on subsistence through the bans on hunting, burning, moving livestock across local administrative territories, and the charging of fees and punishments for contravening regulations was experienced as if it were a cold wet blanket thrown over the labor-intensive work of providing a warm domestic hearth. For political expediency, a more 'people-friendly' policy of buffer zone areas had been instituted in the late 1990s, which offered funds for small development projects, but this only reinforced people turning their backs on the forest as a source of livelihood

provisioning. In the grand scheme of things, environmental conservation did not lead to a reform and reinvention of more sustainable practices of biomass-based lifeways, but acted to mark off, protect and commoditize the forest as a park for tourism, wildlife, and monetized resource services, and closed it down to more innovative options for subsistence. Villagers got no serious information or training about alternative livelihood strategies (beyond bee keeping, apple orchards and trout farms all risking land, capital and skills beyond the means of an average household). Nature conservation was implemented to the benefit of external labor markets (Campbell 2014).

Energy and Power

Just as the village labor forces of countries like Nepal abandoned their terraced field systems and forests to work in the fossil fuel economies of the Gulf, so the whole topic of energy has re-entered debate in anthropology. Peak oil, the consequences of global warming, and the search for low carbon renewable energy systems have brought about both academic attention (Nader 2010, Isenhour and Love 2016) and global policy shifts (UN 2013).

A common indicative measure of a country's level of development is often taken to be its level of energy consumption. Mitchell's work (2009) has analyzed just how shaped by the oil economy, and fossil fuels more broadly, have been the experiences of industrial transformation over the last hundred years and more, including the mechanics of bringing economic regimes to recognize general democratic rights through organized labor. Nepal is situated way down the global league tables with over 80% of its energy needs met by biomass, basically fuelwood. What chances are there for leapfrogging dirty carbon technologies and transitioning into climate friendly renewables with positive outcomes for the poor – a low carbon democracy?

With its mountain geography prohibitively expensive to electrify, for most of the twentieth century only select enclaves and the southern terai lowlands saw the kinds of business and technology-based market growth that require significant

power consumption and the diffusion of internal combustion engines. Nepal's total electricity generation is just over 700 Megawatts. The capital suffers frequent load shedding. Residents of Kathmandu are adaptive citizens of energy use, coping with power outage by inventive ways of combining flexible personal and domestic usage, with metropolitan wide schedules of allocated connection times. Information sheets are distributed about hours and days the power will be on. In the mid 1990s, a big scheme was being planned for a series of hydro-dam sites on the Arun river in the far east (the deepest gorge in the world).

Protests from local people, NGOs and energy engineers (Gyawali 2003) persuaded the World Bank of the poor economic reasoning behind the project and its massive environmental and social impacts (funding for other big dams such as Narmodar in India was also pulled). Even though the Arun project is now being revived with Indian finance, and to the Nepalis' huge long-term cost (Rest 2012), the scenario in which energy needs have been proclaimed to be a development priority by the UN's 'Sustainable Energy for All' is worthy of note for the Overheating problematic, as it is explicitly through non-fossil fuels and off-grid, decentralized and community-managed energy systems that the 622 million Asian people without electricity are expected to get these needs satisfied.

Off-grid energy systems for under-developed communities have proved enormously resistant to standard interventions (especially being cash-poor). Social scientists have been called in to help with 'technology-user interface', and assess what does and doesn't work, which can be summed up in Byrne and Ockwell's (2013) phrase 'beyond hardware and finance'. This is the scale where anthropological knowledge comes into play, and the diversity of relevant knowledges matter. Conflicting priorities exist over determining what are 'resources', and who has rights to use water, wood, dung, other biomass, and a claim in redesigning entitlements to them. What social power comes with new training and skills and how domesticable are different kinds of technology to meet local needs (Campbell et al 2016)?

Renewable energy technologies are in many cases still at early stages of their design life cycle, and niche innovation is perceived as a precondition for some of these technologies to be tested and modified for multiple contexts and patterns of use, before 'scaling up' to reach those energy-deprived communities in the global south. However, it is notable that an alternative view, self-declared as a 'transition' movement, aims not simply to put renewable energy technology where fossil fuel previously plugged in, but actually to transform energy citizenship and empowerment for renewable and democratic low carbon economic paradigms (Urry 2014 'energy localism', Sovacool 2011 'energy democracy').

Away from Nepal's road infrastructure and along the routes where mountain villagers have herds that move up and down hill according to seasonally available pasture, there are new interests in acquiring off-grid energy systems. A political ecology approach highlights the fact that the organisation of agro-pastoral production in such places has historical links to state practices of pre-modern value extraction. Holmberg et al (1999) and Campbell (2013) discuss the *corvée* labor system by which the state butter-making dairy herds moved each summer into forests of Tamang-speaking villages requiring each household to provide labor to carry equipment and construct timber shelters for the royal cattle herds. When Swiss technology for European-style cheese making was introduced in the 1950s, the state was therefore well acquainted with the territory and the pastoral viability of the project. In 1970, the state Dairy Development Corporation built another cheese factory at Chandanbari, affecting a re-organisation of local herding practices into separate dairying and breeding (yak-cow) units. Many such communities now find themselves in the boundaries of protected areas designated to prioritise biodiversity over human interests (or biodiversity-loving foreigners over the local villagers). Renewable energy technologies such as biogas have been introduced and supported by program linked in to biodiversity protected area conservation. Thus the WWF provided financial backing for biogas in bufferzone areas of national parks in the lowlands of Nepal.

By 2009 a quarter of million homes had biogas units in southern Nepal. The biogas dome technology has moved uphill with help from subsidies and through its own persuasive efficiency, often being adopted en masse by entire villages, ending the burden that mostly falls on women to fetch both fuel and fodder. Limits to greater diffusion are met in cooling temperatures at altitude, and in part due to other priorities affecting whether a technology is adopted. Things get complicated as the ecologically straightforward persuasiveness of a technology loses force and other networks and actors are called upon to facilitate uphill progress.

In the case of the Langtang National Park and the government yak cheese factory at Chandanbari, where village herds sell their milk, there is a long standing message from the Park to the dairying installations to stop using fuelwood and look for alternatives. The park's primary concern is to protect forest and rare mammals. Its own interest and practice is not to promote and actively develop renewable energy technologies, which would ensure an ongoing presence of livestock within the national park. It has buffer zone funds to distribute to village community initiatives for livelihoods, eco-tourism and environmental education. The institutional culture is not however geared towards either active management of biodiversity in the national park, or the positive encouragement of alternative job creation for the villagers affected by the enclosure of the park from their historical access. As already discussed in relation to outmigration, the outcome of protected area management has not been to foster alternative sustainable livelihood technologies, but has been to push even more rural Nepalis into the global labor market, including the high carbon economy and construction industry of Qatar (Campbell 2014). A cold hierarchy of conservation finds it difficult to maintain warmth for villagers' transitioning to sustainability.

Regime Transitions

In the last few years during which I have been interacting with multi-disciplinary research communities in matters of renewable energy transitions (Durham Energy Institute, Low Carbon Energy for Development Network), the most influential

concept linking up the different knowledge and power domains in the field has been the multi-level perspective on socio-technical transitions. Geels writes:

The MLP proposes that transitions, which are defined as regime shifts, come about through interacting processes within and between these levels. Transitions do not come about easily, because existing regimes are characterized by lock-in and path dependence, and oriented towards incremental innovation along predictable trajectories. Radical innovations emerge in niches, where dedicated actors nurture alignment and development on multiple dimensions to create 'configurations that work', (Geels 2010:496)

Let us consider what Nepal's history of socio-technical regimes looks like. In the mid 18th century The Gorkha dynasty unified a large number of small kingdoms, and captured Kathmandu after laying siege for 25 years. Feudal relations between the new elite and local powers used land titles and the hindu caste system to regulate favour, patronage and punishment and extract produce, services and corvée labour from low castes and hill ethnic groups. After a two year war a peace treaty was signed between the British East India Company and the kingdom of Nepal, and 'Gurkha' troops began enlisting to the Company forces. Apart from soldiering and later labour for tea estates, the hardwoods of southern Nepal were extracted for extending the British railway system. The Rana dynasty of hereditary prime minister took charge after a massacre in 1847. In 1857 Gurkha troops were sent to assist the BEI Co suppress the Indian uprising. In 1911 the first hydro-electric system was installed in Kathmandu by the Rana Prime Minister Chandra Shamsher. Without a road to the Indian border, cars, including Rolls-Royces were portered into the Kathmandu Valley. The political regime returned from Ranas to monarchy in 1950 influenced by Indian Congress party. The one-party Panchayat system was established by King Mahendra, after taking power in 1959, following a period of elected government. The Kathmandu-Pokhara road was completed with UK assistance in 1974. China funded the Kathmandu ring road. Very little development

reached beyond the roads into village Nepal. International concern at Nepal's rising population and degrading environment in the 1960s and 1970s led to forest and soil conservation and population control programmes and creation of national parks. The domination of Brahmanic elites in the administration seeking status validation and neglecting development of technical infrastructure in the countryside was given local anthropological analysis in Dor Bahadur Bista's (1989) *Fatalism and Development*.

After the first People's Movement in 1990 multiparty democracy with constitutional monarchy was instituted. Ethnic minorities could for the first time organise in public. As for the regime's control of Nepal's greatest energy source – biomass, there has been a history of conflict and structural violence, which the 'Janajati' movement of the federation of ethnic groups has made a policy feature. The Nepal Federation of Indigenous Nationalities (NEFIN) produced a position paper on Climate Change and Reducing Emission from Forest Deforestation and Degradation (REDD). One paragraph asserts:

4. The state should ensure constitutional and legal recognition to symbiotic relations of indigenous peoples with their ancestral land, forest, water and other natural resources and their traditional knowledge, skills, customs, customary legal systems while formulating any policies, plans, and programs related to climate change and REDD and implementing, monitoring and evaluating them.

Many forest research NGOs and the Federation of Community Forest User underline the ongoing struggle for justice in the regimes of forest and biomass management. Gupta (2011) writes:

Despite the importance of forests to the realization of rights, forest communities are often denied access to forest resources. There is a rich history of repressive measures taken by both State and non-state actors to control forest access and use. Conservation organizations have cooperated

with law enforcement authorities to police access to protected areas, and in some instances communities have been forcibly evicted from those areas. Forest law enforcement indicates that high profile crackdowns on illegal logging tend to be targeted against the rural poor rather than against the business people and officials who are often behind forest crime.

...Poor governance and corruption can also exacerbate secessionist tendencies (2011:12)

With the indigenous people's perspective working on the ancestral connections and traditional knowledge unjustly ignored and violated by the incumbent regime of the last two centuries, and the voice of critical political economic analysts identifying forest policy as a key area of unrest and alienation, it is clear that one of the major obstacles to tackling climate change effects and enabling citizens to access renewable energy technologies suited to their needs is the incumbent regime itself. In his paper 'Transforming Power', Stirling (2014) takes the socio-technical systems transition thinking for renewable energy to a point of confrontation with the status quo that managed the economy of conventional fuels:

transformation in the energy sector – like elsewhere – requires knowledges that are produced demonstrably independently from incumbent interests. This 'independence' is shown to stand most firmly, not in some romanticised single 'objective' position, but in multiple triangulations and counterpoints in pluralities of alternative equally valid interpretations, each with their associated constituting conditions (2014:89)

After the alliances and settlements of the Peoples War came the project of redistributing power away from Kathmandu. A federal constitution held a powerful allure for the neglected and underdeveloped districts and the ethnic minority peoples who had been systematically excluded from participating in the benefits of the state run by central high caste interests, appointing their own people to positions of power in the districts.

'Indigenous Voices in Asia' Aug 20 2015 expressed a profound disquiet with the way the constitution was being prepared (after years of delay it was delivered in a rush in September 2015).

The public is angry that the Draft Constitution enhances inequalities in society, rather than eliminating them.

However, there are forces at play, which demand a status quo. Broadly speaking they consist of the five Ms – the military brass, the mandarins of civil administration, the mendicants of the Hindutva variety, the mediators of higher professions such as law and media, and the meddlers of the NGO sector.

All these Ms once supported the monarchy, and seem to think that federalism will challenge their traditional monopoly over the resources of the state...

Even a cursory glance at the draft statute is enough to reveal that its intention is to turn back the clock to the 'glory days' of Gorkhali hegemony. This is to ensure that high-caste Brahmins and Kshatriyas will continue to run the country”

Movement on the Mountain: regime resistance and flows

When leaders from the local herding community supplying milk to the cheese factory approached me for ideas about finding an alternative to fuelwood, after the park threatened its closure in 2010, I consulted with the Dairy Development Corporation and the National Park and began to see the major issue was resolving turf war and status hierarchy between these two arms of government. Formal lines of accountability reached back to the capital instead of finding local resolution. The model image of the Multi-level Perspective where innovation could take place in peripheral niches and then move across into the regime scale, was being complicated by the presence of conflicted regime actors at the niche level. As is the

case with most examples of technology adoption, it is not technical issues themselves but the alignments of power relations affected by technically assisted social change that are decisive as to whether a technology 'works'. The state sectoral focus could not help resolve the people's livelihood development concerns for a more sustainable accommodation of people and wildlife. The Dairy Development Corporation had just faced paying its staff a raise for the first time in years, and could not afford to invest in innovation with the biogas unit an NGO could build as a trial. The park itself did not want to put its money into an operation it would rather close down. Meanwhile the money from the cheese factory was the major factor keeping many young people in the district and not joining the outflow of migrant labor.

The impasse between two arms of government is a feature of why Nepal has been stuck with an inability to speak for the better outcomes for local communities and the nurturing of local cultures of citizenship participation, which do take on distinctive sensibilities depending on the ethnic mix and local particularities. In 1997, a similar blockage had occurred in the buffer zone program when villagers had pleaded for mediation by the democratically sensitive Chief District Officer in their argument that they were being forced to accept a 'participatory' project from the national park without their consent (Campbell 2005).

It was an anthropological challenge to map out all the communities of interest of practice in the reluctant assemblage of competing values and statuses (conservation vs livelihoods, high-caste National Park vs lower caste cheese factory) within a knotty impasse of different institutional missions in a cultural milieu of resurgent ethnic confidence to challenge central say-so (Campbell et al. 2016). (At the time of writing we await news of the biogas unit's success as the earthquake delayed completion). Stirling argues for bringing out all the discrepant voices and normative clashes in sustainability concerns rather than muting them in favor of a calming managerial rhetoric:

A key contribution for all kinds of social science lies also in helping to inform – and catalyze, provoke and mobilize – more vibrant political debate over the particular questions framings, values and knowledges under which alternative courses of action look most reasonable.

...much social science work around energy Sustainability has the effect of substituting rumbustious, holistic, explicitly normative, autonomous engagements by marginal interests with tranquil, neatly segregated and formally orchestrated procedures of “polycentric governance” (2014:88)

Other normative dimensions of sustainability come in REDD projects in Nepal with money for keeping carbon sequestered in forests. Here again there are cases to be made in favor of not neatly segregating conservation from livelihoods, as studies into smallholder agro-ecology practices in Nepal have demonstrated as much as 48.6 tons of carbon per hectare (Pandit et al. 2012). The forestry sector in Nepal expects \$20-86 million per year. The major obstacle is confidence in anti-corruption measures, and connivance by regime actors in illegal timber extraction. This scheme will channel understandings of forest value into an externally legitimized focus on carbon sequestration. The regime could be thought of as a reimagined eco-modernist ‘mandala polity’ of carbon governance for the anthropocene. The global force of the REDD scheme to address climate change through management of carbon is a closing down of the normative fecundity of forests in social worlds. Stirling comments “[t]his ‘political pyrolysis’ of Sustainability (a reduction simply to carbon), compresses the open-ended, multiplicity of values and issues, into a single ostensibly one-dimensional technical metric” (2014:89).

The multi-level perspective on socio-technical innovation invokes the landscape beyond regime level, as a scale with influences on the possibilities for niches and regimes to respond to greater forces such as climate change, and facility for the global circulation of ideas and people. The next section thinks ethnographically about cultural ‘landscape’ iterations, whereby an actor perspective can bring into view marginal positionalities to regime-centricity, and versions of regime

redundancy and detachment, to challenge the normative hold of incumbent interests.

Christianity and global citizenship?

The power of video, internet, and mobile phones for disseminating cultural products among dispersed communities of ethnic minorities enables images of events, weddings, pilgrimages and earthquakes to keep communities connected. Within this new technological landscape of cultural possibility, it is notable that Christianity is playing a part. It provides a way for converts in the Tamang-speaking world to stay close to old congregational forms of spirituality, and provides a new interpretive twist to some cherished aesthetic sensibilities. One particular video I have analysed (Campbell 2016b) is stylistically seamless with familiar lyrical patterns and cosmic landscapes. The moment of revelatory rupture, of finding salvation in Jesus, makes possible a reborn appreciation for divine beauty in Tamang song traditions that celebrate life in the mountains, the mountain as life and source of order and prosperity (Steinmann 1996). The video is from a community in Rasuwa District at the very last bus stop reached by a service from Kathmandu. Speaking of his village location one of the video performers told me “All we lack here is health and education”. This sense of a preferential marginality bolsters Christianity as a decisive personal transformation and an emblem of wider connectedness among communities that have been historically disparaged by hierarchical regimes. An almost neo-Zomian (Scott 2009, van Schendel 2002) perspective of mountain communities in the high ground is upheld with Christianity bringing a new symbolic language of non-conformism towards established traditional patterns of lowlanders’ dominance over ‘remote areas’.²

Christianity is one way of charting a path through changes in economic lifeways, and the adoption of Christian personal belief is frequently accompanied by deliberate choices in alternative practices of livelihood. At the ethnic representational level, no great rupture with the past seems necessary. In the video at least, it is not ethnic essentialism that is promoted, but ascending/descending transitions of style and

mood from transcendent mountain heights to village domesticity. The visual choices celebrate Tibetan connections. In contrast to Tamang ethnic essentialists in other districts, for the Tamang-speaking people of Rasuwa and especially the Shrestha clans whose grandfathers married with Tibetan women, the sense of belonging on and brokering the frontier zone of cultural traffic between north and south is stronger than a coherent internal sense of ethnicity. These connections are notably celebrated by the Christians in the video. They don glamorous Tibetan dress in the ascent to the places of beauty where they sing exultantly of peace and harmony in their community, close to the heavenly throne of god. They announce their contribution on the video cover as 'Tibetan Tamang Gospel Songs'. As the credits roll in the final images, they invoke a land of milk and honey by scenes of pouring milk and Tibetan butter tea, and images of ritual *tsampa* bowls. It is not only in the symbolism of the good life that continuities can be found. Ripert (2013) observes that motivations for adopting particular strands of Christianity in neighbouring Dhading District still follow logics by which clans maintain distinctions in relation to each other.

For Tamang-speaking persons like the makers of the video, and others I have spoken with, Christianity is attractive for engaging with a sense of decisiveness in addressing modern conditions of the world and networks of global connection. In the eyes of Rasuwa's ethnic elite, it is simply the way the younger generation see things. Individuals I have spoken with have achieved some personal purpose, or at least entered into a *struggle for purpose* against tradition for the sake of tradition, wanting to engage and make a claim for a non-passive relationship to development, advocating new environmental knowledge (not just working the land for the same old crops) and taking new opportunities for trade along the expanding road network into Tibet and China. Christianity for them is a vehicle for furthering cultural ambition, detaching from derogatory labels of caste prejudice, fulfilling desires to reinvent indigenous culture, even to stage it visually as both tourism-oriented aesthetic heritage, and gospel dance-video.

Conclusion

The people at the centre of this article are situated in relation to an overheated world through climate change, economic migration, energy innovation, ethnic resurgence and religious conversion. Their responses speak of attempted dialogues with protector gods, economic and political patrons, NGOs and video performances. They have led to searches for communication with life powers deep in the forest and institutionally at district, national and global scales.

The article has been written at an interface between the Overheating scope, and research conducted in recent years in Nepal, where tools for thinking about 'inclusive' sustainability and energy democracy revolve around making socio-technical 'regimes' an object of political thought and action. Looking at the problems of off-grid energy systems, and plans to implement climate change mitigation and adaptation schemes the ontological status of the regime emerges as a question for critical analysis. When anthropologists discuss various kinds of sovereignty concepts, which would include territorial deities, in fact sustainability theorists like Stirling are not so far distant. Efforts to apply ethnographic approaches to sustainability rather than defer to techno-managerial elite capture will, as Stirling argues, reveal the breadth of knowledges and normative orientations that actually do contribute to homespun innovations. The lesson learned is to treat the socio-technical regime of the multi-level perspective as a heuristic rather than a description of how the world works, and to approach sustainability and power relations both within and beyond 'socio-technical' framings.

Finally it can be observed that incumbent regimes adapt within apparently new configurations of knowledge governance, and shift modernist utilitarian concepts such as ecosystem services into old patterns of inequality. This requires critical normative perspectives to be brought to bear and unravel the threads that do actually hold together complex and conflicted societies with multiple histories to tell, and multiple futures to imagine. These may stabilize into dialogues of habitual expectation and centres of social gravity (lowland/ upland, educated/illiterate, on

grid/off-grid), and thereby attract appearances of consolidated control. Looking at a country like Nepal, there are vestiges of agrarian Great Tradition, and developmentalist nationalism, which undergird central deliberative spaces for managing the overheated world, in which national grids and constitutions have distributed power in society to attempt to keep pace with globalization.

In order to speak with power, some transition thinkers use socio-technical systems models to justify attending to both niche diversity and regime lock-in. This risks turning a heuristic into a description of reality and misrepresents power and knowledge from what Bourdieu called 'the privilege of totalisation'. In the lifeworlds of people whose sovereign normativities are constituted through alternative communicative channels (with subterranean water gods, and Western Union) there are eccentric territories to the standard model of energy and citizenship provision, in the strange weather ahead. In these places there are people struggling to find what Ribot describes as "counter-power that translates voice into response" (2014:697), and this includes looking beyond burnt-out regimes to activate new relationships of livelihood justice and technical capacity in forming religious congregations and domesticating high altitude methane-microbes. The Nepali verb (*paribartana*) can be used for both climate 'change' and religious 'conversion'.

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3. The Frailty of Power. Electricity Generation and Sustainable Livelihoods in Zambales, Philippines

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Abstract

Electricity is a fragile good in the Philippines, where governmental and corporate forces are primarily pushing for coal as the solution to the country's precarious energy situation. With climate change increasingly taking a heavy toll, the political, economic and environmental dilemmas that are entangled with electric power generation in the archipelago are immense. While average temperatures are steadily pointing upwards,

substantially more energy will be needed in the Philippines in order to cope with the heat to come. Due to increased economic activities, the energy spending in the country has recently also grown substantially, with the Philippines nowadays often considered to be on the brink of "taking off". In brief, this is a country with an ever-growing need for energy, while the actual supply available still proves to be both unreliable and expensive. Optimistic predictions on how rapidly the economy will grow are often used to conjure up images of an impending energy crisis that needs to be tackled head-on. These state-endorsed arguments entail a stress on how the Philippines needs to invest into improving its electricity supply now, and forget about environmental or climate change related concerns to safeguard its future. Under conditions of economic insecurity, the article shows, the de-facto uneven distribution of energy frequently creates new, or sharpens already existing inequalities, and gives rise to novel contradictions, one of which centrally has to do with the reconfiguration of the knowledge/power axis during times of rapid change: grand investments in energy-related infrastructure as they are currently undertaken in the Philippines are nearly irreversible and lead to much greater dependencies, as both government and private actors have invested large sums in these projects, which consequently become "too big to fail". The manoeuvring power of unions, social movements, or other social groups on the ground is consequently also drastically reduced, with more globally standardised (and standardisable) knowledges and ways of making a living often "winning" over smaller-scale forms of livelihoods and the kind of expertise that is built into them.

Keywords: *electricity, livelihoods, knowledge, power, sustainability*

(T)here is good reason to believe vision is better from below the brilliant space platforms of the powerful. (Donna Haraway 1988:583)

Introduction: A Solid Fact on the Ground?

The magnificent Subic Bay – once home to the largest US naval base overseas – is nowadays dominated by a vast shipyard³. Specializing in ultra-large container ships,

the shipyard that is under South Korean management currently has 34,000 Filipinos laboring at its facility, which takes up four kilometers of Subic's waterfront. Close to this imposing structure, in the relatively inhospitable terrain of the mountainous Redondo peninsula, thousands of squatter families reside, regularly finding themselves pushed around every time a new big project reaches this area that has been designated for industrial development (cf. Schober 2016a). And projects are many in the making, some of which are still to fully manifest themselves, but have already caused much controversy amongst the local population. In the fall of 2013, for instance, on the right-hand side of the shore a sharp-eyed observer could spot a large, white platform, which is a first material announcement of one such contested economic endeavor that was to come. Located amidst wild terrain, in the middle of dried-up bushes and rocky, almost desert-like stretches of land, that was all we could make out from aboard a fishing boat, when we first laid eyes on this structure: a concrete area in quasi-barren no-man's land. No roads, no power lines, no houses, and no traces of human life anywhere near, yet clearly something large was to be fabricated here.

Of course, even the most remote stretch of terrain, seemingly deserted by humans for decades already, may contain many complex layers of human history that have only recently been erased. This part of Redondo, I was to learn, was used for naval training exercises by the U.S. military between 1959 and the early 1990s (cf. Mangampo Ociones 2006). In the few remaining hamlets located nearby – settlements of perhaps a dozen families or less – residents have stories to tell of explosive ordinance accidentally going off that had been forgotten in the area. This was seemingly not the best stretch of land to settle on. A handful of people decided to live here nonetheless – they are rumored to have been indigenous Aeta⁴ who used the area for occasional small-scale farming whenever they were not roaming the mountains nearby. While I have seen pictures of a number of shacks that stood on this land, no one could tell me more about who these people were who used to live there, if they got paid to leave, and where they went after they vacated the area in 2011. The only fact that I can be certain of is that they are gone, and where their

huts, trees and fields used to stand a few years ago, the platform has been erected instead. It is a simple structure, yet at the same time a most solid fact indeed that has been established on the ground with the very intention of cementing a new chapter of Subic Bay's "development" into existence. That is at least how the Taiwanese-Philippine consortium behind this project wants to present its enterprise to the people of the area: their 600-megawatt coal-fueled power plant that is to be built here, they say, will lift the Philippines into a new era of economic activity.

At first sight Subic Bay, located on the outer stretches of the Zambales province in the Philippines, is a most convenient, nearly self-evident choice for such an electricity generation project. Subic Bay, just a few hours away from Metro Manila and facing the South China Sea, finds itself in a strategically important location in the Philippine archipelago. Its geography, and the fact that it provides a naturally deep harbor for large vessels to enter, have made the bay and its surroundings a prime location for foreign forces seeking to make a first entry into this country. Spanish colonialists erected a naval base here in the 19th century, an installation that was then taken over by the U.S. Navy following the outcome of the Spanish-American War in 1898. Interrupted only by the 3-year occupation by the Japanese during World War II, the landed areas by the bay would then become the territorial foundation for the US Naval Base Subic Bay, the largest US naval installation overseas, which used to cover the equivalent of the landmass that forms Singapore (ca. 68,000 ha).

The many US sailors making their way to Subic Bay became the primary source of income for the adjacent (semi-)urban terrains of Olongapo City and Subic Town, where money made through rest-and-recreation services of the sexual entertainment kind were to keep the incoming populations afloat (cf. Sturdevant and Stoltzfus 1993; Schober 2016b). Once the US Navy, following a land-mark vote of the Philippine senate, had to leave the area in 1991 / 92, the area was consequently plunged into economic difficulties; and the solution to the region's

struggles over how to secure livelihoods for its inhabitants was sought in the establishment of a Freeport Zone on the terrain of the old base, which was to attract foreign direct investors now. The infrastructure left behind by the Americans – the port facilities, roads, pipelines and warehouses – proved to be particularly interesting to investors who were engaged in logistics, shipping and shipbuilding (cf. Bowen, Leinbach and Mabazza 2010). Today, one Korean investor – Hanjin Heavy Industries-Philippines – has become the major player in the area. Through Hanjin’s shipbuilding activities, post-colonial Subic has in the meantime become a key node in the workings of the global shipbuilding industry, a (re-)integration of Subic into world-spanning economic affairs that has also put the area on the map for energy investors looking for a location for one of the many coal-fuelled power plants that are currently in various planning stages in the Philippines.

Energy is amongst the key generative forces of the global economy and the mutually depended world it has shaped. All the while, energy can also be fairly destructive when it comes to more modest, locally embedded economic practices and the kind of knowledges that feed into the making of these livelihoods. The complex structures around electricity production, for instance, facilitate a much greater range of economic, political and social activities than were ever before possible in human history. These same infrastructures of energy, however, do not only enable some forms of livelihoods, in particular those linked to large-scale and technologically complex businesses. The generation of electricity nearby may simultaneously threaten other, smaller-scale forms of making a living, thereby shaping people’s lives regardless of their pre-existing knowledge or values. Coal plants like the one that is to be built in Subic Bay, or the facility that already exists a few hours away in the town of Masinloc, Zambales, are material constructions that tie local communities to larger economic processes and transnational commercial networks. At the same time, they are also potential work-places that not only provide jobs to some, but also have the capacity to impact various other livelihoods

in the areas nearby. Power plant workers, farmers, fishermen, industrial actors, or people working in the tourism sector – they may all have different stakes, fears and hopes related to having a power station in their vicinity.

Ever since the work of Michel Foucault has made such a tremendous impact on the social sciences, the fact that knowledge is power, and power is knowledge, has practically become a truism to be reckoned with. As Donna Haraway, another proponent of a post-Foucauldian quest to locate power in discursive practices, has once summed up: “All knowledge is a condensed node in an agonistic power field”, an insight that also led her to propose the notion of “situated knowledges” by which she refers to a “critical practice for recognizing our own ‘semiotic technologies’ for making meaning, *and* a no-nonsense commitment to faithful accounts of a ‘real’ world” (1988:579). While I do not dispute that much can be gained from exploring meaning-making on a discursive level (in particular if they are also subsequently connected to ‘real’ world accounts), in this chapter I am more preoccupied with the material dimensions of power and knowledge as they express themselves in and through infrastructure like coal plants. In order to understand the “power of power”, which is of interest to me here, stressing materiality rather than discourse may be the better way forward. Material facts on the ground do also purvey a kind of knowledge in the sense that they have various expertise built into them, allow for the accomplishment of certain social and economic realities, and may make competing, often smaller-scale forms of sociality around them more difficult to achieve. Arguably because of its key role in keeping the global economy fuelled, the terrain of energy – as the widely read work of Timothy Mitchell on oil (2011) also seems to suggest – brings about interconnections between power, knowledge, and materiality that are particularly pronounced, as a multitude of actors (from small-scale to globe-spanning) simultaneously hope for gains to be made. And in newly industrialized countries like the Philippines, which are characterised by relatively low labour costs, while their demand for energy is also dramatically on the rise, the stakes are often exceptionally high.

Both livelihood opportunities and electricity, as we shall see, tend to be fragile goods in the Philippines, and in discussions around the erection of coal fuelled power plants these two issues (of how to make a living and power those lives) often become enmeshed with each other to the degree of inseparability, as I will describe in section 2. In the Philippines, governmental and corporate forces have over recent years primarily pushed for coal as *the* solution to the country's precarious energy situation, which, so the argument goes, will inevitably create more jobs for those in need in its wake. Not surprisingly, then, during my field research in Zambales, electricity – and how it is connected to other definitions of power – turned out to be one of the main topics that my informants wanted to discuss with me. And indeed, the question seems to me to be of crucial importance for anthropology, too: How exactly *is* electricity related to social and political power? What kind of knowledge systems embed themselves in a community together with the infrastructures that are being erected, and which forms of knowledges may be utilized to contest these on the ground?

After connecting the specificities of the Philippine situation with new insights made in the anthropology of energy, labour and infrastructure (section 3), in the (ethnographic) section 4 to follow, I shall delve into some of the details that have turned electricity generation in Zambales into an increasingly overheated field (i.e. sparking many attempts to manipulate, contest or shape the social processes involved). Both Subic and Maslinoc (the afore-mentioned town in Zambales located a few hours North of Subic that already hosts a coal plant) have become key sites of contestations over recent years. These struggles, I believe, need to be read in light of one seemingly banal insight: electricity literally powers everything we do these days. It animates capitalism and brings our globalized world to life, and for that reason, bolsters economic practices that are more compatible with global markets. In both locations, as we shall see, the question of livelihoods therefore becomes particularly salient in the power field that the Philippine energy sector and those who seek to contest its reliance on fossil fuels have created.

The Philippine Double-Bind between Economic Growth and Ecological Survival

Well, of course we know that electricity is basic, very important in our daily undertakings. But if the source of energy will be coal and if the government will be dependent mainly on coal – actually it's not only coal, there are other sources of energy, like geothermal projects, (...) wind energy projects, there are proposed solar energy projects, but the government is pushing only coal plants. And the investors are really pushing energy projects which are based on coal and fossil fuel. So over the next 20 years, 30 years, we will see the sprouting of coal plants all over the nation.
(Spokesperson of the “Coal Free Central Luzon Movement”)

Energy has been harvested for human usage with the intention to produce livelihoods for nearly as long as humans have been around, with energy arguably figuring as a key component in the development of cultural complexity and human knowledges (cf. Hornborg 2013; White 1943). For a variety of reasons, our modern day and age has led to a rapid decline of the kind of subsistence economies that anthropologists have traditionally studied. Hunter-gatherer societies have primarily relied on the energy contained in human bodies, and on stored sunlight in the shape of firewood to reproduce their communities, with wild plants and animals providing the nutritional value needed. Agricultural societies, however, were the first to systematically utilize the energy of large numbers of domesticated animals in their daily undertakings, which usually revolved around the cultivation of plants that were fuelled by solar energy. The invention of engines, dynamos, motors and other machinery during the 18th and 19th century, all of which involved novel conversions of energy, triggered a number of other mechanizations, in such a way “leading to the unprecedented substitution of organic with inorganic energy in mechanical work” (Hornborg 2013:47). With the growing need for large quantities of combustible materials that would provide power, fossil fuels such as coal, gas and oil soon became *the* sources for the creation of mechanical energy. The supplementation of human labour with increasingly sophisticated machines concomitantly gave rise to

the modern factory system, which dramatically expanded the capacity of humans to create large amounts of goods. The industrial form of capitalism that these developments brought about subsequently began to travel across the globe, disseminating a particular version of modernity that had a dependence on energy growth built into it – energy which now had to be sourced through increasingly sophisticated and regionally expanding networks.

Earlier forms of imperialism and recent waves of globalisation have only sped up the advance of highly complex, monetized economies into the Global South and places like the Philippines, where today self-provisioning for one's communities has largely been replaced with the necessity to make a living through waged labour or, more often, through a range of informal work practices (Hart 1973; cf. Schober 2016a). As a consequence, nowadays the majority of humans, both in the so-called developing and developed world, live and work in social contexts where one's dependence on natural resources is often of a rather mediated nature. Furthermore, human labour is frequently embedded in highly complex technological systems that significantly amplify our productivity. Old and new modes of production, however, may still exist side by side, creating a very complex picture best captured with the tools of ethnography. It makes a vast difference for one's overall productiveness in a country like the Philippines, for instance, whether one works at a large shipyard like Hanjin's, which comes equipped with state-of-the-art technology and know-how (all of which require vast amounts of electricity), or is employed by a small-scale boat builder who relies primarily on simple tools, traditional boat building knowledge, and the physical input of their workers.

The Philippines, even though it is one of the poorest countries in the region, has one of the most expensive electricity rates in all of Asia today. By now, prices for consumers are even higher than those in considerably wealthier Japan in the post-Fukushima era (cf. Javad Heydarian 2013). And while costs for the individual

households have exploded to such a degree that electricity has virtually become a luxurious good to many, or stays far out of reach to those who have never been connected to the grid in the first place, at the same time the actual energy spending in the country has recently also grown significantly. This largely has to do with the fact that the Philippines is now considered to be on the brink of “taking off” and becoming “Asia’s next tiger”, as influential economists have noted over the last few years (e.g. Domínguez 2015).

The Philippines, to critics of neoliberalism, is also considered a prime example of what happens if the energy market of a country is rapidly privatized without putting certain checks in place. Following recommendations and financial incentives provided by the IMF and the World Bank in the early 1990s, the Philippine energy sector was swiftly privatized, with foreign direct investors coming in that typically build the actual power plants, and local energy tycoons emerging that have been widely accused of forming cartels rather than actually providing for healthy competition of the free market kind. Prominent sociologist Walden Bello summed up the problems in the local energy sector of his country in the following way: “The root cause of the [electricity] crisis is a privatization scheme that was not well regulated so that it replaced government control of energy generation and transmission with oligopolies in generation and distribution – and with cross-ownership between the two sectors – that have aimed for maximum profit at the shortest time possible and with the least investment possible” (quoted in Javad Heydarian 2014).

Power in the Philippines, I was to learn, is precarious for a number of other reasons, too. It is a fragile good in this country also because it is a medium that is very susceptible to human interventions – manipulations coming from the state level, from the corporate level, and also from individuals who may wish to tamper with the network for their own benefit⁵. State and corporate actors collaborate extensively when it comes to promoting unpopular plant constructions to increase the electricity generation in the country. The aforementioned optimistic predictions

on how rapidly the Philippine economy would grow were, for instance, frequently used by both the Aquino government (in power until 2016) and private energy distributors to repeatedly conjure up images of an even larger impending energy crisis in the country that needs to be tackled head-on. The arguments used often entail a stress on how the Philippines needs to invest in improving its electricity supply now and forget about any pesky environmental or climate change related concerns to safeguard its future (e.g. Shukman 2015). In such a vein, the last government under President Benigno Aquino strongly endorsed coal as the one source of energy that should receive priority⁶. As late as 2015, only 17 coal fuel power plants existed in the Philippines; however, an additional 42 plants, many to be financed through overseas investors, have been approved in the meantime, or are in the planning or construction stages (Lagsa 2014, Tupas 2015).

Inspired by Eric Wolf's fourfold definition of power (1989; see also introduction), I propose to conceptualize the globally connected energy sector in the Philippines as a vital manifestation of what Wolf has called *structural power*, which, I believe, manifests itself concretely in a specific material form; that is, in the infrastructure of the coal plant. The Philippine energy sector – which in my understanding refers to not only the companies directly involved in the exploration, development and distribution of energy, but also to the wider network of political, military and societal actors that have a stake in this field – can only be fully grasped by also keeping an eye on this sector's embeddedness in political economic processes that transcend regional boundaries, and by exploring the ways in which it then comes to shape locations like Subic Bay or Masinloc.

Not surprisingly, the issues of environmental degradation and climate change have played a key role in the way those opposed to more coal fuelled power plants frame their objections in the Philippines. To be sure, climate change is increasingly taking a heavy toll on the country (in December 2014, the Philippines topped a list of countries most affected by global warming – cf. Kreft et al 2014), but the political, economic and environmental dilemmas that are entangled with the matter of

electric power in the archipelago are much more complex than the “climate victim”-rhetoric suggests. With average temperatures are pointing upwards, substantially more energy will be needed in the Philippines in order to cope with the heat that is to come. A few degrees added on top in a country that already regularly experiences temperatures of 35 degrees and above during the summer can have a huge negative impact on the well-being of people, who will depend all the more on electric fans to prevent heat strokes. Typhoons have also increased in intensity over the last few years and have become more unpredictable in their occurrence throughout the seasons. With each typhoon that pounds into the archipelago the power supply of tens of thousands of households will become interrupted for hours, days and occasionally even weeks. In the aftermath of typhoon Haiyan (which killed app. 7,000 people when it made its landfall in late 2013), the devastation to the country’s infrastructure was so massive that more than a million people had not seen their energy restored half a year later (cf. Gutierrez 2014).

In sum, the particular ecological vulnerabilities that the Philippines is exposed to (being amongst the most disaster-prone countries in the world, a lot which has only been exacerbated by climate change) are interpreted in fundamentally different ways by opponents and proponents of coal. Some use climate change as an argument to stress how the Philippines can play a vanguard role in the movement to save the planet by saying no to coal, while others argue that the more pressing concern is to safeguard economic development and a more reliable electricity supply now, which will make the Philippines more prepared to face the mounting ecological challenges ahead.

An anthropology of labour, energy and infrastructure

In my attempt to clarify how questions of livelihoods might be tied into concerns over energy supply in the Philippine context, I can build on two dynamic bodies of anthropological literature. The anthropology of labour, in its most recent manifestations, is primarily concerned with reconfigurations of work during the era of neoliberal globalization. Taking cues from the *oeuvre* of Marx and Polanyi, and

previous generations of anthropologists who have been inspired by them (e.g. Wolf 1982; Mintz 1985), a number of authors today are pushing the boundaries of our understanding of labour, work, and the creation of livelihoods, which Narotzky and Besnier have defined as not only making a living, but also making life worth living (2014). Today, anthropologists are engaged in trying to understand a number of different work sectors – from explorations into the workings of heavy industries (e.g. Goddard and Narotzky 2015; Mollona 2009), to garment industries (e.g. Kim 2013; Prentice 2012), to special economic zones (e.g. Cross 2014; Ong 2006), to white-collar sectors such as banking (Ho 2009; Tett 2010), IT (Freeman 2000), or call centres (Nadeem 2011) – the terrains that have been explored are vast.

The anthropology of energy, too, is up and coming (again) these days. Dominic Boyer has noted that anthropology has already seen three generations of writers engage with the topic at hand (2014: 310-316). The first generation assembled around Leslie White, who broke the ground for later ruminations to follow (e.g. 1943), with White's work being particularly influential on Richard Adams, who first explored the connection between energy and social power (1975), and on Roy Rappaport (1968; 1975), who would take up questions of energy and nutrition in his ecological study of pig cycles in Papua New Guinea. This first generation, still very much driven by the ambition to come up with sweeping cultural theories that sought to incorporate the two laws of thermodynamics, was then followed by a number of anthropologists who were much more concerned with the real-life implications of various forms of energy that were being introduced amongst indigenous populations and in the so-called developing world (e.g. Jorgensen 1984; Jorgensen 1990).

The third generation emerged only recently and is still gaining momentum. Possibly, anthropologists are nowadays (re-)discovering energy as a topic due to how multiple global crises (in ecological, economic, and cultural domains) have triggered a widespread sense of “overheating” and accelerated change (Eriksen 2016). The most prominent of these crises is certainly that of climate change, and

anthropologists working on the topic (for a review, see Fiske et. al. 2014) have recently begun to map out some of the social ramifications of living in the “Anthropocene”. In a number of publications on energy, however, climate change serves as a vital backdrop, but is not the sole focus. Inspired, amongst others, by Timothy Mitchell’s *Carbon Democracy* (2011), in which he addresses the question of labour, coal and oil in a historical manner, anthropologists such as Cymene Howe (e.g. 2015); John-Andrew McNeish and Owen Logan (2012); Laura Nader (2010); Sarah Strauss et al (2013); Harold Wilhite (2012); and Tanja Winther (2008) have done much ground-breaking work on how the infrastructures and practices surrounding energy have come to effect political institutions, social processes and local knowledge regimes.

While these growing bodies of literature on labour and energy in principle have a number of connecting points that would allow bringing them together, in reality they have often not spoken to each other. For instance, amongst anthropologists interested in energy, much has been written on how fossil fuels have empowered some social strata of society at the expense of others (e.g. Reyna and Behrends 2008), but the issue of livelihoods has rarely been placed at the centre. All the while, anthropologists of labour, despite a few early attempts by Wallman (1979), have hardly shown interest in exploring the most basic meaning of work as the application of human energy, and the related question of how the expenditure and exploitation of human energy may be historically, geographically and locally connected to our global energy infrastructures.

Finally, a deeper engagement with another key term of anthropology – i.e. infrastructure – may also allow me to make unusual, but solid connections between livelihoods, power and knowledge as it manifests itself in the Philippines. Coal plants as the actual material connecting points between energy on the one hand, and livelihoods on the other, may lead us to consider the usefulness of the “infrastructure toolbox” (Appel, Anand and Gupta 2015) that anthropologists have developed over recent years. Energy production, distribution and (to a lesser

degree) consumption all require some form of fixed capital to be built up, with the technologies and machines related to energy not only coming with their own know-how built into them, but also shaping other forms of knowledge around them, in such a way furtively conditioning and modifying our contemporary lives (cf. Hornborg 2013).

Thinking of infrastructure as “the architecture for circulation” (Larkin 2013:328), allows us to pay attention to both the material structure *and* the knowledge and power flows it enables, with infrastructures executing “technical functions (they move traffic, water, or electricity) by mediating exchange over distance and binding people and things into complex heterogeneous systems” (335f). Also focusing on the hidden social dimensions of infrastructure, Penny Harvey and Hannah Knox speak of infrastructures as “dynamic relational forms”, which in principle have the capacity to make things “commensurate, equivalent, and exchangeable” (2015:4), but quite often fail to do so in real life. Power plants, I believe, are excellent material sites to study in a similar fashion, as they are both work-places and infrastructures of energy that significantly transform the environment they are erected in. To be sure, much can be gained from investigating these material connecting points between work and energy as “technological system(s)” that facilitate “the flow of goods, people, or ideas and allow for their exchange over space” (Larkin 2013:328).

Two Energy Disputes

The Subic area, like virtually all other regions of the Philippines, suffers from frequent brownouts that put daily life to a halt. Unlike many other locations in the country, however, Subic is home to much industrial activity ever since the departure of the US Navy from this area in the early 1990s. Given the intermittent lack of a stable energy supply in this economically strategic area, I was somewhat surprised by how many of its residents were actively opposing a business plan that would entail the building of a 600 mw coal fuelled power plant in Subic Bay. Regardless of whether I spoke to indigenous people fearing for their access to land, impoverished fisher folk who worried that their scant fishing stocks would disappear, or people

working in the tourism sector who feared for Subic's magnificent scenery, people tended to be in agreement that this coal plant would not bring all that many benefits to them. What struck me was how widespread the concerns against this project were in spite of the 1,000 jobs that the company was also promising the community. Yet the sense was clearly there amongst many of my informants that these jobs could be created in a different way through other projects that would not detrimentally impact the livelihoods of so many actors in the area.

Another key issue amongst opponents was the widespread perception that people had not been asked for their opinion on the matter. As some of the actors involved in "No to Coal in Subic Bay Broader Coalition" told me, there was a sense that the public had never been properly informed. Consortium representatives apparently held "public meetings" in the outer-lying villages of Subic, where they invited squatters to enjoy free food and drinks while talking to them about these new jobs, and how much cheaper their electricity bills would become (if they had indeed already been connected to the grid at all). When some of the people involved in the emerging coalition against the plant heard about these events, they protested so that one hearing was eventually organized at the actual Freeport Zone, which would be easier to access for all concerned parties. On this occasion, many of the same squatters were put on buses and taken to a venue, where a number of the anti-coal coalition members also managed to have their voices heard during the meeting that ensued, bringing the hearing to a standstill once the squatters began to side with those who raised concerns over the plant.

Even though the opposition to the plant was steadily growing, the Freeport Zone administration continued to endorse the proposal. By 2011, an Environmental Compliance Certificate had been issued, and a Site Development Permit was handed to the consortium as well, which led to the building of the concrete platform mentioned in the introduction, where the plant was supposed to rise into the sky. By this point, however, the people who were in opposition to the coal plant had organized themselves into a broad coalition that embraced actors from the widest

spectrum possible. During some of the protests that ensued – attended by hundreds of participants – tourism stakeholders would march next to seasoned leftists, expat retirees walked side by side with local religious leaders, rebellious student and youth groups were joined by village mayors and provincial governors.

In the summer of 2012, a “writ of Kalikasan” was submitted by the anti-coal coalition to the Philippine Supreme Court to stop this project from going further. The writ of Kalikasan is a legal measure that can be taken by concerned citizens in the Philippines who want to halt massive environmental damage that may threaten the life and health of residents of several cities or provinces. The coalition, I was told, managed to find a young, enthusiastic lawyer who was willing to take the case up, and who would head to Supreme Court hearings with the local activists in tow. They were lucky with the first judge presiding over the case: She proved particularly impressed on one occasion, when the anti-coal coalition managed to bus a group of indigenous Aeta from Subic to Manila to listen in on the hearing. The judge asked the Aeta who they were and why they had come to court, and one person stood up and explained that the mountain in which this plant was to be built was part of their ancestral domain, so they were here to learn more about this case that would greatly affect them, too. The judge, in a summary, brought up the issue of indigenous land rights as something that the consortium needed to address.

These small victories did not lead to a larger triumph in the end, though: After much back and forth, the Supreme Court in the end decided to dismiss the writ of Kalikasan that had been filed by the coalition. The Environmental Compliance Certificate, the validity of which had earlier been contested, was also upheld, and the lease and development agreement with the authorities running the Freeport Zone were equally declared to be lawful. In the meantime, Redondo Inc has been pushing forward with its plans – by 2016, they had started the process of signing the contracts with various subcontracting companies that would be in charge of engineering, procurement and construction. The project is now expected to be completed by 2019 (Flores 2016).

The activists involved in the case against the power plant in Subic Bay often referred to Masinloc, Zambales as a negative example of what a coal plant in one's community actually entails. In the end, Monica, a Subic-based activist, agreed to take me to Masinloc to have a look for myself. Entering Masinloc, which is home to Zambales' first (and so far, only) coal fuelled power plant, I found myself surprised by how City Hall, and the town's main square, were dominated by two gigantic posters. Placed prominently at the very center of the square, these posters advertised the negative side effects of smoking by graphically depicting the various bodily malformations it may cause. Another large banner, running across half of the City Hall building, announced that the entire square was of a strictly non-smoking kind. This anti-smoking theme continued once we were seated comfortably in a motorcycle taxi – the little iron cage we sat in, too, was full of stickers depicting the horrid health results that cigarettes may trigger, and contained strict warnings not to smoke inside the vehicle. All this while we made our way across town, rapidly approaching Masinloc's very own giant smokestack.

We met up with Yuan and Pablo – two men in their 50s and 60s who had been involved in organizing the local resistance in the mid-1990s when the power plant was erected. Unlike in the much more urbanized Subic area, where people from all kinds of social strata had gotten involved to form a broader social movement, Masinloc has a rather homogenous population. That is to say, outside of the rather small town proper with its semi-urban elite, the overwhelming majority of people living here are relatively poor peasants and fisher folks just like Yuan and Pablo. Seated underneath a number of old mango trees next to Yuan's shack, we talked about their involvement in this struggle for a while. A young woman strolled by and paused for a moment to chat with us. She and her family live in a small house that is squeezed against the wall of the power plant. A few years ago, she said, the plant used to burn coal of a low quality, and they were coughing incessantly back then. Nowadays, since an American corporation took over the facility from the Filipino

investor that originally ran it, they seem to use a different kind of coal; breathing has gotten easier again, she says. Monica mentioned now that even with this better coal, they might still inhale smaller particles into their lungs that could cause negative health effects. What kinds of effects, the young woman asked, and Monica, hesitantly, said it was known to cause many respiratory problems, including lung cancer. The female resident shook her head. "We don't know about any of that," she said. "No one's ever told us."

The plant was erected in 1996, and enough years have gone by for the first few changes to be noticed by residents in the area. The one issue that Yuan and Pablo kept bringing up was mango and fish. Mangos are one of the main sources of income for residents nearby – whoever has a lot to their name also grows mangos on it. Northern Zambales is famous for its sweet, delicious mangos; on the way to Masinloc, we passed by seemingly endless mango orchards, where we often saw individual fruits that had been painstakingly wrapped in newspaper to protect them from insect attacks. Mangos are a precious good, a way to make a living here. Since the plant had been built, however, acid rain had taken its toll. During some years, Yuan and Pablo tell us, entire sections of the mango trees nearby did not bloom at all, or if they did, the buds would never turn into fruits. Sometimes, they saw their harvest reduced by a third or more, compared to what they used to pick from the trees in the old days before the plant.

The other major impact of the coal plant has been on the sea life that they had previously depended upon for their daily survival. The men all owned little boats or at least had access to them so they could go out and fish – the shoreline next to where the power plant is located used to be particularly plentiful in terms of fish stock. When they took us to that area so that we could have a look at the plant, however, we saw that the clear water there was indeed practically empty. We only spotted a few jellyfish here and there – one of the few water species that actually love the ocean of the polluted, overheated kind. The other fish had seemingly moved

on – driven away by the noise and the heat created by the power plant, our hosts would argue.

On our way back to the bus that would take Monica and I to Subic again, we talked a little more with Yuan and Pablo about the pressures that the power plant has created for those living next to it. Quite similar to the stories I had heard in Subic, in Masinloc, too, a number of promises had been made before the plant was actually built. Talk of free electricity was making its rounds, and stories could be heard of thousands of jobs that would be created, not only by the plant itself, but also by the industries that would come to settle in the area, attracted by the plant and its promises of prosperity. None of it came true. Yuan has four children, he tells us, and only one of them is gainfully employed at the plant. He is only given short-term contracts, though, and keeps getting laid off for long periods at a time before he can re-apply for work. With their means for making a living – that is, catching fish and harvesting mango – rapidly diminishing, ever more young residents of their overcrowded community are driven into giving up the kind of subsistence work that their parents and grandparents were engaged in. Instead, they go to work in the bigger cities, make their way to Manila, or quite frequently, head off to Subic Bay to find work in the Special Economic Zone.

Conclusion

In our increasingly interconnected, multi-scalar and interdependent world, which the spread of crucial abstractions such as property, money, or markets has created, the question of energy access has become key. This is an issue that frequently defines a person's well-being, their social status, and their chances to partake in local versions of "the good life". And while energy, from a physical standpoint, is a nearly infinite resource, in social terms it is quite often scarce, which is particularly true in the newly industrialised countries like the Philippines, where the provisioning of localities with energy tends to be more precarious than in the richer Global North. Under conditions of economic insecurity, the de-facto uneven distribution of energy frequently creates new, or sharpens already existing

inequalities, and gives rise to novel contradictions, one of which centrally has to do with the reconfiguration of the knowledge/power axis during times of rapid change: grand investments in energy-related infrastructure as they have recently been undertaken in the Philippines are nearly irreversible and lead to much greater dependencies, as both government and private actors have invested large sums in these projects, which consequently become “too big to fail”. The manoeuvring power of unions, social movements, or other social groups on the ground is consequently also drastically reduced, with more globally standardised (and standardisable) knowledges and ways of making a living often “winning” over smaller-scale forms of livelihoods and the kind of expertise that is built into them.

To have a power plant erected in one’s community, as we have seen, may not necessarily entail access to cheaper and more stable electricity to those living and labouring in or around it, in particular if the energy generated at the station is directly fed into national power lines or industrial operations in the area. I have analyzed coal-power plants as infrastructures that function as the material connecting points between global and local economic processes. Coal plants as pieces of infrastructure attach the local live-worlds of people in the Philippine province of Zambales to the larger workings of one particular “power field” – that of the globally integrated Philippine energy sector. And instead of being an equalizing force, in reality electricity often proves to be rather susceptible to human manipulations, thereby also sharpening the gap between rich and poor. From Philippine state actors who seek to monopolize or privatise the energy sector, to corporate elites who try to find ways and means to secure the cheapest and most stable forms of energy for their enterprises, to ordinary consumers who may attempt to tamper with the energy networks around them for their own benefit: electricity production in the Philippines is often a reflection of “power” in the social sense of the term, too, as it is clearly shaped by how much influence various actors hold in the social contexts they find themselves in. Consequently, the particular (economic and other) knowledge that is purveyed through the material forms of energy-related infrastructures like coal plants, which can be said to be “systems that

enable the circulation of goods, knowledge, meaning, people, and power” (Lockrem and Lugo n.d.), in the ‘real’ world of the Philippines today on occasion disable already existing livelihoods in the areas they are erected in.

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4. Conflicting regimes of knowledge about Gladstone Harbour: A drama in four acts

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Abstract

Since the late 1960s a major port in Australia and an important coal port, Gladstone in central Queensland expanded its capacity from 2010 to 2013 through the dredging of its western harbour. This would make it easier for large cargo ships to moor at the new coal terminal on Wiggins Island (completed in 2015), but the main reason for the dredging was the construction of three LNG (liquid natural gas) plants on Curtis Island across a narrow straits from Gladstone. Soon after the dredging began, reports about

sick and dead fish and turtles, shell disease among mudcrabs, the disappearance of dolphins and dugongs from the harbour area and increased turbidity of the water led environmentalists, fishermen, journalists, bloggers and others to suspect that the dredging had ecological side-effects which were not acknowledged by the Gladstone Ports Corporation (GPC), which had been in charge of the operation. There were also concerns about the removal of the dredged silt and mud to areas near the Great Barrier Reef. A bund wall built to contain most of the dredge spoil was believed to be leaking, yet the GPC denied that there were any problems.

Since the beginning of the dredging, opposing knowledge regimes have competed for legitimate truth claims. On the one hand, the official expert knowledge commissioned by the GPC has contradicted experience-based, or anecdotal, knowledge among fishermen and locals who have witnessed changes in their immediate surroundings. On the other hand, the validity of various scientific reports has also been contested. The truth claims are compounded by political and economic interests. In this article, I examine the competing knowledge regimes and truth claims, discussing in what ways and to what extent truths are bound to be partial, in both senses of the word.

Keywords: Australia, environmentalism, health, industry, knowledge, pollution, power

The harbour has been dredged before. Things will return to fucking normal.

– Ron, 48, fitter and turner

The water in the harbour used to be golden, almost the colour of your shirt; it is now a dirty brown.

– Jane, 82, retired businesswoman

Seawater is one of the most complicated things to test.

– Col Chapman, city councillor

A normally constituted truth lives—let us say—as a rule, seventeen or eighteen years; at the outside twenty; very seldom more.

– Dr Stockmann in Henrik Ibsen, *An Enemy of the People*

Act 1. The early days of dredging, and introducing the dramatis personae

Many harbours need to be dredged now and then. Tidal movement and waves caused by wind or precipitation shifts the bottom sediment and may create dangerous shallow spots and cumbersome unpredictability for the ship traffic. Gladstone in central Queensland is no exception, and its harbour has been dredged several times in the past. Indeed, an area a couple of kilometers off the coast has long been designated a dumping area for dredge spoil. However, the recent (2010–2013) dredging was a major operation whereby up to 46 million cubic metres were to be removed from the seafloor, some dumped off the coast, but most within a built enclosure called a bund wall. The reason for the dredging was the need to expand the harbour westwards in connection with the building of a new coal terminal at Wiggins Island about five kilometres west of the city, and the simultaneous construction of three large LNG (Liquid Natural Gas) terminals on Curtis Island just across a narrow strait called, aptly, The Narrows (see Fig. 1).

Gladstone is an important industrial hub and port in Central Queensland. Since the construction of what was then the largest alumina refinery in the world in the mid-1960s, followed by the building of Queensland's largest power station, railway extensions connecting the rapidly growing town to the coal fields and two large coal terminals, the city has earned a reputation in Queensland and Australia as a major contributor not only to the state's economy, but also to environmental problems, ranging from air pollution and destruction of wetlands (local scale) and damage to the Great Barrier Reef (regional scale) to climate change (global scale). The dredging of Gladstone harbour can be seen as an index of both: It brings promises of growth and continued prosperity; and it has revealed a lack of sensitivity to local ecosystems and local people who suffer from its unintentional consequences.

The dredging of the western harbour, carried out by the Gladstone Ports Corporation, was approved by Queensland authorities in July 2010, and commenced later in the same year, stepping up to a 24-hour large-scale operation in June 2011. By mid-2013, when dredging was completed, 25 million cubic meters of seafloor had been removed.

The bund wall, connected to the mainland at Fisherman's Landing just across the Narrows from the LNG terminals, was constructed between January and August 2011, and the intention was to turn the enclosure, when filled with dredge spoil, into reclaimed land.

Owing to the construction operations in the western harbour basin, ship traffic in Gladstone Harbour increased dramatically while dredging took place. The number of movements across the harbour increased from 1,500 to 25,000 a month, the all-time peak month being December 2011 with 33,000 ship movements.



Figure 1. Location of Gladstone in relation to the LNG terminals and Fisherman's Landing, indicating the shipping channel about to be doubled and extended following dredging.

Many locals were concerned about the potentially damaging effects of dredging. Although few raised their voices in public, there was a great deal of anxiety among Gladstonites about the dredging. Gladstone had more than a hundred professional fishermen, many of whom fished in the harbour basin. In addition, there were thousands of recreational fishermen, many of whose boats were moored in the Marina and to whom the harbour, from the Narrows in the west to Facing Island in the east, was an important recreational area. They had seen mudflats and mangroves being destroyed in the name of progress, and many were wary about the future of their leisure activities. In addition to fishing, crabbing is a popular pastime among Gladstonites, the tasty mudcrab being a common catch in precisely the areas most affected by the dredging. The fact that there was no massive local outrage against the dredging can be put down to the fact that the majority of Gladstonites earn their living from the industry and are reluctant to criticise it and thereby risking their future career prospects or those of their close relatives (see also Eriksen in press).

In March 2011, when two million cubic meters of dredge spoil had been disposed of in the designated area in the ocean, sightings of sick and dying turtles were reported by fishermen (Landos 2012: 20). Soon afterwards, reports about sick and dead fish of several species, proliferating shell disease among mudcrabs, the disappearance of dolphins and dugongs from the harbour area and increased turbidity of the water led environmentalists, fishermen, journalists, bloggers and others to conclude that the dredging had ecological side-effects which had not been acknowledged by the Gladstone Ports Corporation (GPC). There were also broader ecological concerns about the removal of the dredged silt and mud to areas within the Great Barrier Reef Marine Park. The bund wall in the western harbour was visibly leaking (see Figure 2), yet the GPC denied that there were any problems. Scientists commissioned by the GPC continuously monitored the water quality, declaring it to be within the acceptable limits.



Figure 2. Dredge spoil leaking out of the bund wall in 2011. The LNG plants under construction can be glimpsed on Curtis Island on the other side of The Narrows.

Locals murmured. The Australian environmental movement was outraged. The press was more equivocal, reporting from both sides. The Gladstone Regional Council and Queensland Government, supportive of its Ports Corporation, argued that the dredging was necessary and essentially harmless. Yet the drama now began to unfold in earnest, reaching a climax in January 2014 with the revelations that led to what has latterly been known as the Bund Wall Scandal. I now proceed to tell the story about the dredging of Gladstone Harbour and the bund wall in full. My analytical interest concerns the relationship between different regimes of knowledge, how they are linked with actors' positioning, and the ways in which certain knowledge regimes come to form the basis of political decisions and practices. An old interest in anthropology, the relationship between competing or contrasting knowledge systems has been explored since Evans-Pritchard (1937) and his seminal book about witchcraft beliefs among the Azande of southern Sudan. Later contributions, often taking on the asymmetrical encounter between modernity

and a traditional knowledge system, include Norman Long's (1992) important writings on the 'interface' in the context of development aid, Peter Worsley's (1997) neglected *Knowledges*, and more recent studies in the STS vein, often drawing on Bruno Latour's perspectives on knowledge (e.g. Latour 2005). Important theoretical contributions, which inform the present endeavour to no small extent, are Michel Foucault's archaeology of knowledge (Foucault 2002 [1969]), which shows the embeddedness of knowledge, including experience-based everyday knowledge, in a particular historical context; and James Scott's work on the gap between large-scale abstract knowledge and practical knowledge (Scott 1998). The concept of power will here be taken to encompass (a) power of definition—the ability to make a certain version of reality appear credible and authoritative, and (b) the power to effect changes in the physical world by making people do things they otherwise would not have done.

Act 2: The end of commercial fishing in Gladstone

In April and May 2011, sick fish were observed near the spoil dump ground, dead turtles were reported at the mouth of the nearby Boyne River, and three dead dolphins were found in Gladstone harbour. By July, reports of sick and dying fish were becoming more widespread, as were observations of shell disease in mudcrabs. In June and July, three dead dugongs were found in the harbour area. In this period, large numbers of barramundi with skin lesions, parasitical infections and other diseases were reported.

In September, the council imposed a three-week fishing ban in the harbour. By now, the prevalence of fish disease in Gladstone Harbour was well known, the market for seafood from Gladstone 'just disappeared overnight', in the words of one fisherman, and the fishermen found themselves in a very difficult situation. Some went out of business and found work elsewhere; some moved to another location, and a few continued to use the Gladstone Marina as their base, but went further afield to fish. A group of fishermen, who were convinced that the dredging was culpable of taking them out of business, formed the Gladstone Fishing Research Fund in order to prove

their case and demand compensation. Funded out of their own pockets and from donations, the Fund hired a marine biologist, Matt Landos, to carry out research and write a report about the causes of fish and mudcrab disease.

To this report and its detractors we shall return in the next act. For now, we will concentrate on the observations and reflections made by citizens of Gladstone during and after the dredging. It should be noted that the trust in the Ports Corporation at this stage was wearing thin, and that a widespread view was that the politicians were generally complicit with the GPC and the corporate world. At a public meeting about the Great Barrier Reef, held in Rockhampton in December 2013, the Queensland Government announced that it had 'prohibited dredging outside Priority Port Development Areas'. My sideman whispered that this meant, in reality, 'that they can go ahead where they want to'.

Only a few months before the first reports about sick and dead fish, unusually heavy rainfall in the Gladstone region led to flooding of rivers, streams, gardens and basements. Large numbers of barramundi had been introduced into the artificial Lake Awoonga up the Boyne River, and for the first time since the Awoonga dam was completed in 1970, it overflowed, and thousands of barramundi were released into the river, eventually ending up in the ocean along with a large volume of freshwater. For months, fishermen had a windfall of huge barramundi catches. One of them estimates the volume of barramundi caught between January and May 2011 to 200 tonnes. The fish were 'visually normal' (Landos 2012: 19). This would soon end as the first barramundi with skin lesions were discovered in June. By September, the fishing ban was imposed, and although it was lifted in October, the damage to the Gladstone fishing industry turned out to be fatal.

The Council and the GPC explained the lesions and diseases in fish as a result of the flooding. Partly, barramundi were said to have been wounded and traumatized by the rough and violent journey from the rim of the dam down to the sea; partly, the

turbidity and brackish water in the harbour basin resulting from the heavy rains and flooding were blamed for the fish ailments.

The Gladstone community were aware of these opposing views, and many could also draw on their own experiences in assessing what had caused the problems.

Veronica, a woman in her fifties who walks her dogs along the Marina shore every morning, told me that one day, 'it must have been in mid-2011', she discovered five large, dead fish lying on the shore. 'I had never seen anything like it before. Surely that couldn't be normal. We've had floods before, but this was new.'

Her view is expanded on by Anna, a seasoned environmentalist who drily remarks: 'Forty years of dumping toxic waste into the harbour, and you think it wouldn't make a difference to stir up all that stuff by dredging up millions of cubic metres of silt and mud?'

Jane, a retiree in her early eighties who has lived in Gladstone since she was young, elaborates more on what is essentially the same narrative:

And if you take the harbour, I saw the fish with red, bulging eyes and big sores on their bodies. Fishermen and their families also got rashes and sores. So it is clear that some things have been ignored here. In a way, what we see time and time again is big money walking over people, not taking responsibility for their well-being unless they're forced to. They say that 'it's not us', it's the flooding and so on—but look, we've had rain before. The fishermen did their own research, paid a bloke to do research for them, and what he came up with was quite shocking.

She is here referring to Landos' report, but seems to be unaware of the research commissioned by the Ports Corporation, which concluded differently. Many Gladstone residents shared this basic view, some of them unable to resist the pun that 'there is clearly something fishy about this whole thing'.

Others were less convinced by the fishermen's narrative. Frances, an active member of several civil society associations in Gladstone, has this to say:

“For example, some of those fishermen are doing a great disservice to the community.”

THE: “You are thinking about the negative publicity around Gladstone Harbour?”

Frances: “Yes, they've effectively destroyed the fishing industry by creating an image of a place where nobody should even think about eating the seafood.”

THE: “Well, [one of their spokesmen] has moved up to Yeppoon ...”

Frances: “Yes, and actually I think he can stay up there. He and a few others have been bad-mouthing the whole industry, the whole community. It is not good.”

In her view, the fishermen had been publicising news about diseased fish and crabs far and wide, thereby effectively destroying their own livelihood, instead of keeping their counsel courtesy of the benefit of the doubt. She believed that flooding was ‘probably the main cause’ of the fish disease, but ‘I’m not an expert, so you really have to ask someone else’.

Speaking about dredging generally, Greg, a machinist in his forties, who has lived in Gladstone all his life, would be happy to eat seafood from Gladstone any time. Besides, the ‘greeny whinging about the dredging’ was misguided and hysterical, in his view. Charlie, an elderly part-time farmer who raises stately Brahman cattle on a pasture outside of Gladstone, mentioned during casual conversation that he'd bought some crabs the other day. ‘The lady asked, do you want top quality or mediocre? I said well, top quality. Paid twenty bucks a crab.’

THE: ‘Mediocre ... would that mean from Gladstone Harbour?’

We were having *smoko* (a break—in the past it would have been a cigarette break) in a shed near the pastures, and Charlie's son Doug intervened: 'All the crabs are from Gladstone Harbour. Mediocre means empty, or half-empty. You know, you poke your finger into the belly of the crab and it's all soft.'⁷

Accompanying me on the trip was Craig Butler, a local politician and previously a farmer in the region, and Charlie went on to ask him: 'So Craig, what do you think about this dredging business?'

Craig responded cautiously, but unanimously: 'Well, I think there were some connections between the dredging, the poorly built bund wall and the problems with fish and crabs and so on later.'

Charlie disagreed. 'Look, in the past when we had floods, there were red-eyed fish and mudcrabs with disease in the harbour. I saw that fifty years ago, so I don't believe in that crap. Those fishermen just want to get a lot of money in so-called com-pen-sation.'

Charlie's local knowledge contradicts Veronica's. He had seen diseased crabs and fish before, and was unimpressed with the 'whinging' of the fishermen. Yet others would say that shell disease was far from unknown, but that almost 40 percent of the crabs were infected at the height of the dredging in 2011–2012, which could scarcely be a coincidence. As one fisherman said, 'If they blame flooding—well, the entire Queensland coast was flooded, but I hear nothing about mudcrab disease from Bundaberg, or from Hervey Bay.'

In other words, the experience-based knowledge about dredging, flooding and disease in fish, crabs and sea mammals is not consistent. Some speak with shock and disgust about the dead dolphins washed up on the shore in 2011, while others are adamant that dolphins were never supposed to be in the harbour anyway. However, on a boat trip in January 2014, I saw a dolphin in the Marina myself. I also saw dugongs in the harbour basin twice, in December 2013 and March 2014, despite

allegations that the turbidity has killed off the seagrass, reduced visibility and made the harbour uninhabitable for dugongs, as well as the view, heard from a man overseeing transport in the harbour, that dugongs never ventured into it anyway.

Those who got health problems following the dredging would take a less sanguine view.

With his wife Betty, Fred was the owner of a thriving seafood business for many years. Based on Boyne Island just south of Gladstone proper, they sold crustaceans and all kinds of fish to locals. In addition, as a friend of his points out, 'Fred was never exactly what you'd call a die-hard environmentalist. He used to chop off shark fins and sell them to Asia. Now, nobody wants to buy shark fins from Gladstone, of course.'

In late 2011, Fred's right leg became swollen and painful. He was admitted to hospital, but the source of his ailment was not found. There was talk of amputating his leg when Dr Andrew Jeremijenko, a Brisbane-based medical doctor, found that Fred had been infected by *Shewanella*, a marine organism that eats metal. He treated Fred with antibiotics, and amputation was avoided, but more than two years later, Fred could walk only with difficulty, and is unlikely to work again. He speaks with bitterness about the refusal of the GPC to admit their responsibility and to offer some kind of compensation for his lost business and ruined life.

Jeremijenko explained to me how he got interested in Gladstone. He had worked as a doctor for the mining industry before, and had seen dead seabirds in Western Australia, where there had been lead pellets in the water supply, which had entered the sensitive systems of the birds.

Now that dead fish were turning up in Gladstone harbour, I knew that there were reasons for this. Dead fish are biomarkers. Obviously, in Gladstone there has been heavy industry for more than forty years, and everybody knows that alumina production releases toxins, including heavy metals.

He adds that what surprised him was not that this happened, since environmental side-effects are always outcomes of industrial activity, but the denial that toxic waste was a problem in Gladstone Harbour. ‘Things were clearly being covered up. Well, small environmental problems or health issues can always be covered up; there are ways of avoiding them being reported by paying people off and reporting them in other ways, but these were big things—I thought that they’d get caught sooner or later. Curtis Island is part of the Great Barrier Reef World Heritage area, after all.’

Soon after, the Ports Corporation was indeed ‘caught’, but that story will have to wait until Act 4. We first have to examine the expert knowledges at play. It is a common assumption that ‘scientists’ tend to close ranks and project a shared, objectivist view of the natural world. This misrepresentation is common, not least among critics of science. In the ongoing controversy around dredging in Gladstone, it nevertheless soon became apparent that there was no single scientific view, but several.

Act 3: Disagreements among the experts

Just as lay people disagreed fundamentally on the description of the situation as well as the causes and effects of the events taking place in Gladstone harbour during the flooding and dredging from 2010 to 2013, so did people drawing on scientific research disagree just as strongly, if not more.

In 2012, while Matt Landos was busy collecting data for his report commissioned by the Gladstone fishermen—collecting specimens, measuring the water quality, taking algae samples—other scientists were also at work studying the water quality in the harbour area. The Gladstone-based research institute Vision Environment had been hired by the GPC to monitor water quality and to report on any aberrations. Their view was that the proportion of chemicals and dissolved metals are well within established limits. As the Vision director, Dr Leonie Anderson, concludes a

presentation of their work on Australian TV in September 2012, 'By maintaining water quality within Australian standards, we are maintaining ecological health.'⁸

Landos' findings instead indicated that massive toxic algae bloom compounded by lead and other dissolved metals were the main explanation for the high prevalence of disease in fish and crabs.

However, an earlier report published by the GPC, in late 2011 (GPC 2011), drew opposite conclusions. While the stories I have told about dead dolphins, turtles and dugongs may seem dramatic, the GPC published statistics indicating that stranded sea animals are quite common in Queensland, and that there is no glaring overrepresentation in Gladstone. For example, 44 dolphins were reported as stranded in Queensland from 1 January to 27 September 2011, six of them in the Gladstone area. The GPC concedes that seagrass cover in Gladstone harbour had decreased noticeably during 'the wild summer season' (GPC 2011: 4) of 2010–11, but that it had recovered. This report also indicates that dredging on a large scale had taken place regularly since the 1960s—however, since 1998, the dredge spoil had until now been deposited ashore. Currently, the dredge spoil was dumped either at sea or in the contested bund wall. And, regarding the diseased barramundi, the report concludes: 'These fish suffered physical stress, which combined with the stress of the relocation, would have also made them susceptible to disease' (GPC 2011: 18).

I asked Dr Marnie Campbell at Central Queensland University, a marine biologist who has also done research in Gladstone Harbour, for her views. She took an equivocal stance.

Dredging in the Gladstone harbour has had less of an impact than many people believe. Yes, the water gets muddy. But there wasn't great visibility before either. When we arrived three years ago, the situation for the seagrass was disgusting, but this year [2013], the seagrass is fantastic,

probably as a result of flooding which has washed out mud and brought circulation and nutrients into the harbour.

What dredging does do is to affect water current movements, but the effects of this on fishing are uncertain. There is no fish caught in Gladstone Harbour, but who would have eaten that fish anyway? There has been a recent algae bloom, but the causes are again uncertain.

I asked her about her views on Matt Landos' report. She was sceptical of the quality of his science, but added that 'dredging is debatable, and one could argue that you shouldn't take the mud out to the reef but dump it elsewhere. Also, there has been a change in tactics, where the slogan now seems to be "talk more, do less".' Dr Campbell also pointed out that the Ports Corporation's mandatory EIS (Environmental Impact Statement), published prior to the commencement of dredging, reported on shorebirds, dolphins and dugongs, but made no report on fish.

Soon after, I asked Dr Jeremijenko why the water monitoring carried out by Vision Environment had not detected the presence of toxins.

You have to monitor many times and use different criteria each time if you really want to find out what is wrong. To take an analogy, if I have a patient with a swollen, painful leg, and I can't immediately diagnose him, I can't just send him home and say that he is fine. I have to continue searching for the causes. In the end, in this particular case [Fred], it took a year to identify the *Shewenella* bacteria. It eats metals, and people got sick with it. Clearly, the environment was suffering.

Another surprise was that this was denied by scientists doing the reports for the Ports Corporation. They said that the cause was flooding, which I see as a perversion of science. Seagrass died, fish died, and government officials were manipulating science to their own purposes. This was an eye-opener to me. Curtis Island was a \$60 billion investment, and dredging in the

harbour was crucial for it to come about. They had already sold [part of] a world heritage island to the oil and gas companies—it was initially owned by a pastoralist, who sold it cheaply to the Queensland Government, which then sold it to the companies with a handsome profit. A lot of things were subverted for this to happen quickly. There is a collusion between the industry and government here; it was not regulated properly. And if you say absurd things for long enough, such as ‘the sky is pink’, eventually a lot of people are going to take you on your word, but that doesn't make the sky any more pink.

A handful of dismissive comments were posted below the YouTube video of the ABC programme where Dr Anderson presents Vision Environment's conclusions about the health of Gladstone Harbour. One says:

The vid says the water was tested for dissolved metals every month from the time the dredging began. Dredging began on May 20, 2011. There was no testing of dissolved metals till well after the fish got sick and the harbour had to be closed. Total metals were tested for in April, Aug, Oct, Nov and only monthly from then, which only included for dissolved metals from then. There was no dissolved metal testing in May, June, July, Aug, Sept, Oct 2011. sick fish surprise? the evidence is missing.

Another says:

She says ‘some’ levels of turbidity doesn't hurt anyone. It's like saying, some acid rain in the rain every now and then doesn't affect anyone. Mud particles which block out sunlight effects marine life drastically, killing off vegetation which need sunlight, and the marine life which feeds off the vegetation move out or eat infected plankton and sorts.

In this way, scientific knowledge is being challenged on its own terms, by people who question the methodology and interpretation of the data, but who do not question the relevance of science. For two years, a local environmental group, the

Gladstone Conservation Council, had requested access to the raw data on which the Ports Corporation based its assessment of the water quality in the harbour, but to no avail. In the end (January 2014), Jan Arens of the GCC, a chemical engineer capable of interpreting the data and methods, finally got access to most of the data, but as a PDF file rather than in a more useful spreadsheet format.

People in powerful positions—politicians and spokesmen for the GPC—would typically adopt two kinds of positions, and develop their strategies accordingly, when confronted with anxiety and criticism. Leo Zussino, the director of GPC until 2013, was completely dismissive of the criticism. Here is a short article from the *Gladstone Observer*.

Call for leaders to stand up against harbour critics

COMMUNITY leaders should stand up against critics of the science showing **Gladstone Harbour** is in good health.

That is the view of **Gladstone Ports Corporation** chief executive **Leo Zussino**, who spoke at the **Gladstone Region Futures Summit** yesterday.

Mr Zussino rejected the notion that scientists monitoring the harbour were compromised because their research was paid for by the port authority or the government.

One of the arguments made by critics of the current dredging project is that the government has manipulated the outcome of scientific research on the harbour to show dredging has not had an impact.

“It is just a base political argument,” **Mr Zussino** said of the claims.

“What it basically says is that every scientist we have ever used, and they are all reputable scientists, is either morally corrupt or they are willing to, for a buck, change the outcome of their research.

“It is nonsense and I get sick and tired of community leaders who won’t stand up and say it.”

(Gladstone Observer, 12 April 2013)

Councillor Col Chapman of the Gladstone Regional Council takes a different approach. He concedes that there are many uncertainties involved here, and says that ‘seawater is one of the most complicated things to test’. He speaks about desalination owing to rainfall, rivers and flooding, turbidity resulting from increased ship traffic, industrial waste and natural fluctuations in, for example, seagrass cover. ‘It is a matter of several things, not just this or that.’ Chapman has been involved in a broad range of council-led initiatives to monitor and improve the environmental situation in Gladstone, and has successfully built partnerships with various institutions in civil society as well as the industry.

Perhaps the solution does not lie in searching for the truth, but following the money. Landos was paid by the fishermen to make his report. Vision were paid by the GPC. Zussino and the GPC stood to lose money and symbolic capital were they to be found guilty of ecological indifference, while the Council has as one of its main interest to build trust between the residents and the industry. The members of civil society who were quoted liberally in Act 2, and to a lesser extent in this act, would in many cases be personally entangled with the interests either of the GPR and its allies, or with the forces opposing it. Some, however, such as the Gladstone Conservation Council and Dr Jeremijenko, do not seem to have vested interests at all.

The story about the dredging of Gladstone Harbour might have ended here, somewhat inconclusively, with evidence pointing in several directions, possibly with the more convincing stories supporting the view that environmental toxins were released through the dredging, leading to death and disease in fish and crabs, and resulting in boils, infections and—in a couple of cases—serious illness among people who came in regular contact with fish from the harbour. However, there is a final act, which develops the theme of knowledge and power further, and it concerns

the bund wall containing most of the dredge spoil to prevent damage to the harbour as a result of the massive dredging operation.

Act 4: The bund wall scandal

When it comes to government officials ... somebody has deliberately been playing some tricks on us. Others have been misinformed. Too much was at stake. So it was claimed that the bund wall complied with legislation. Some have been thinking, this is what we want you to know. Not the rest. There is likely to have been a core group who have known the truth [about the bund wall] all along.

– Environmental activist based in Sydney

Many suspected that the Ports Corporation were not telling the whole truth about the bund wall, which was meant to be a watertight seal preventing dredge spoil from entering into the Narrows and the harbour. However, aerial photos indicated that brown, muddy water was leaking out of the bund wall on all sides (cf. Figure 2 above). The GPC refused to accept this evidence, insisting that the bund wall was safe and sealed save for a minor leakage in the early days of dredging.

As the foregoing has made clear, there is so much complexity surrounding the dredging that the leakages might conceivably have been forgotten amid the general confusion and uncertainty. Regarding the dredging in general, not only was there disagreement about the *causes* of environmental problems coinciding in time with the dredging; there was also disagreement about the very description of the situation.

The controversy around the bund wall, which was attacked as leaky and dodgy, but defended as sound and safe, took an unexpected turn in January 2014, when the previous environmental manager of the Gladstone Ports Corporation came out as a whistleblower in *The Australian*, a nationwide newspaper not usually known for its environmentalist credentials. As early as August 2011, John Broomhead had

reported to his employer that the bund wall was seriously faulty, and that potentially toxic dredge spoil leaked out of it at low tide. Two and a half years later, the environmental editor of the newspaper, Graham Lloyd, described a culture of secrecy, an opaque process of decision-making whereby the LNG project was impracticably located to an island rather than to the mainland where there was already a State Development Area, and spoke of an emerging ecological catastrophe in a World Heritage area, taking place ‘under the astonished gaze of UNESCO’ (Lloyd 2014).

In 2011, the GPC had conceded that the bund wall would be somewhat leaky until it was sealed by a massive amount of dredge spoil placed against the wall. However, they had not admitted that its construction was faulty.

Broomhead was not the only whistleblower to call attention to the bund wall scandal. In August 2013, Bill Service, dredging advisor to the QGC (Queensland Gas Company) and Warren Hornsey, National Technical Manager of Geofabrics Australasia, had given a detailed presentation to Engineers Australia identifying mistakes made during the construction of the bund wall. They explained in detail how the GPC, in a bid to save time and money, had settled for an inferior geotextile sealing the bund wall, and that it had been placed along the internal rim and not in the core of the bund wall. As a result, the geotextile soon became torn and leaky (Service and Hornsey 2013).

In an environmental briefing released by the GPC itself in October 2011, it is merely remarked that ‘[t]here have been short periods of heightened turbidity levels during extreme Spring tides near the Fisherman’s Landing bund wall’ (GPC 2011: 3), but no conclusion is drawn. However, in a report commissioned by the GPC, submitted in November 2011, the engineering firm BMT WBM stated that the leaking bund wall was a likely cause for the poor water quality at the time when fish and other animals were sick and dying in large numbers. This report was released (or leaked) to the public only in November 2013 (Lloyd 2014). The *Gladstone Observer*, which called

attention to the mounting scandal in several articles in December 2013 and January 2014, had concluded, on 2 August 2013, that 'Flooding, not dredging, caused sick fish in Gladstone harbour', basing the conclusion on a 'final report' on sick fish commissioned by GPC. Owing to the new information, the newspaper had now changed its mind.

The new boldness of the *Observer* in critiquing the powerful Ports Corporation may also have been linked to the fact that its CEO had been dismissed in August. Leo Zussino was known for his impatience with critics, and had threatened to take the newspaper to court for libel on several occasions in the past. 'These moves typically ended with out-of-court settlements which have cost the *Observer* quite a few dollars,' a journalist with the newspaper says.

Dr Jeremijenko seconds this interpretation. I asked him why *The Australian*, a Rupert Murdoch-owned newspaper which would often support the corporations against local communities, now ran a series of critical articles about the Gladstone Ports Corporation. 'Yes, they ran the whistleblower's story. What happened here was that Leo Zussino, who liked to sue people who criticized him, had taken Graham Lloyd to court some time back, so Lloyd was none too fond of the Gladstone Ports Corporation. This could be seen as a way of hitting back at them.'

The dismissal of Zussino, who had been CEO of the GPC for 21 years and openly stated that he had no wish to leave, is likely to have been related to the bund wall affair. Chief executives of the GPC had, according to Broomhead, been aware of fatal flaws in the bund wall and the likelihood of its leaks being linked to the effective death of the local fishing industry since 2011. Now that dredging was completed, it was no longer necessary to conceal the facts from the public, which would in the long run be impossible in any case. So, many Gladstonites reason, Zussino was sacrificed for the GPC to be able to wash their hands off the mounting scandal. Zussino was closely aligned with the former Labor government of Queensland, which had taken the counterintuitive decision of locating the LNG plants to Curtis

Island. He was replaced by a liberal, Mark Brody, with no prior connection to the region.

On 20 January 2014, the ABC (Australian Broadcasting Corporation) announced, in its evening news programme, that the federal minister of the environment, Greg Hunt, had called for an independent inquiry into the bund wall affair. Since Tony Abbott's Liberal government came to power in September 2013, Hunt had approved several coal mines and coal port expansions on the ecologically vulnerable Queensland coast, and this decision was clearly the result of growing pressure from the media and civil society.

The report resulting from the inquiry concluded with several points of criticism directed at the GPC, and recommended better transparency and more genuinely independent decision-making procedures. The report identified breaches of environmental conditions set prior to the dredging, stated that the water monitoring was inadequate, and emphasized that the bund wall was 'not consistent with industry best practices' (Johnson, Tinney, and Cresswell 2014: vii). The commission's mandate was limited to the bund wall affair, and thus they did not comment on the effects of the leakages on the surrounding ecosystem, as pointed out and lamented by the Queensland Seafood Industry Association in their submission to the commission (QSIA 2014). Yet, the findings and recommendations made it clear that serious mistakes had been made by GPC in the construction of the bund wall, and that it had not adequately communicated the situation to the public.

Epilogue: on trust, power and knowledge

Gladstonites are used to industry having its way. Most of them depend directly or indirectly on the industry for their livelihood, and are reluctant to complain. As a Sydney-based NGO worker says,

When your job is on the line, you might not ask the hard question. ... We get a skewed view in the press, often with an emphasis on factors that obstruct

the view. The politicians and corporations are part of this package. The system is broken and needs to be fixed.

She sees complicity between federal and state politicians on the one hand and powerful industrial interests on the other, visualized beyond dispute in the person of Clive Palmer, the mining magnate who formed his own political party in 2013, the Palmer United Party, and holds a seat in the federal parliament.

Trust in the media, politicians and spokespersons for corporations is generally limited. There is also a concern about the hegemonic knowledge regime working against a balanced view of the relationship between carbon-intensive industry and the environment. A Gladstone-based environmentalist pointed out that ‘when, last year [2013], there were nationwide demonstrations against fossil fuels, there was a huge turnout in the major cities; even in Bundaberg, 40 showed up. It led to a five-second mention on the news, and no coverage in the larger newspapers.’

The complicity between politicians and corporations is easy to understand. Producing an EIS is so well paid that its authors may be more cautious and equivocal in their assessments than they would otherwise have been. Arrow Energy's EIS about Gladstone concedes that the project is located within the Great Barrier Reef World Heritage Area, and that impacts of dredging and construction could disturb fragile ecosystems (Arrow Energy 2012). However, Shell Oil, which owns Arrow, stated in 2003 that the company would ‘not explore for, or develop, oil and gas resources in natural World Heritage Sites’, and accordingly, the EIS downplays the location as well as the ecological implications of the project. Government, in turn, receives large sums in revenue and royalties from the companies, and would therefore generally support development of new projects.⁹

Most Gladstonites nevertheless take a local perspective, speaking from their own experience. A resident of South End, the sole village on Curtis Island, says:

“Well, before the dredging started, we'd get perhaps 200 whittings in the Narrows. Afterwards, it was perhaps 20. We stopped fishing there anyway, went out on the other side of the island instead.”

He continues: “What really angered me ...”

His wife interrupts: “... and he doesn't really get angry ...”

“... was being treated like an idiot.”

His wife adds: “Before, we would have fish perhaps three or four times a week. But now, would I eat the fish from the harbour?”

“You also stop trusting scientists. If CSIRO [Commonwealth Scientific and Industrial Research Organisation] tells me that eating the fish from Gladstone Harbour is safe, would I do it? Not necessarily. The very concept of the independent inquiry has been hollowed out.”

Andrew Jeremijenko gets the final word in summing up the relationship between power, trust and different regimes of knowledge in the prospering, booming, but fraught and paradoxical industrial city of Gladstone:

The air quality is also poorly regulated. Areas of concern include aluminium dust levels, which are higher here than in comparable places in the US, but also other discharges. Personally, I have asthma, and I wouldn't live in Gladstone, no. Coal dust also increases, and is projected to increase further in the coming years, and also has an impact. It is hard to blame all this on ‘natural causes’.

But when they can sell a GBR island off to a gas company and get away with it, you get the feeling that they can do anything. It is an incredible example of poor environmental regulation, as is the harbour affair. Well, Gladstone is basically run by the ports, and some have made a lot of money out of this.

Others will get very rich. Clearly, all the powerful people just wanted the problems to go away.

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5. Tinkering with Knowledge: Representational Practices and Scaling in U.S. Think Tanks

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Abstract

Think tanks, or policy institutes, are becoming significant 'sites of normativity' on the global political scene. While their primary concern often is to provide knowledge, based on which decision makers can make informed choices, they also play a part in setting organizational agendas and priorities, and in mobilizing for political action. Based on ethnographic fieldwork in think tanks in Washington DC, the paper engages with the modes representation used by policy experts as they strive to get traction and

establish credibility for their ideas. The work of policy experts can be understood as a form of 'bricolage,' in which information and normative perspectives are tinkered with and are thus afforded truth-value. The use of distanciation and proximation techniques facilitates the continuous scale-making processes in which policy experts are involved and makes possible the 'evacuation of the near future'.

Keywords: *think tanks, policy expertise, knowledge, bricolage, representation, United States*

Introduction: Think tanks as 'sites for normativity'

Think tanks, or policy research institutes, are emerging as key 'sites for normativity' for the global order (cf. Sassen 1998). In nation-state political debates as well as in transnational political discourse, and not least in ponderings on the state of the economy, the global financial crisis, and global risk scenarios, think-tank professionals are gaining increasing traction for their viewpoints.

The growth of think tanks over the last few decades has been explosive, both in terms of numbers and scope of activity. According to McGann (2012: 15), 90,5 per cent of all U.S think tanks were established after 1950, with numbers more than doubling since 1980. A similar, but not as dramatic, trajectory can be seen worldwide. Despite a marked decrease in the rate of establishment of new think tanks in recent years, think tanks continue to increase their role and influence in countries around the world, offering expert knowledge for governmental decision-making and arenas for discussions to take place.

The principal task of most think tanks is to generate policy-relevant knowledge and to provide information to political and business elites as well as the public at large – knowledge that can then influence political decisions. This trend is most visible in the U.S., where tank tanks have a long tradition of 'helping government think,' traceable all the way back to the Progressive Era Reform and the rise of Scientific Management in the early years of the 20th Century. The U.S. is also the country with

the largest number of think tanks (1,823 in 2012), making up 29,1 per cent of the world's think tanks (McGann 2012).

In essence, think tanks are places where information is being gathered and packaged, and knowledge is being produced and distributed. They are motors in the diffusion of normatively charged ideas about how the current state of affairs should be understood, dealt with, and improved. They function both as agenda setters (cf. Kingdom 1984) and as an arena for the epistemic communities of global policy and economics (Haas 1992). Policy experts working for think tanks, or appearing at events staged by them, are part of a growing cadre of professionals identified by Nader (1992) as 'symbolic analysts,' i.e. 'mind workers' who engage in processing information and symbols for a living. They are engaged in the assembling, packaging, and diffusion of complex sets of data of the state of the world in producing global scenarios of cultural flows and borders that enter 'the public geocultural imagination,' in Hannerz' (2009) sense of the term. Such scenarios capture the imaginations of politicians and policy makers, often by way of seductive sound bites, like 'the clash of civilizations' (Huntington 1993, 1996), 'the end of history' (Fukuyama), or 'the world is flat' (Friedman 2005).

In Anna L. Tsing's (2005) terms, we might see policy experts as engaged in 'scale-making' activities, activities that necessitate particular imaginings of the contours of action and relations. These framings in turn, may have tangible consequences for social practice. Insofar as scale is to a large extent about perception and imagination, scenarios must conjure a sense of their scope, applicability and efficacy in order to function (cf. Richard 2012: 137). The scaling projects also allow for the negotiation of political issues, social contracts, redistribution of resources and welfare to shift alternately between the personal and the collective, and the national and transnational scale (cf. Uitermark 2002).

A central argument is that the activities undertaken by think tanks must be understood within an analytical perspective relating to time and the future and how

actors make sense of complex events and imaginable scenarios. In this perspective, the various activities of think tanks have effects of their own, insofar as they often succeed in giving a more determinate form to an indeterminate future. Here, Guyer's notion of the 'evacuation' of the near future (e.g. Guyer 2007), entailing a reorientation of people's attention and political projects to immediate situations and distant horizons, thereby abandoning midterm reasoning and organization is relevant. In the case of think tanks, we may observe a shifting between the distant imaginable future and the immediate future, which tends to leave the near future as an 'empty space'.

In broader perspective, the emergence of new and multiple 'sites for normativity,' in part made up by think tanks, signals the partial disruption of the existing formal, geopolitical architecture (Sassen 1998). This in turn raises questions about the future of crucial frameworks through which modern societies, economies, and polities (under the rule of law) have operated; about the social contract of liberal states, modern citizenship, and the formal mechanisms that render certain claims legitimate and others illegitimate in liberal democracies. Assemblages of institutional arrangements are emerging alongside and entangled in established national and international collaboration and decision-making, assemblages that are able to exert a degree of authority and to promote certain normative perspectives on selected issues. Such global organizational constellations to a large extent escape 'the grid of national institutional frames' (Sassen 2008: 61). An essential feature of think tanks is precisely their ability to exert influence beyond the formal organizational boundaries, by way of vast networks of connections to both individuals and organizations. Through their assemblage-type organization, think tanks can de-border, and even exit, established normative orders.

Informing these scale-making activities and scenario productions are large bodies of information and research. Research in think tanks is undertaken on a wide range of topics relating to the policy niche of the think tank. Research programs may emerge from the interests and expertise of scholars, the priorities of the leaders, available

funding opportunities, or interests of strategic partners. They work actively to ensure that research products and policy recommendations reach policy makers, advocates and public-opinion leaders, and continuously experiment with new, more effective ways to turn ideas into action. Think-tank experts produce an extensive range of print and online materials, such as books, peer-reviewed working papers, essays, policy briefs, congressional testimonies, and short policy memos addressed to specific policy makers. Policy recommendations and analytic findings are as well adapted in format and length to suit diverse audiences. Think-tank experts also write their own opinion editorials (op-eds) and may also have their own web pages. Online engagement is crucial. Most think tanks have a lively website and a presence in such social media networks as Facebook and Twitter. Their staff produce policy blogs, in which senior experts provide their views on topical issues and advocate policy changes. The production of documents, as 'artifacts of knowledge practices,' in Annelise Riles' (2009: 7) terms, is considerable. Moreover, think tanks organize a range of events that feature the work of their experts and other influential policy thinkers, with the aim of reaching a wider audience of policy makers, academics, diplomats, analysts, advocates, and journalists. Think tanks also depend for their authority on access to and control of large sets of data, such as indexes, rankings, and other metrics, for the crafting of robust data and scenarios for future development (cf. Merry 2011). The relevance of think tanks' propositions for policy making relies on them being able to forecast trajectories of development for the very long term, to provide versions of distant futurity. To a large extent, these scenarios are based on dominant versions of macroeconomic theory, 'worked out in myriad details and technical innovations over decades' (Guyer 2007: 410), to achieve the traction they are striving to be afforded in contemporary policy making. A distinctive feature of the temporalities evoked by such doctrines is, according to Guyer, a concentration on 'choice', in the very short run, and the anchoring notions of the distant future, as in 'ways of life'. Maintaining growth and progress requires continuous experimentation with and the termination of unsuccessful experiments through market competition (Guyer 2007: 414; Sowell 2000: 73). The advancement of macroeconomic theory by liberal and corporate-sponsored think tanks display at

once the reliance on rationalized and abstract forms of data, metrics, and forms of representation that allow for projections of versions of distant futurity.

Thus equipped with the latest bodies of topical knowledge – ‘evidence’ as it were – think tanks compete for attention, visibility, and impact, and work to influence political agendas outside of regular decision-making rooms. However, since most American think tanks are organized under U.S. corporate law on the same terms as charities and educational organizations, they can only use a tiny portion of their total resources for lobbying and political advocacy. Consequently, they must be inventive in finding ways of getting their ideas across without engaging in lobbying in the strict sense, but by way of ‘educating and informing’ public officials about critical issues. A great deal of effort goes into ensuring that experts are given the opportunity to provide testimonies on development issues before the House and Senate Committees on Capitol Hill — testimonies that serve as critical milestones in the work of experts.

So, how are they faring? Presenting evidence of the influence of think tanks on policy is a tricky matter. As noted by Weidenbaum (2010: 134), ‘there is an inevitable amount of puffery in the claims of individual think tanks, especially when they are raising money or reporting to their supporters.’ It is clearly a temptation for think-tank experts to claim credit for the public policy statements of nationally known legislative figures. Even so, think tanks are in the position to wield a form of ‘soft power’ (Nye 2004), which works by way of attraction and mobilization, agenda-setting and persuasion, rather than by coercion and sanction. Central to the workings of soft power in contemporary forms of governance are the associations between entities construed as ‘political’, and the projects, plans and practices of these. Knowledge is pivotal for these activities, as it is through expertise and evidence that governance is executed, through attempts to influence, mobilize, encourage, direct, and frame understandings (Rose and Miller 1992:175). Consequently, the possible power that a particular think tank can acquire and execute is not power in an overt, formal and legal sense of the word, but rather

power in the form of authority (cf. Cutler, Haufler and Porter 1999, Weber 1948), which may be used for influencing political decision makers. This authority may for example regard controlling an agenda, shaping debates and discourses, constructing a 'political problem,' and so forth.

Soft power is relational, in that it relies on a relationship between agent and subject. As loosely integrated organizational entities, think tanks maintain vastly stretched networks of connections to other think tanks, to government, multilaterals, and corporations. Lacking a formal mandate to engage in lobbying or advocacy, think tanks are dependent upon the successful management of their networks, and the nurturing of connections, to be able to exert influence and achieve impact. With new means of connectivity, power and influence are consequently becoming more intertwined into complex relational networks (Rothkopf 2008, Stone 2001, Wedel 2009, Weidenbaum 2008). Furthermore, soft power is situational, in the sense that what is a valuable resource in the wielding of power varies with cultural context. The assemblage-like organization of think tanks means that they can establish particularized 'normative' orders specific to policy issues.

However, the authority upon which think tanks rely is fragile, in that it depends on the sway of their normative ideas and their ability to translate research into policy relevant knowledge that captures the attention of the media, of the public, and of decision makers, (cf. Nye 2004). Without the capability to get their message to 'stick' and their presentations to bear on urgent political problems, the reports and the events would be thin with regards to authority. Were it not for their networks, the influence of think tanks would be limited in scope. And without the financial support of donors, the possibility of think tanks to actually engage in these topics, let alone attempt to influence the public, would be slim.

In this paper, I will discuss the representational practices of policy experts, with a focus on techniques of 'distanciation' and 'proximation.' Whilst the former works to

provide condensed, abstract and rationalized renderings of complex events, the latter provides context, familiarity, and a sense of intimacy to narratives and truth claims. I will suggest that policy experts make use of these techniques alternately, to gain traction for their ideas and to support their knowledge claims. Since think tanks lack a formal mandate from which to pursue their influence, the manner in which ideas and knowledge is conveyed is crucial to establishing credibility and authority. The usage of distancing and proximation techniques facilitates the continuous scale-making processes in which they are involved. The work of policy experts can be understood as a form of 'bricolage,' in which information and normative perspectives are tinkered with and are afforded truth-value (cf. Lakoff 2008).

The paper draws on ethnographic fieldwork undertaken in Washington DC over a period of four months in 2011. Fieldwork involved participant observation in one specific think tank, varying degrees of participation in events and activities organized by other think tanks, and a large number of semi-structured interviews with think-tank experts and staff. By studying the production of knowledge in organizational settings, and in interactions between and across organizations, we may gain an understanding of the way knowledge claims are made in actual practice, how they are contested, and how one version of knowledge gains primacy over another. The ways in which organizations such as think tanks operate, how they work to construct knowledge and to represent their knowledge to relevant audiences and decision makers may inform us about the organization of the politics of economy within the global domain at large and how these networks and structures are embedded in 'differently configured regimes of power' that are culturally specific (Ong 1999).

Thin knowledge, thick description

From a bird's-eye perspective, Drucker (1957, 1992) and later Mansell and Wehn (1998) and Stehr (1994) suggested that we are moving towards a knowledge or knowledge-based society, which would involve greater collaborative knowledge

sharing globally, a democratization and universalization of knowledge, underpinned by technological advances. This type of knowledge plays a crucial role in shaping social action and in formatting organizations, in that it provides models, templates and sets of techniques for the management of social action and of organizations. The knowledge used and produced is knowledge of a certain kind: large sets of aggregated data that is actionable, and organized to generate implications (Strathern 1992, 1999). Furthermore, this knowledge is qualified, in the sense of being systematized, made explicit, rendered legible (Scott 1998) and rationalized, in that it relies upon neutrality and scientific grounding (Meyer and Rowan 1977). Rationalized knowledge occupies a pivotal place in attempts at improving contemporary social and organizational practice, so also in think tanks. Decisions about priorities, resource allocations and reorganizations are ideally based on solid, reliable and qualified knowledge in the shape of templates for organizing, ranking lists and audits. The production of such knowledge is the very basis of the think-tank rationale. Many think tanks have developed their own metrics, such as indexes, to support the making of 'evidence' and actionable knowledge.

Reliance on condensed forms of knowledge often entails that 'thin' rather than 'thick' descriptions are being used (Geertz 1973, Porter 2012). Readily available facts are preferred over detailed stories; general, abstract forms of knowledge are chosen over local, idiosyncratic knowledge; systematized, codified and evidence-based forms of knowledge are relied upon rather than everyday, tacit, and experience-based knowledge (cf. Polanyi 1966). Weber (1919) emphasized the continued refinement and standardization of knowledge and practice as a prerequisite for the rational bureaucratic organization. In his view, rational action in a general sense presupposes knowledge. It requires some knowledge of the ideational and material circumstances in which our action is embedded, for to act rationally is to act on the basis of conscious reflection about the probable consequences of action. Modern scientific and technological knowledge is a culmination of what Weber called intellectualization, in the course of which knowledge based on religion, theology or metaphysics were pushed into the realm

of superstition, mysticism or irrationality, in a gradual process of disenchantment. Such types of knowledge – what Geertz (1973) and Porter (2012) call ‘thin’ description, makes possible the perception of developments and futurities and facilitates the governing of large territories. Such knowledge rests on simple linear, causal links among various phenomena, the production of large-scale, quantified data – data which neither considers value judgements nor seeks meaning, but merely provides evidence which can easily be acted upon. Accordingly, organizations develop procedures for the production and diffusion of thin knowledge; they will shape the production and diffusion of knowledge to their needs. Many contemporary political conflicts are framed in the language of knowledge and evidence, thus creating pressure for the mobilization of more data and providing an impetus for the creation of so-called knowledge-intensive organizations to compile and assess existing knowledge and to claim versions of solid, robust knowledge.

As Handelman (2004) noted, however, whilst we may consider the ideal Weberian organization as a marker of modernity and rationality, built on reason and objectified knowledge, this knowledge mixes easily with thick contextualized knowledge and mythical beliefs. The complexities of mixing different forms of knowledge have been poignantly addressed in classical sociological works. Adorno and Horkheimer (1944) argued for the impossibility of value-free and objective knowledge in modern capitalist society. In a combination of insights adopted from Marx, Weber and Freud, they declared the entire project of Enlightenment to be illusory, primarily because it was a question of ideology, heavily bound to capitalist logic and its corruption of real-life values. Organizational actors use and produce diverse forms of knowledge, and must continuously deal with diversified sets of knowledge. In Barth’s perspective (1995), knowledge may be productively seen as a major modality of culture, as that which people employ to interpret and act on the world: feelings as well as thoughts, embodied skills as well as taxonomies and other verbal models. Such a view of knowledge abstracts it less and points to people’s engagement with the world, through action. It acknowledges the fact of globally

continuous variation, with forms of knowledge not separable into homogenized entities, but interlinked. In Barth's words (1995: 66), 'it alerts us to interchange and to flux.' Thus a focus on knowledge articulates culture in a form that makes it 'transitive' in the interaction between people, because of its potential use to both parties.

Furthermore, a knowledge society is not simply a society of more knowledge and technology and of the economic and social consequences of these factors. It is also a society permeated with knowledge settings, the whole set of arrangements, processes and principles which serve knowledge production and unfold with its articulation. Society is largely constituted by such settings and arrangements. Knowledge society, then, broadly implies the growing importance of knowledge-related cultures comprising new ways of organizing work and society and of producing knowledge (Knorr-Cetina 2007). Think tanks, as sites for normativity, are one such setting, geared to the production and dissemination of knowledge, to the shaping of the public mind.

Bricolage and the creative tinkering with knowledge

Local practices of knowledge tinkering in think tanks share significant dimensions of what Lévi-Strauss terms 'bricolage' (1966). In Lévi-Strauss' view, the basic structures of thinking and creating are the same in all cultures and what he called 'the savage mind' works in the same manner as 'the civilized mind'. He defines the concept of 'bricolage' as a method of expression through the selection and synthesis of components drawn from surrounding culture. In comparison to the true craftsman, whom Lévi-Strauss calls the Engineer, the Bricoleur is adept at many tasks and at putting preexisting things together in new ways. The Engineer, who approximates scientific knowledge, deals with projects in their entirety, conceiving and procuring all the necessary materials and tools to suit his project. The Bricoleur on the other hand adapts his project to a finite stock of materials and tools at hand. Lévi-Strauss suggests that the Bricoleur reappropriates 'a collection of oddments left over from human endeavors,' to express him- or herself. The Bricoleur must

‘make do with ‘whatever is at hand,’ choosing from a finite set of tools and materials which ‘bears no relation to the current project, or indeed to any particular project.’ And this is unlike the figure of the Engineer, who has available all the ‘raw materials and tools conceived and procured for the purpose of the project.’ In Lévi-Strauss’ terms, the universe of the Bricoleur is closed, in that he is forced to make do with whatever is at hand, whereas the universe of the Engineer is open in that he is able to create new tools and materials. But both live within a restrictive reality, and so the Engineer is forced to consider the preexisting set of theoretical and practical knowledge, of technical means, in a similar way to the Bricoleur. Lévi-Strauss further asserts that the set of possible uses for each component available to the Bricoleur is limited, because each component retains some residual properties and fragments of meaning relevant to its original purpose. He holds that placing the materials in a new context, however, can alter their meaning, suggesting that as a methodology, bricolage can be empowering.

The activities of policy experts are in many ways analogous to bricolage. They often need to draw on resources that are produced elsewhere, such as academic knowledge, political processes, and policy expertise, and to make the best out of their access to these. They are relatively free to make new use of the materials they have gathered. They may position knowledge claims in line with their normative inclination and mission ways that a government funded university usually cannot. It is this relative liberty in the process of crafting that may prove attractive to audiences and that may eventually have an impact. Think tanks are savvy in the pooling of relevant information and in the packaging of topical knowledge.

However, it is not enough, as the notion of bricolage would suggest, to craft something new out of what is at hand. To achieve traction, policy experts must know the language, vocabulary, and the tone of voice of the desired audience. He or she must be able to address the recipient with credibility, authority, and trust, and to ‘translate’ its findings and views into the vocabulary of the other. ‘Relevance’ is key here, as is timing and professionalism. Being able to tune into the priorities of the

recipient, whilst pushing the agenda of the organization one represents, is a highly valuable skill.

As Latour has suggested, we should not rest confident about the *a priori* existence of social and institutional realms. All actors (and not just social scientists) produce interpretations, and powerful actors offer scripts into which others can be recruited for a period. In this sense their interpretations are performative: ‘They prove themselves by transforming the world in conformity with their perspective on the world’ (Latour 1996: 194–195). Our concern becomes, then, not how actors operate and strategize *within* existing arrangements of knowledge, but how projects become real through the work of generating and translating interests, creating context by tying in significant people and so sustaining interpretations (Latour 1996; Mosse 2005). The concept of ‘translation’ here refers to mutual enrollment and the interlocking of interests that produces project realities. The strategic think tank Bricoleur strives to make interpretations and projects real by creating context and credibility by way of alternating distancing and proximation techniques and by shifting between distant and immediate futures. It is the *appearance* of congruence between problems and interventions, the coherence of policy logic, and the authority of expertise (Mitchell 2002) that is really surprising and requires explanation (Moore 2000: 657). The ethnographic task is thus to show how, despite fragmentation and dissent, heterogeneous actors are constantly engaged in creating order through political acts of composition (Latour 2000).

Representational practices: ‘distancing’ and ‘proximation’

In the spring of 2011, the financial crisis had a tight grip on the U.S. economy. Concerns about the fast-growing deficit and long-term debts were paralyzing politicians and feeding news channels. The debt-ceiling crisis of 2011 was a crucial stage in the ongoing political debate in the United States Congress about the appropriate level of government spending and its consequential impact on the national debt and deficit. Negotiations for the federal budget to fund government operations for the fiscal year 2011 had come to a standstill, with adversaries

showing little sign of a will to compromise. Whilst everyday life went on, as it were, the near future had come to a standstill. President Obama at one point let his frustration out, called on congressional leaders – especially Speaker John Boehner (R-Ohio) – to act like ‘grown-ups’ and avert a government shutdown after they made no apparent progress in reaching a budget agreement at a White House meeting earlier in the day. The budget negotiations culminated in early April 2011, with a tense legislative standoff leading to speculation that the nation would face its first government shutdown since 1995. However, a deal containing \$38.5 billion in cuts from 2010 funding levels was reached with just hours remaining before the deadline.

The Cato Institute, a libertarian, advocacy-oriented Washington DC-based think tank, covered the budget drama by way of a half-day conference on April 7th, ‘The Economic Impact of Government Spending.’ The event featured two Republican senators, one former senator now senior executive with an investment bank, a scholar from the American Enterprise Institute (a conservative think tank), among other distinguished speakers. At this conference, legislators and policy experts discussed the economic consequences of bigger government, and analyzed proposed solutions. The announcement of the event on the web emphasized the urgency of the situation:

‘Spending by the federal government has doubled in the past 10 years, rising from \$1.86 trillion to \$3.82 trillion. This has caused the burden of federal spending to climb from 18 per cent of GDP to 25 per cent of GDP. Because of entitlement programs and demographic changes, however, federal spending could climb to more than 50 per cent of GDP if government policy is left on autopilot. At this special afternoon conference, legislators and policy experts will discuss the economic consequences of bigger government, regardless of how it is financed, and analyze proposed solutions.’

I participated in this conference, which draw together some 150 people from different organizations: other think tanks, corporations, 'from up the Hill' (that is, Congress), universities, and the media. The delegates were mostly senior men, well dressed in business suits. The minority of women and young students stood out from the crowd. Along with presentation material, recently published reports were available outside the conference room. One of them, entitled 'Bankrupt: Entitlements and the Federal Budget' (Tanner 2011), very clearly supported the arguments of the conference, arguing in favor of reforming entitlements as part of the plan to balance the federal budget and reduce the growing national debt. The Cato blog featured entries on the topic as well, also targeting the growth in federal spending and acute need for government spending reductions.

In the introduction, the hosting Senior Fellow from the Cato Institute, Daniel Mitchell, outlined the criticality of the current situation:

'We' re gonna be talking about the economic impact of Government spending and of course also talking about some potential solutions to our budget problems. And when we talk about the issues, the economic impact of Government spending, we're not really talking about sort of the argument about Keynesian economics – should there be Government spending during a downturn – we're talking about the long-run issue about what are the implications of a Government that consumes say 20 per cent of GDP versus one that consumes 40 per cent of GDP, what is better for economic growth, and of course that's very much an issue that is dominating Washington right now, because in the last ten years Government spending on the federal level has jumped from 18 per cent of GDP to 25 percent of GDP, and if you look at the long-run forecast, because of things like entitlement programs, we're heading into Greek-style territory with the federal government alone approach up to 45percent of GDP, and then you add in 15 percent of local government, you can sort of get an idea of the problems we're facing.'

The speakers presented their arguments, supported by tables showing the development of the budget deficit, by statistics of government spending and of graphs illustrating the acuteness of the financial situation. These figures and graphs conferred a sense of robustness and credibility onto the arguments, and served to instill a degree of urgency and seriousness in the audience.

Republican Senator, Bob Corker, who was behind the new Bill on cutting Government spending, the CAP Act, started out by saying:

‘So, I’m really glad to be here. I appreciate the work that the Cato Institute does, and we certainly read numbers of papers that come from here, and I think all of us are benefited from think tanks that do what you do, and we greatly appreciate that. I thank you all for taking the time to come and listen. I try to make this presentation in any place that I can, and I’ve done this 43 times across the state of Tennessee in almost any setting you can create. It’s a little bit longer when I do it there and it’s one of those situations where I kinda walk into a standing ovation and I believe you can hear a pin drop because people are so acutely aware of where our country is. Now, I’m not gonna walk through multiple slides. I know this audience is very aware where our country it as it relates to our indebtedness. But I look at this at a time when we’re trying to figure out how keep our citizens safe, on the one hand. We’re trying to figure out, on the other hand, how we remain internationally competitive and how to have people have increasing standards of living in this country. And then we have this issue of debt, which is underneath all of this. I think this is *the number one issue* for our country today, I don’t think there is anything more important, and I believe over the next 90 to 100 days we have a tremendous opportunity to do something that is great for our country. I really believe that. I wake up every singly day meeting with Senators on both sides of the aisle, individually in the offices, selling the fact that we have that opportunity and need to take advantage of it.’

Senator Corker proceeded to present a graph of the looming wave of debt (see Table 1). Following this, a presentation of the Cap Act, a Bill proseed by himself to put a straitjacket on fiscal spending, was presented. A slide described the outcome of the different alternatives until 2030, including the much-discussed proposition by Senator Ryan (see Table 2). The positive effects of the CAP Act were clearly shown by way of the graph, and Senator underlined that ‘it would be irresponsible not to take responsibility.’ There was a need for immediate action, in order to create the kind of future that the American people was claimed to want. Senator Corker fervently emphasized how managers in charge act on the need ‘to make all the tough choice you can make,’ ‘to right the ship immediately,’ or ‘to immediately make sure to make those changes that are necessary.’ He continued by saying:

‘The only way to create the kind of urgency that we need in Congress to be responsible, to be courageous, to deal with everything in the budget so that we can actually close that gap I was taking about, to me is to have something in place like the CAP Act ... I think our opportunity to change the direction of our spending in the country is one is on debt limited vote. I really believe it.’

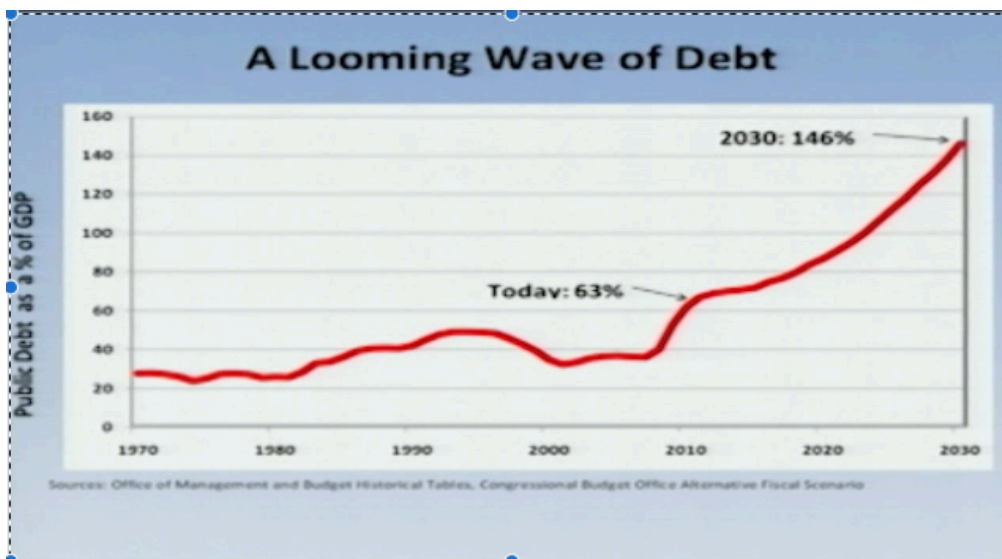


Table 1

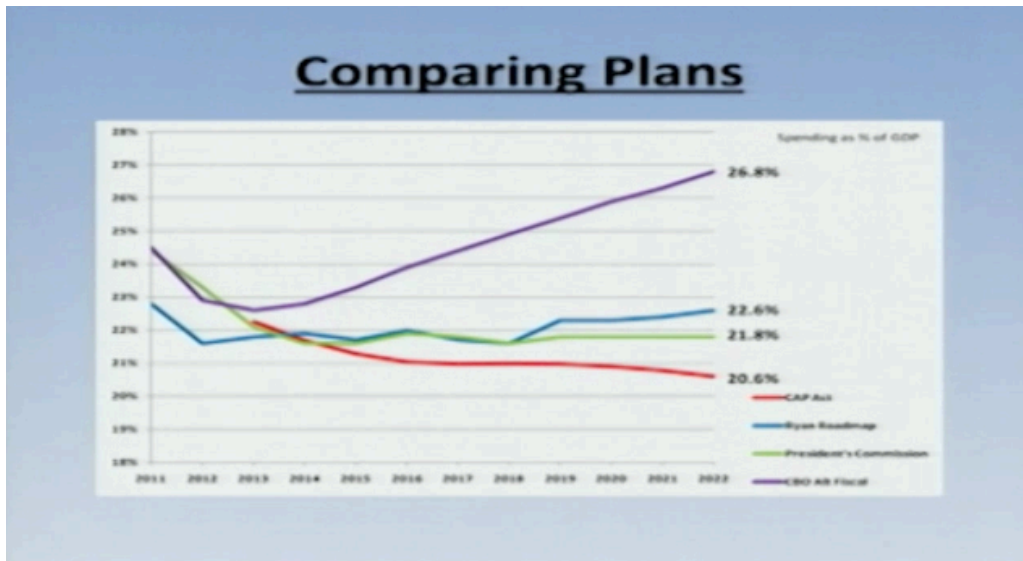


Table 2

Reference: <https://www.youtube.com/watch?v=6kw5LZbFnA8&t=379s>

At the Cato conference, as at other similar events, such graphic and numerical representations are an important part in shaping how markets are understood, and thus acted upon. It is simply hard to discuss, let alone invent efforts to alter markets, without representations of markets (McCloskey 2010; MacKenzie 2004). Tables, statistics, narratives, formulae, images and the like, influence decision making and the allocation of resources, and carry with them certain interests, priorities and values. The use of such representations of markets is an important, yet often overlooked way in which markets are shaped, and thus organized. Through these, relations between events and market actors can be articulated and described. Representational tools may influence and steer perceptions of ongoing activities, and of linkages between these. They serve to link events and actions into meaningful assemblages.

Scholars have argued that so-called 'distancing' representations are important in describing markets (cf. Knorr Cetina and Bruegger 2002; Helgesson, Kjellberg and Liljenberg 2004). Through distancing, or what we may call 'distanciatio', techniques, exchanges are aggregated into numbers representing market shares,

market prices, turnover and the like. At the Cato conference, tables illustrated how private sector jobs would increase in numbers when private investment increases; that increased federal spending has not lead to private sector job creation; and pinpointed the fiscal scenario of federal debt under current and proposed policies. Such representations render complex macro-events that are impacting on people's lives, abstract and 'distant,' yet graspable and evident and palpable. Distanciation practices worked in this sense to reinvigorate 'distant horizons' (cf. in Guyer 2007: 410).

However, speakers also make use of what we may call 'proximation' techniques, i.e. techniques that make events appear as closer and more experience-near. For example, scenario exercises often involve concretizing a possible or plausible chain of events through visual and textual material. Similarly, some reports aim to spell out and 'make real' certain developments, such as aspects of the financial crisis. Matters of great complexity may thus be brought down to earth. For example, one of the speakers at the Cato conference, Republican senator Mike Lee, suggested 'we should take charge of the keys of the federal government, until they learn to act responsibly', much like he and his family once were forced to take the keys to the Oldsmobile from out of his grandfather's hands, since the grandfather refused to stop driving in spite of side-sniping several other cars:

'We love this government, we love the things that it does, that it stands for, and because we love it, and because we love the things affected by it, we can't allow it to be in a position where it's harming other people. And unfortunately, just like my grandparents couldn't simply be told "you've got to be more careful" and in fact they had to be expected to be more careful and be better drivers, Congress can't simply be told again "you've got to be more careful." You have to put Congress in what I refer to an economic straitjacket.'

This analogy spurred both applause and laughter in the audience, as we realized the simplicity of it all. By way of this familial analogy, the dealings of Congress were

brought closer to home, as it were, and were understood in terms of common sense. Statistics and projections could not do the job alone. They had to be complemented by a sense of intimacy and proximity.

In this sense, using a proximation technique can be seen to be quite similar to the kind of knowledge sought by anthropologists; knowledge that is intimate, that goes behind categories and tables, and that adds context to what goes on. As Rapport and Overing have it (2002: 78):

‘The anthropologist seeks the subtleties of intimate knowledge: knowledge behind the ideal types, categories, generalities and abstractions of public exchange. The quest is for the knowledge which animates these collective forms, forms which far from revealing this knowledge may well mask itself beneath the vagaries of symbol or conventional idiom.’

The search for intimate knowledge characterizes not only the work of anthropologist, but the work practices of several types of professionals and experts, or ‘symbolic analysts’ (Reich 1992), who depend on what may be seen as ‘anecdotal’ (Holmes and Marcus 2006), as a short informal description or narrative account that provides a means to move between thick and thin description, but also a breach in technocratic knowledge that also allows for the realigning of the relationship between ethnography and political economy. The federal bankers that Holmes studied, operating in a culture of expertise committed to a technocratic ethos, predicated on the management of vast amounts of quantitative data need a narrative to connect to real life in real time. The anecdotal reports, ‘anecdotal evidence’, they suggest (2006: 40). ‘constitute a sophisticated means of tracking and interpreting the economy and endowing it with social context and meaning.’ In Holmes and Marcus terms, the bankers are engaged in ‘para-ethnography.’

Similarly, think-tanks experts, politicians, and policy professionals make use of these techniques to track and interpret the economy and other complex macro-developments. Whilst the factual power of numbers and metrics legitimate the use

of distancing techniques, the forms of representation also need to be complemented by the persuasive power of narratives and anecdotal evidence, i.e. by proximation techniques. The speakers appearing at the Cato conference worked simultaneously with both distancing and proximation techniques, thereby interchangeably drawing the world closer and rendering it more distant and abstract by way of scaling activities.

These representations contribute to shaping the markets they represent (Latour 1986). Performative utterances do not primarily report on a fact, but are themselves the performance of some action (Austin 1962). Similarly, the discursive actions of policy experts, the vocabularies they craft and employ, and the theories they develop and diffuse, also participate performatively in attempts to organize markets.

Disruption

The normative order that is constructed by the use of such technologies may be ever so convincing. It may, however, be challenged by provocations and alternative normativities. At the Cato event, a man in a wheelchair had entered the reception area just in time for the break. As delegates were stretching their legs, chatting, and enjoying refreshments, he was trying to get their attention by waving a handful of pink handouts and engaging in conversations with passers-by. The flyers he was handing out carried the message: 'REMOVING HEALTH CARE is "MASS MURDER".' The message was that the removal and denial of medical treatment for fatal diseases, as outlined in a proposal intended by a US congressman to pass legislation the same week, would lead to 45,000+ citizens being killed each year. On his t-shirt was printed 'I am guilty', with a text explaining that what he was guilty of was being sick, functionally impaired, and living off entitlements. I was standing right next to him, as he engaged in a conversation with one of the delegates, a man in his sixties. The protester explained that cutting entitlements was the wrong way to go in balancing the budget, since he and many others were dependent on these for survival. 'If I'd be out of my medicines for a week, I'd be dead,' he stated. The

delegate suggested that there were lots of individual charities from which he could benefit, and that state subsidies were the wrong solution. The protester argued that these were not enough, and that people should not be dependent on private generosity for survival. The delegate then exclaimed that one should 'rely on the capacity of people to work to sustain themselves, the problem is that people are not trying hard enough, they are lazy, people need to worker harder.' By this turn, the argument went loud and heated, and other people stopped their conversations to follow the development. The protester then exclaimed: 'look how hard people are working, people are working hard out there, you just don't get the maths right here, this is demeaning talk.' 'People need to work hard,' the delegate countered. 'But they already do,' the reply was. 'And they should,' the delegate responded, waving his fist. By this time, the argument had begun to disturb the comfort in the reception area and the conference staff gave signals to the delegates that the conference would reconvene. The delegates moved slowly back into the conference room, and the tension eased off.

The protester showed up in person to confront the presenters who, in his view, were advocating a line of action that would have devastating effects on ordinary people, and not least people with some kind of functional impairment. His move was an instance of proximation, in that he made use of his own physical appearance to make his argument stick. Being there, in person, his physical appearance worked to strengthen and give evidence for his argument. The actions of the protester threatened for a while the normative order constructed in the conference. It alerted the delegates to the possibility of other, alternative and contrasting views and positions, and it broke the relative ideological hegemony of the entire event, which had hitherto been run with acclaim and applause supporting the presentations. The relative consensus was temporarily broken. But only temporarily, for as the conference reconvened, no one brought the event onto the agenda, nor mentioned it in passing. The event, however disturbing it have been, did not fully succeed in disturbing the carefully framed and normatively charged Cato conference.

Concluding notes: Policy bricoleurs and the making of soft power

In this paper, I have wanted to draw attention to the increased significance of networks of influence that assemble into think tank organizations, and their role in influencing policy making at national and global levels. I suggest that think tanks, as organizational forms, are gaining ground as influential actors in policy making, as a result of transformations in the operations of power at national level and governance challenges at global level. Think tanks operate in some ways at the interface of other organizational structures and processes, observing, researching, evaluating, proposing, and influencing by way of 'soft power,' through attraction and mobilization. The interface position, as it were, places them flexibly in a strategic position to influence, without entering into the decision making process directly. Think tanks often take on the role of mediators between spheres of influence, such as between corporate interests and political interests, and between academic knowledge creation and political decision making. By way of their resources, in the form of expertise, political connections, and financial resources, they have access to a large array of zones of influence and may reach large audiences with their messages.

Think tanks, and the individual actors who are employed by or perform for them, work as bricoleurs between organizations, networks, and spheres of influence. They have at their disposal a large repertoire of informational and media technologies by which they may translate and adjust their messages flexibly to suit different audiences. In doing so, policy experts make use of both distancing and proximation techniques. Distancing techniques translate complex and large stocks of data into abstract entities and models and serve to establish facts and create expertise and credibility. Proximation techniques, on the other hand, render complex and abstract events and developments more familial and intimate, and thus easier to grasp. These techniques also make possible the evacuation of the near future, since what is focused is on the one hand abstract and imaginable futures that are difficult to control but easier to turn into visions, on the one hand, and everyday practice and intimate actions, on the other.

Political power today may be seen to evolve through an abundance of shifting alliances between diverse actors involved in different facets of economic activity and social life. We need to look beyond the established political vocabulary, made up by dichotomies between state and civil society, public and private, coercion and consent, and the like, to understand the various ways in which power is exercised in advanced liberal democracies at global level. Looking more closely at the entangled networks of significant actors, the range of resources drawn upon, and the processes through which certain forms of knowledge are made authoritative and certain propositions reasonable and desirable, appears as a more promising path to uncover the workings of contemporary power. The scaling projects in which think tanks are involved may be seen as involving changing regimes of governance that move the negotiation of political issues, social contracts, redistribution of resources and welfare alternately between the personal and the collective, the national and transnational scale, and distant and immediate futures (cf. Uitermark 2002). This dynamic scaling enables think tanks to portray themselves differently depending on what policy issues they want to prioritize and what benefits they want to reap from their funders and from the media. The liquid mandate of think tanks thus both necessitates and facilitates an agile and shifting positioning in the political landscape, a fluctuating site for normativity, as it were.

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6. Safety in Numbers: why everyone listens to economists

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Abstract

Policy-makers base their decisions largely on calculations made by economists. But the details of the techniques that economists use are not generally understood; and estimated values, based on calculations by reputed economists, can vary by a factor of 100 or even 1,000 times. Why, then, do economists exercise such power? To explore these issues, this article begins with an analysis of the techniques that economists use

to put a money value on time, on human life, on the 'environmental services' that nature provides, and on the significance attached to future generations. These examples are then used to draw some conclusions about how and why the expert knowledge of economists exerts such power in modern society.

Keywords: *economists, knowledge, nature, power, techniques, value*

Introduction

What do we value most? Our health; our free time; nature; the well-being of our children and grandchildren? How much do we value them? A neutral observer of modern-day western society might be excused for concluding that the answer is 'ask the economists' – for in all of these cases policy-makers base decisions on their calculations. Why are economists given so much influence? The main reason, I suggest, is that they appeal to policy-makers because they seem to offer clear, definite answers – even though the details of the techniques used to justify these answers are not generally understood. Or perhaps *because* the details are not understood; if policy-makers were to delve more deeply into the debates within the economics profession they would discover that estimated values, based on calculations by reputed economists, can vary by a factor of 100 or even 1,000 times. With differences of this magnitude we would seem to be faced not with 'margins of error' but rather with different world-views. But debates about these issues are generally contained within the community of economists (perhaps by mutual consent with policy-makers). To explore these issues, this article begins with an analysis of the techniques used by economists to place a money value on a human life, or on an hour spent sitting in traffic jams; on the 'environmental services' that nature provides; or the significance attached to future generations as measured by discounting future costs and benefits at a rate which effectively reduces them to insignificance. These examples are then used to draw some conclusions about the power of expert – in this case economic – knowledge.

Valuing time savings

When invited to advise on public policy decisions, for example regarding the construction of a road, economists use a technique known as social cost-benefit analysis (SCBA). The basic idea is that such decisions should be based not on whether they yield a financial profit but whether the benefits to society at large outweigh the costs. While the latter may be largely money costs, the former are usually not. Thus, for example, a new road is expected to save drivers' time, but this is not a benefit which is manifested in financial terms. As long ago as 1844, a French engineer, Dupuit, suggested that one could nevertheless estimate the benefits of road construction in money terms – perhaps the first known example of SCBA. (Dupuit 1844). Since then the technique has been very much refined, but the basic principles are unchanged. The cost of a person's time is typically measured as the 'opportunity cost' of that time, in other words the money value of what the time could otherwise have been used for. This was assumed to be closely related, if not actually equal to, the wage rate. One person sitting in a traffic jam for an hour is a waste of time, a wasted resource, which imposes a cost on the individual concerned and, thereby, the society as a whole. And the wage rate is a measure of the market value of a person's time. The argument is very logical, and the technique has been applied ever since. (e.g. Beesley 1965, Quarmby 1967, Lee and Dalvi 1969). There have been a number of modifications, but the basic principle remains. (One aspect that has not been much discussed, however, is that the method necessarily implies that an hour of lost time for a rich person is worth more than that of a poor person. This clearly introduces a bias into transport investment decisions, as long as they are based on this valuation technique).

Valuing human life

Investment in new or better roads typically also results in reduced traffic accidents, and hence a saving in human life. Just as forecast time savings can be estimated with the use of traffic engineering models, so can the estimated numbers of lives saved. These too are benefits of an investment which have to be taken into account,

involving an estimate of the value of a life saved. In this case, again, a market-based approach is used. In the early days of transport planning the approach was very crude: the value of a life – to society - is the value of the future earnings of the person concerned over their remainder of their expected life, minus the value of their future consumption. This had the unfortunate result that the death of someone already retired would count as a net benefit to society. It was recognised that this was an unduly narrow view of the value of life, and the technique was adapted somewhat to take account of this anomaly¹⁰. Over time, the methodology has been substantially refined and modified (de Blaeij et al. 2003, Small 2012, Banzhaf 2014), and today the approach generally adopted uses the so-called ‘revealed preference’ technique to estimate the ‘value of a statistical life’.¹¹ The underlying theory is that a person’s willingness to risk losing their life (by driving fast, for example) reveals how much they value their own life. Empirical studies, either of stated or revealed preferences, have been carried out in a number of rich countries and yield a wide range of figures (from below \$US 1 million to over \$US 20 million in 1997). A typical figure for the value of a human life used in transport investment decisions in rich countries is \$US 3 million.

For policy-makers, the merit of the methodology is that it yields a definite figure, albeit within a rather wide range. For economists, the merit is that the methodology is based on a rational argument about revealed preference. But how many policy-makers understand the argument? Who, if any, have questioned the theoretically very challenging claim that the money value that a person places on their own life is accurately measured by their ‘revealed preference’ in risk-taking behaviour?

Valuing nature

The influence of the economist, and market thinking, with regard to nature has gradually increased over time. In this process, nature has become a resource – an ecosystem that provides humanity with ‘ecosystem services’. These services are then valued in money terms by methods devised by environmental economists. A very important step in this process was the Millennium Ecosystem Assessment – a

massive collaborative exercise between natural and social scientists. Their report drew the world's attention to the degradation of the environment; but also, very clearly, encouraged the reader to view the issue from the perspective of the economist and the bureaucrat. In one of the world's most prestigious journals, *Nature*, the headline announcing the report reads "Millennium group nails down the financial value of ecosystems" and continues: "The US\$24-million project brought together 1,300 biological, physical and social scientists from 95 countries. The researchers conclude that ecological threats can only be held in check if governments start to assign proper economic value to the benefits they obtain from natural systems" (Giles, 2005)

In recent decades there has been a further development, from valuing the environment in money terms to creating financial incentives to protect it through 'payment for ecosystem services' (PES), based on the estimated monetary values of these services. First applied in New York, this approach spread to Costa Rica and later to the rest of Latin America and many countries in Asia and Africa. The economic way of seeing the world is thus realised through, and strengthened by, the associated practice. The development of ideas moved from the academic world of journal articles and economic textbooks to the practical world of laws and conventions, following numerous conferences and commissions, and the activities of international agencies such as the World Bank.

In Costa Rica, the government pays landowners for not cutting down trees, in recognition of the 'bundled services' that trees provide: water retention, biodiversity conservation, carbon sequestration and natural beauty. Thus the value of 'nature' is divided into component parts, and the economist is called in to put a money value on each. Quite apart from the questionable validity, from an ecological point of view, of separating out these interrelated 'services' – what the ecological economist professor Richard Norgaard has referred to as a 'complexity blinder' (Norgaard, 2010) – there is the challenging question of how to value these different services. Here too, economists have devised sophisticated valuation methods. There

are in fact several different ones to choose from, typically yielding significantly different results. I will briefly summarise them.

The contingent valuation method (CVM) involves asking people how much they would be willing to pay for a service, or how much they would have to be compensated to accept the loss. The hedonic pricing method (HPM) estimates the value of, say, a natural amenity by comparing the market value of houses which have the benefit of that amenity with houses which do not have such a benefit but are alike in all other respects. The travel cost method (TCM) assesses the value of, say, a beauty spot by measuring how much people pay (in time and travel costs) to access it. The production factor method (PCM) is based on the contribution that an environmental service makes to the production of marketed goods. Thus, for example, the economic benefits of improved water supply are measured by the increased agricultural revenues that follow. The averted behaviour method (ABM) assesses the value of improved water supply by reference to the expenditure that would otherwise arise for people having to purchase bottled water.

In summary, economists have shown considerable ingenuity in devising alternative ways of estimating the value of nature. This has been partly in response to legal cases relating to compensation for environmental damage. Indeed the contingent valuation method (CVM) was a 'relatively obscure technique' (Kling, Phaneuf and Zhao, 2012) until it was used in the infamous *Exxon Valdez* case, the ship that ran aground in Alaska in 1989 releasing 250,000 barrels of oil that caused massive environmental damage. "A contingent valuation study of the damages from the *Exxon Valdez* spill generated an estimate of \$4.9 billion in lost economic value. In contrast, a recreation demand study of the damages from the spill yielded an estimate of \$3.8 million" (Ibid, 4). The thousand-fold difference between these two estimates is due to the contrast between calculating 'passive use' value (the value of an amenity simply because it exists) or the value based on loss of actual visits made to the site. (loc.cit). The figure actually paid out by Exxon was about \$1 billion in damages and over \$2 billion in restoration expenses.

The scale of this natural disaster pales into insignificance by comparison with the effects of climate change. Here too, economists have played a central role in translating the forecasts of natural scientists into estimates of potential economic costs (and in some case benefits). But here the impacts extend over an infinite period, affecting not only those who make the calculations but - even more so - future generations. This creates a major challenge for economists, and others.

Valuing Future Generations

In the examples discussed above it is necessary to take account of the fact that costs and benefits are spread over time. Thus, for example, if a new road is built it may be appropriate to evaluate it over its thirty year 'life'. This is, by economists, dealt with by the application of a discount rate: benefits and costs occurring in future years are converted to a present value by discounting them at some selected annual rate. In other words, a lower value is placed on costs and benefits which occur in the future: the further distant they are in time, the lesser their value. (This is why, to oversimplify, one can earn interest - even allowing for inflation - on money deposited in the bank).

The discount rate generally recommended by economists is based (roughly) on the market rate. This figure - around 6% per year - has the effect of rendering the concerns of future generations virtually insignificant. (The 'present value' of \$1,000 accruing in 100 years, discounted at 6% per year, is less than \$3). In assessing the effects of climate change, the economist Nicholas Stern, in his very influential report¹², recommended a lower discount rate than the standard rate adopted by economists. If one uses this lower discount rate, future costs and benefits increase more than one hundredfold. The arguments for and against a low discount rate are quite complex, but they deserve more detailed discussion since they reveal the sort of sophisticated debate which occurs within the economics profession - but does not extend beyond this specialised group, to policy-makers and the general public.

The theoretical justification for discounting the future is in fact rather more complex than simply referring to the market rate of interest, and includes factors such as risk, and the expectation that future generations will be richer¹³. With growing concern about sustainable development, there has in recent years been a rather active debate as to what discount rate should be used, with some favouring the adoption of a much lower or even zero, discount rate. This debate became especially lively following the Stern report. I shall not try to summarise its results, but focus solely on the question of discounting, and how Stern's approach has been received by economists. For a representative, and authoritative, source of mainstream economic reaction the most appropriate source is the *Journal of Economic Literature* which, in September 2007, published reviews by two leading experts, Nordhaus and Weitzman. Their views are very similar, and deserve to be quoted at some length. I begin with Nordhaus, who notes that the Stern Review "clearly and unambiguously" concludes that "we need urgent, sharp, and immediate reductions in greenhouse gas emission." (Nordhaus, 2007: 701) However, he asserts:

"The Review's radical revision of the economics of climate change does not arise from any new economics, science, or modelling. Rather, it depends decisively on the assumption of a near-zero time discount rate combined with a specific utility function." (Nordhaus, 2007: 701)

This is quite true. The review is, I would suggest, based on an ethical judgement about our responsibilities to future generations, and on claims that this, not the market or 'positive' economic theory, should be our guide in taking the necessary steps.

Nordhaus almost ridicules Stern:

"The Review takes the lofty vantage point of the world social planner, perhaps stoking the dying embers of the British Empire, in determining the way the world should combat the dangers of global warming. The world, according to Government House utilitarianism¹⁴, should use the

combination of time discounting and consumption elasticity that the Review's authors find persuasive from their ethical vantage point." (Nordhaus, 2007: 691)

And he seems to claim that moral judgement has no more of a place in economics than it does in the natural sciences:

"This approach does not make a case for the social desirability of the distribution of incomes over space or time of existing conditions, any more than a marine biologist makes a moral judgement on the equity of the eating habits of marine organisms in attempting to understand the effect of acidification on marine life." (Nordhaus, 2007: 692)

He concludes that "The Review's unambiguous conclusions about the need for extreme immediate action will not survive the substitution of assumptions that are more consistent with today's marketplace real interest rates and savings rates." It is interesting, I suggest, that he takes for granted that the discount rate of the marketplace should be taken as guide.

I turn now to Weitzman, who demonstrates very clearly why the choice of discount rate is so crucial:

"Global climate change unfolds over a time scale of centuries and, through the power of compound interest, what to do now is hugely sensitive to the discount rate that is postulated. In fact, it is not an exaggeration to say that the biggest uncertainty of all in the economics of climate change is the uncertainty about which interest rate to use for discounting. ... This little secret is known to insiders in the economic of climate change, but it needs to be more widely appreciated by economists at large." (Weitzman, 2007: 705)

The theory is complex and need not be presented here. He proposes as a "point guess-estimate" an annual rate of 2% each for discounting utility and discounting

consumption, and the same figure for ‘a measure of aversion to interpersonal inequality and a measure of personal risk aversion’.” (Weitzman, 2007: 706) These three combine to give an aggregate figure of 6% per year. This contrasts with the Review’s figure of 1.4%. Such is the power of compound interest that, as he points out: “the present discounted value of a given global-warming loss from a century hence at the non-Stern annual interest rate of $r=6$ per cent is one hundredth (italics in the original) of the present discounted value of the same loss at Stern’s annual interest rate of 1.4 per cent. (Weitzman, 2007: 708) In brief, on the basis of Stern’s figures, the cost of global warming a century hence is 100 times greater than that calculated by the figures proposed by the author - “what most economists might think are decent parameter values” (Weitzman, 2007: 707)

Weitzman seems to be rather more willing than Nordhaus to recognise that the Review is not, and should not be, a purely economic document:

“The Stern Review is a political document ... at least as much as it is an economic analysis and, in fairness, it needs ultimately to be judged by both standards. To its great credit, the Review supports very strongly the politically unpalatable idea, ... that ... substantial carbon taxes must be levied.” (Weitzman, 2007: 723)

His objection is that the Review “predetermines the outcome” by adopting a very low discount rate. (He argues instead for an intermediate discount rate of 2 – 4 per cent). He refers to the Review’s “urgent tone of morality and alarm” and criticises it for not more openly revealing that its conclusions result from adopting ‘discount rates that most mainstream economists would consider much too low.’” (Weitzman, 2007: 724)

In summary, these two ‘mainstream economists’ appear to believe that their views about the correct discount rate to use – and by implication the significance which we attach to the interests of future generations – should be paramount. This, and the foregoing examples, demonstrates the crucial role that the market often, but not

always, plays in such calculations. This is not to say that economists necessarily believe that the market reveals the 'true' value of anything. Indeed it may well be that politicians and bureaucrats have a greater faith in it than economists. But many of the methods used in SCBA may be described as being based on a 'quasi-market'; in other words, they seek to establish what would be the market value of a good or service if it were sold on the market.

Safety in Numbers

According to Hirschman and Berman (2014) "Every sociologist, anthropologist and political scientist knows that economics is the most politically influential social science ... (but) ... Every economist, on the other hand, knows that such influence is extraordinarily limited, when it exists at all. From the Euro crisis to climate change policy, politics ultimately outweighs economic expertise, even when economists speak with one voice. These discrepant interpretations are almost caricatures. But they raise an important question: how does economics influence policy?" (779).

I would suggest that for the policy-maker the attraction of economists is that they are willing to give them a number. Without a number how can they justify their decisions?¹⁵ How can they present a compelling argument as to why it is worth expending some millions of dollars on a road, or the protection of an area of outstanding beauty? As the examples discussed above illustrate, however, the numbers that economists come up with are very far from precise. The extent of inaccuracy ranges from a factor of 10 in the case of time savings, through 100 in the case of future generations, to 1,000 in the case of the *Exxon Valdez* oil spill. And the methodologies employed in these calculations are surely not understood by the great majority of policy-makers that make use of them to justify their decisions. How can this be? On the side of the policy-makers the answer, I suggest, is that it is not in their interest to explore the uncertainty underlying the numbers that economists come up with. If the calculations led to conclusions that were manifestly unacceptable then the policy-maker would presumably ignore them. But as long as

the conclusions appear 'reasonable' then it is best not to ask too many questions. But what about the economists? And others?

Turning first to economists, it may be helpful to distinguish between practising and theoretical economists. The former are to be found in the field of transport planning, for example. Here they adopt methods that are based on earlier work by theoretical economists, tried and tested in repeated practice. These methods have been found to 'work' in two senses. First, it has been possible to apply them in practice: the necessary data have been available, or obtainable at reasonable cost; and the calculations readily undertaken. Second, the resulting conclusions have proven acceptable by the policy-makers who commissioned their study. There have no doubt been bumps along the road, but a standardised practice has been established acceptable to all, and passed on to new recruits. While challenging questions are perhaps asked in the early days of application of a new technique (and may again be asked by new recruits), these rapidly fade away. There is thus 'safety in numbers' in a second sense: that everybody follows the same practice and shares the same expert knowledge.

The theoretical economist has played a rather different role; contributing articles to academic journals that test out and even challenge existing methods, and seeking to invent new ones. The case of valuing nature, described above, illustrates the creativity of economists in this regard. In an academic article, the concern of the economist is typically not so much whether the method being explored produces the 'right' answer, or reveals the 'true' value; interest is focused more on the rigour of the argument and (usually, but not always) the feasibility of applying the method. Academic economists are certainly aware of how difficult it is to place a money value on environmental damage, but they may never be faced with the challenge of doing so in practice.¹⁶ Weitzman, quoted above, asserts that the 'little secret' about the discount rate 'needs to be more widely appreciated by economists at large.' But economists have not been particularly active in spreading the word.¹⁷

What about 'others'? What emerges from the foregoing pages is surely an example of expert knowledge, and the exercise of structural power "that not only operates within settings or domains but that also organizes and orchestrates the settings themselves" (Wolf 1982: 586). Why is this not being challenged - by activists or the media? The answer is that specific manifestations of this expert knowledge are indeed challenged: for example the findings of a report that concludes that fracking may be permitted in some specific location; .but the methodology itself is generally not. The World Bank as an organisation is frequently the object of attack by activists and, more specifically the decisions taken. But this is not quite the same as attacking the methods used by World Bank staff for taking these decisions: seeking to reveal their very considerable weaknesses. Critique rather takes the form of political resistance at local level: what might be called a clash between knowledge regimes in its most extreme form. The sort of expertise described in this article is global in the sense that it is embodied in economists who are trained in a limited number of elite universities spread across the world, but predominantly in rich countries; who read and contribute to the same journals and share similar views about what counts as legitimate knowledge. One important component of their world-view is the possibility, even imperative, of playing down the local: of seeking to generalize: minimizing the significance of context. Theirs is a totalising knowledge, based on a largely taken-for-granted faith in the power of numbers and rigorous analysis.

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¹ 'Overheating: The three crises of globalisation' (www.uio.no/overheating) is a research project which looks comparatively and ethnographically at local responses to accelerated change.

² The preference for Christianity among Zomia communities is a significant feature of Scott's (2009) treatment of their strategic religious affiliations.

³ As part of the ERC-Advanced-Grant project 'Overheating. The three Crises of Globalization', I have conducted seven months of field research in Subic Bay, where between September 2013 and April 2014 I explored the impact of the South Korean shipyard on the communities nearby.

⁴ The Aeta are an indigenous group who live in the highland areas of Central Luzon; their hunting-and-gathering skills were particularly sought after by the US Navy, who established a Survival skills Center inside the Subic Bay naval base, where Aeta instructed soldiers during the cold war – see Schober 2016c.

⁵ During my field research, for instance, 640 arrest warrants were issued in Olongapo, the city I stayed in, with these individuals being accused of stealing their electricity (cf. Garcia 2014).

⁶ Much could (and should) be said about the changes in energy policy under new president Rodrigo Duterte. However, in this article, I have limited myself to pre-2016 occurrences.

⁷ I knew all about this from countless summers down the Norwegian coast, and as a matter of fact, Queensland mudcrabs bear an uncanny similarity to the North Atlantic crabs that coastal Norwegians typically eat with lemon and mayo during the warm months.

⁸ The clip can be watched here: <http://www.youtube.com>

⁹ In early 2014, Arrow Energy decided to postpone the construction of its plant for economic reasons.

¹⁰ Controversy arose later with regard to another anomalous situation when, in 2003, the US Environmental Protection Agency (EPA) set a lower value for the value of life of elderly citizens than for younger citizens, to account for their fewer remaining life-years. "Popular outcry against this 'senior death discount,' given full voice in the US Congress, forced the EPA to retreat". (Banzhaf, 2014)

¹¹ In other sectors, the more old-fashioned methods may still prevail. To take an example from the water supply sector: "Based on the number of deaths avoided in each age group the value of avoiding these deaths was calculated using the discounted future earnings of people whose lives are saved from each intervention". (Hutton and Haller, 2004:33)

¹² *Stern Review on the Economics of Climate Change*, the enormously influential 700-page report written by ex-World Bank Chief Economist Nicholas Stern for the British Government. (Stern, 2006)

¹³ It is seldom considered that they may be poorer.

¹⁴ A reference to Sen and Williams (1982: 16)

¹⁵ Note: Hirschman and Berman do not argue that other social sciences are more powerful than economic; rather, it is politics. And politicians can to some extent pick and choose among the numbers that economists come up with.

¹⁶ They are also aware of the severe methodological challenges involved in making a social choice which adequately reflects the different preferences of the individuals concerned- at least since the publication of *Social Choice and Individual Values* in 1951, by Kenneth Arrow, later winner of the Nobel prize in economics, in which he set out the so-called 'Impossibility theorem'.

¹⁷ I am not here suggesting that economists are dishonest. Reports by academic economists to policy-makers are often hedged about with numerous caveats regarding the limitations of the data, the assumptions made etc. But these can too easily be brushed aside by the policy-makers who – quite understandably from their point of view – are averse to complexity and want simple and clear answers.