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HUANG, Y.-C., FAN, M.-F., YANG, C.-Y. and MABON, L.

2020
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Yi-Chen Huang¹, Mei-Fang Fan², Chih-Yuan Yang³, Leslie Mabon⁴*

1. School of Applied Social Studies, Robert Gordon University, Scotland, UK
2. Institute of Science, Technology and Society, National Yang-Ming University, Taiwan
3. Institute of Sociology, Academia Sinica, Taiwan
4. Scottish Association for Marine Science, Scotland, UK

*corresponding author. E: leslie.mabon@sams.ac.uk

Abstract

This Translations contribution synthesises critical environmental social science research produced in Taiwan and published largely in Chinese. Taiwan is distinctive in east Asia in that it has had, over several decades, a relatively large and prolific community of scholars engaged with environmental justice and sustainability. This research tradition is linked to the emergence of grassroots environmentalism in response to environmental issues faced during Taiwan’s rapid industrialisation, and to the democratisation of Taiwanese society from the 1980s onwards. Fuller understanding of research produced and published within in Taiwan hence yields insights for the role of social science within newly industrialising and democratising nations. Although the story of Taiwanese society’s relation to environmentalism is to an extent understood in English-language literature, less prevalent are the diverse ways Taiwanese social scientists have engaged with environmental issues, the empirical case studies which have shaped their thinking, and the influences of Western environmental sociology and science and technology studies (STS) within Taiwan. By synthesising Chinese-language environmental social science literature from Taiwan, we characterise three strands of scholarship: activism and social movements; environmental controversies; and environmental governance, policy and institutions. We identify (a) the ability of communities and civil societies to affect change from within extant governance processes and (b) the local-level implications of national sustainable development rhetoric as two areas where Taiwanese scholarship may make particularly valuable contributions to work at the sustainability-environmental justice interface.
Keywords: democratisation; environmental justice; environmental sociology; science and technology studies; Taiwan

1. Introduction and context

This translation piece introduces the rich body of critical environmental social science literature which exists within Taiwan and is published largely in Chinese. Within East Asia, Taiwan has a comparatively strong environmental social science tradition, especially as regards study of social movements and science and technology studies (STS) perspectives on environmental controversies. Environmentalism in Taiwan has to an extent already been covered within English-language texts (see for example Grano, 2015; Ho, 2018; Hsiao, 2019). These texts are thorough and well-researched, and are highly recommended as an overview of the social dimensions of environmental issues in Taiwan. Yet such texts may miss some of the more in-depth and case study-specific research which is published in Chinese within Taiwan’s domestic social science journals, and which provide nuanced insight into the dynamics of environmental issues within Taiwan. The purpose of this translation piece is hence to clarify the key trends, thinkers and iconic case studies within Taiwanese environmental social science.

The development of a strong environmental social science tradition within Taiwan requires contextualisation within the country’s development trajectory. Following the retreat of the Kuomintang from Mainland China in 1949, development in Taiwan under Martial Law followed a United States/‘Western’ model. Such high-intensity development over a short period of time created Taiwan’s ‘economic miracle.’ Yet the emergence of serious environmental problems from the 1960s onwards indicated that local environments were being sacrificed to boost national economic growth. Environmental movements in Taiwan emerged from the grassroots level in the 1970s, and were subsequently taken on by the middle classes - a large proportion of whom were educated in the United States in the 1980s. Following the end of Martial Law in 1987, the Environmental Protection Administration was established in response to environmental problems, and Taiwan’s democratic transition in the 1980s to 1990s lessened state control and enhanced environmental governance. Yet despite this increasing environmental consciousness, Taiwan’s environmental concerns arguably remain inferior to economic growth among decision-makers. There remains strong belief in the objectivity of science to guide environmental decision-making, at the risk of neglecting social or cultural factors. Nonetheless, as outlined in Sections 2 and 3,
scholars and domestic regulations are placing increasing attention on considering social impacts
within environmental issues.

2. Environmental social science in Taiwan and its relation to the wider field

Taiwanese scholars have broadly engaged with issues of environment and society in three ways,
which are of course not mutually exclusive. These different pathways speak to – and reference
texts from – established traditions in the wider global environmental social science literature.

The first stream concerns environmental activism and civil society movements. This thread of
scholarship is linked to the grassroots emergence of environmental movements in Taiwan in the
1970s, specifically concerns with NIMBY syndrome and local protest against unwanted facilities
(Chiu, 2005; Ho, 2006; Lii and Lin, 2000). This area of research has also been interested with
the subsequent professionalisation of these grassroots environmental movements, through for
example engagement with law professionals and academics (Hsiao, 2019; Lii and Lin, 2003).
This stream is mainly connected to sociology and political science, with key thinkers including
Hsin-Huang Michael Hsiao and Ming-Sho Ho. Recent scholarly connection with environmental
activism and civil society movements in Taiwan has included the Fourth Nuclear Power Plant
Abolishment Movement (see English-language overview of Ho (2018)); social transitions within
water resource governance via the Jiji and Dadu Dams (Chou & Zeng, 2017); and the engagement
of STS scholars in the court hearing on toxic exposure in the Radio Company of America legal
case (Jobin & Tseng, 2011; Jobin, Chen & Lin, 2018).

The second stream relates to environmental controversies, with a strong focus on environmental
and land justice, and on sustainable development. In the Taiwanese context, environmental justice
relates to indigenous land issues (Chi, 2005; Lin, 2015); localised effects of developments on
marginalised communities (Huang & Hsu, 2017); climate change risks and the transformation
challenge of high carbon society (Chou, 2019); and civil society participation in environmental
monitoring and assessment processes (Ho, 2010). This strand of scholarship has roots in sociology,
political science, STS, legal studies and environmental law. Influential scholars in this field
include Chun-Chieh Chi, Juju Chin-Shou Wang, Kuei-Tien Chou and Mei-Fang Fan. Iconic case
studies associated with environmental controversy scholarship in Taiwan include radioactive
waste storage on Orchid Island (Fan, 2017); the planned building of National Glory petrochemical
complex on the coastal area (Lee, 2014); advocacy for a national trust for wetland conservation
A third stream concerns *environmental policy, governance and institutions*. Within this there is a strong interest in the political and social dimensions of environmental impact assessment (Tang, 2000), and in critical assessment of the mass employment of expert advisory schemes within Taiwan as a means of resolving environmental issues (Tu, 2012). Scholarship in this field is rooted in public administration, political science, environmental planning and land economics and policy; with key thinkers including Ching-Ping Tang, Wen-Ling Tu, and Tze-Luen Lin. Examples of how Taiwanese scholars have engaged with these issues critically include indicators and policy for intergenerational justice and sustainability in Taiwan’s responses to climate change (Hsu, Chi, & Hsiao, 2016); challenges of institutional arrangements for governing local common-pool resources and importance of governmental support to indigenous conservation programs (Tang & Lu, 2002); limitations of energy governance and institutional arrangements for rooftop solar PV systems in Kaohsiung (T.-L. Lin & Lee, 2017); evaluation of how local political and social factors can constrain local-level environmental protection practices in Taipei and Kaohsiung (Tang, 2002); and disputes over the environmental impact assessment (EIA) for the third stage of the Central Taiwan Science Park Development (Tu, 2010).

Common across these strands is a background in *democratisation* and its relation to environmental issues, especially as regards civil society participation, the rights of marginalised groups, and the role of expert involvement in decision-making. These different traditions also have a common methodological interest in techniques with a qualitative focus, for instance document analysis (Hsiao, Jou & Huang, 2017); interviews (H.-N. Lin, Wang, & Taiban, 2016); and case study approaches (as exemplified by Chiu (2018) on the electronics industry and chemical regulation in Taiwan). Moreover, it is worth noting that a number of the scholars listed above have PhD training in either the United States or Europe within social science and STS traditions.

This training of a number of Taiwanese environmental social science scholars in a ‘Western’ setting may be reflected in the links within the Chinese-language literature to concepts and thinkers from a North American and European tradition. Work on environmental justice, for example on indigenous and marginalised community issues (Fan, 2016), links to and cites the thinking of David Schlosberg (2007) and also Gordon Walker’s (2009) distributional analysis and impact assessment. Chinese-language scholarship from Taiwan on environmental controversy
likewise draws on notions of citizen science (Fan & Chiu, 2019; Tu & Shih, 2019); in particular Brian Wynne's (1996) seminal work on local knowledge and Cumbrian sheep farmers (cited in Fan & ZhangJian, 2014); and also Sheila Jasanoff (2003) on citizens having a right to knowledge (cited in Tsai & Fan, 2014). Within the Taiwanese research into environmental governance and controversy, the interest in procedural justice also borrows from Gwen Ottinger's (2010) research into procedural justice and knowledge gaps (cited in Fan, 2014; Tu & Shih, 2014).

In sum, Taiwanese environmental social science has a core interest in how democratisation impacts upon the dynamics of environmental issues, and how the pursuit of environmental rights and a liberalised political and legal system can constitute a mutually informing relationship. The research reviewed above has a strong qualitative and empirical focus, drawing heavily on case study-based approaches to site-specific environmental issues within Taiwan. Nonetheless, this body of Chinese-language work is conceptually rooted in - and refers to - ideas of environmental justice (distributional, procedural and recognitional), local knowledge, citizen science, and the rights of citizens to knowledge published in English and originating in a ‘Western’ academic context. As above, this may in part be explained by the exposure of many of the current generation of Taiwanese environmental social scientists to ideas of STS and environmental sociology through doctoral study in the US or Europe.

3. How and why insights from Taiwanese environmental social science are of interest to Local Environment readers

Recent English-language texts recognise the value of the Taiwan case to international study of environment, sustainability and justice. Taiwan exemplifies the challenges a successfully industrialised economy faces while transitioning towards less predatory and exploitative development course (Grano, 2015), particularly as regards social movement dynamics, civil society organisations, democratisation and the emergence of middle class (Hsiao, 2019). As such, Ho (2017) argues that understanding the processes behind increased citizen expectations on environmental matters has much wider relevance to newly-industrialising or emerging markets and to recently democratised countries.

Nonetheless, Local Environment has carried only a relatively small number of articles with an empirical focus on Taiwan. For example, Fan (2006) on justice concerns associated with the siting of radioactive waste facilities on indigenous land, and Kang & Lafond's (1998) critical evaluation
of the utilisation of cultural resources and community involvement within local development planning in Taiwan. Yet as Section 2 illustrates, a rich body of empirically-driven yet conceptually-grounded literature exists within Chinese-language social science journals in Taiwan. This literature offers additional explanatory purchase and granularity in understanding the contours of environmental controversies and their governance within a recently industrialised and democratised country context. Moreover, given the conceptual commonality and indeed crossover with key thinkers and seminal texts from the English language, the body of Chinese-language work from Taiwan provides a base for rigorously assessing the applicability of science and technology studies and environmental sociology ideas outside of the Western context in which they emerged.

We illustrate two ways in which insights from the Chinese-language texts reviewed in Section 2 can nuance and build on what is written in English language texts. First is Wen-Ling Tu's (2010) analysis of the EIA review process for the third stage of the Central Taiwan Science Park. Whilst the EIA for the project was passed, protest was raised by publics and EIA commissioners over the speed at which the EIA was conducted, and controversy over national and local policy for environmental protection remained. The question of how laws and policies can enshrine effective participation within environmental assessment processes is already the subject of much interest (e.g. Pettersson, Stjernström, & Keskitalo, 2017). Yet Tu’s analysis brings to the fore the potential for publics and civil society members to develop strategies to raise their concerns within existing fora (in this case by attending all related meetings); and to attain outcomes perceived as more satisfactory (in this case demanding the developer to hold public meetings, form environmental monitoring groups, and conduct health risk assessment to enhance its communication with local residents) as a result. Tsai & Fan's (2014) assessment of the KaoPing Great Lakes Project likewise outlines how local residents, civil society groups and experts formed an alliance to develop and propose an alternative water resource management strategy to that put forward by Taiwan’s Water Resources Agency. Amidst criticism of the ability of EIA processes to take into account non-expert concerns (Saikkonen, 2013), empirical research from Taiwan illustrates the agency of citizens, communities and independent experts to facilitate change by working within existing systems and structures.

Second is Huang & Hsu's (2017) reflection on the Dapu incident – a protest against the development of a science-based industrial park which was argued to have detrimental effects on neighbouring and already disenfranchised communities. Huang & Hsu argue that whilst the park,
and the national spatial planning system within which it is embedded, are developed under the goal of sustainable development, this has the effect of sidelining rights and justice concerns at the local level for already marginalised peoples. Building on understandings of the need for more nuanced attention to scale within environmental justice thinking (Beebeejaun, 2019), the Dapu incident demonstrates in a very empirical way how in a newly emerging economy context, national-level sustainability objectives can conflict with local conceptualisations of sustainability and justice. Moreover, the Dapu incident and also the controversy over indigenous opposition to nuclear waste disposal on Orchid Island (Fan, 2017) demonstrate how national-level ideas of planning and policy in the name of progress and sustainable development may run up against indigenous world views; and also reflect the effects of colonisation on knowledge, continuity and land management issues (e.g. Stocker, Collard, & Rooney, 2016).

4. Conclusion

Whilst a significant proportion of environmental social science research published by Taiwanese scholars in Chinese-language journals is focused on Taiwan-specific case studies, this does not mean the research is not of international interest or significance. Section 2 illustrates how such research has been heavily informed by – and feeds back into – thinking from STS (and environmental social science more broadly) which is already well known in the international research community. Indeed, Section 3 shows that insights from in-depth and case-specific research within Taiwan can contribute learnings to extant English-language thought, especially as regards indigenous and marginalised people’s land issues and the politics of environmental impact assessment processes. Taiwan’s vibrant domestic environmental social science community means the country has a corpus of knowledge on the interface between society, environment, democratisation and industrialisation, which has significant value to analogous settings globally.

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