8

CHINA

The economic shock of a green transition in Hebei

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Introduction

China's past three decades of rapid economic growth have brought many out of poverty and expanded energy access considerably. China is today the world's largest energy consumer by volume (IEA 2013). But much of this expanded energy access has been achieved by burning coal: in 2012, around 76.5% of energy production and 66.6% of energy consumption in China came from coal (China Statistical Yearbook 2013), a highly polluting and carbon-intensive fuel. The period has therefore also seen grave costs to the environment and public health. Recent scholarship found that the Beijing-Tianjin-Hebei (BTH, referred to in Chinese as Jing Jin Ji) region experiences severe urban air pollution episodes throughout the year, and especially during the winter heating season. One of the major contributors is coal burning (see, e.g. Wang et al. 2015; Zhang et al. 2017). Beyond such striking, direct effects on human health, China's energy mix lies at the core of a litany of interlocking health, environment and social challenges, from pressures on water supplies to worker safety – and, perhaps most prominently in the international arena, global climate change (Zhang et al. 2017).

Climate change will have highly uncertain and potentially hazardous effects in China, particularly on energy, water and food security. For example, there is the potential for severe water shortages and more flooding disasters. Decades of export-oriented growth mean China's eastern seaboard cities are particularly vulnerable to climate change and sea-level rise, with warming potentially increasing the frequency and level of inundation in delta megacities, such as those in the Pearl River Delta, due to storm surges and floods from river drainage, potentially affecting residents and damaging critical infrastructure in heavily

industrialized low-elevation coastal areas (McGranahan et al. 2007). These hazards – like many others, from desertification to water scarcity – are known to have uneven social effects (Zoleta-Nantes 2002) and will disproportionately affect the poorest in society. Therefore, efforts to move China away from high-carbon energy pathways and towards large-scale low-carbon energy access are a crucially important aspect of achieving a transition that addresses climate change and meets the needs of the poor.

The second largest producer of CO₂ (and another direct contributor to particulate air pollution) is the cement industry. Since 2007, there has been a wave of cement plant closures in the provinces surrounding Beijing. This has led to a rapid increase in structural unemployment, in particular for the large number of rural, informal labourers that lack labour contracts. This process of plant closure has escalated since 2013 when the State Council issued a demanding policy on pollution control, which was followed by a series of implementation rules throughout the Beijing-Tianjin-Hebei metropolitan region. By focussing in on the laid-off workers in a local area within this region, this study engages in the social dimensions of green transformation in order to provide a more holistic picture of the transformation for sustainability (Jiang et al. 2018). Currently, social impacts are rarely taken into account in the process of green transformation in China, and a positive step would be to include social impacts into governmental decision-making, something we explored in our T-Lab.

In China, cities represent a higher level division of administrative than townships. Our T-Lab activities took place in a particular township (anonymized here as Township L) within a city (anonymized here as City S) within the Beijing-Tianjin-Hebei metropolitan region. At the outset of the project in 2015, there was not a wide recognition of the problem by different groups. Among the general public, laid-off workers' interests have been largely neglected. Therefore, there has been no reported resistance against being laid-off without any compensations in any form from the laid-off workers, which failed to appeal to public attention. Likewise, within civil society it was overwhelmingly environmental NGOs that engaged with green transformation-related issues. These NGOs were not interested in protecting the economic interests of any particular group of people and therefore the problem was rarely acknowledged in civil society. Within the global research community various aspects of China's systemic green transformation have been analysed, including innovation (Tyfield et al. 2015), political economy (Schmitz 2016) and narratives (Geall and Ely 2015). However, the social impacts of the country's rapid transformation, and in particular social justice implications for poorer and marginalized groups, have largely remained unstudied.

There has been significant conflict within China over this issue. During the last decade, China has released a series of environmental policies which are more restrictive in terms of environmental protection. The implementation

of these policies has forced the traditional heavy industries to shut down, especially in the provinces and regions close to Beijing. Tens of thousands of workers were laid-off in this process and their interests were not addressed by policy-makers. This led to a major conflict between the implementation of environmental policy and the interests of lower-class people who were laid-off. Despite this conflict, there has been some media interest; however, this was only reported in a small number of English websites, with few case studies. While there is not a collective sense of urgency for change, there is an opportunity for transformation, starting at the individual level as people become conscious of the issues. The problem is complex, with a lot of stakeholders with different needs, interests and concerns. Further, there is no clear solution and as of yet (at the time of writing – November 2019) there have been no major initiatives to provide alternative solutions.

The hub has been working with the problem since August 2015, when Yang Lichao visited L Township for the first time. Before the first T-Lab, we organized three visits to L Township in August 2015, October 2015 and September 2015. These visits included both participant observation and conducting 55 in-depth interviews with various local actors on this issue. This allowed us to form links with key actors including local government officials, laid-off workers, NGOs, media, scholars and plant owners.

More recently, the government has openly recognized the problem. The Party Secretary at the L Township was anxious to explore pathways towards sustainable livelihoods for laid-off workers in his region, and central government has issued a political command of “creating employment opportunities for local people” (Hao 2018) for both the district and city level. This acknowledgement has been relatively centralized, and according to our fieldwork conducted in 2015 and 2016, local government officials rarely communicated with other actors and stakeholders about this issue.

Theory, research and action

In our initial investigation of the problem space, we conducted Participatory Impact Pathways Analysis (PIPA) to characterize the actors and stakeholders related to the problem, and to assess the alignment and power of these actors. Government (at national and local levels) were seen as the most powerful actors (see Figure 8.1). In terms of their alignment to the research team’s vision for transformation, this started off as being lower than other actors such as academia, civil society or private sector.

It is difficult to influence policy-making in China. We therefore invited multiple stakeholders involved in the problem, based in part on the PIPA exercise, to engage in our T-Lab. We wanted to stimulate awareness raising by placing local government officials in a space where they could directly communicate with the other stakeholders, in particular the laid-off workers.

Our project design was not to enact direct policy change through interventions, in part due to China's specific political background. However, we expected to stimulate and foster changes in knowledge, capacity and awareness of multiple stakeholders, mainly through T-Lab. We observed that we had raised the awareness of local government officials and had moved actors to both internalize the issues at hand and interact with one another.

Our guiding question in the design of the T-Lab has been: what new district government policies can be used to support laid-off cement workers in L Township?

By promoting dialogue and understanding among the different groups, the T-Lab workshops aimed to develop more sustainable pathways that would benefit different stakeholders. During the workshops, participants analysed and discussed: the impacts of green transformation on different people; their major concerns with the green transformation process; the challenges and opportunities that green transformation has brought to different actors; women's triple roles; and the major changes between pre- and post- green transformation. The discussion covered both the big picture of the impacts on different groups and the individual households at a micro-level. Some specific suggestions were proposed in the first T-Lab workshop, such as providing occupational training to laid-off workers so that they could learn new skills. We observed some change in the government actors during the interviews since the first T-Lab workshop. For example, the bureau of human resources and social security provided training opportunities to the laid-off workers after they had taken part in our first T-Lab workshop. They organized some training programmes over 2017–2018, including welding and domestic services, which have directly helped some laid-off workers find employment.

While the T-Lab could not create any job opportunities for laid-off workers in itself, it did provide an opportunity for different stakeholders to work on the same issue together, with different stakeholders sharing their own experiences and perspectives. In particular, the T-Lab process inspired local government officials to include social impacts in their considerations in the policy-making process. The project therefore primarily focussed on creating a sense of the need for change. Through the T-Lab process we worked towards engaging more stakeholders and actors and brought them together in a safe space for them to develop consensus about awareness of the problem and the challenges/opportunities they are facing.

The T-Lab process (especially the direct involvement of officials in processes of deliberation) was a new approach for our research team, and we learnt from the process as participants ourselves. For instance, we found that our initial plan for a two-day workshop was unsuitable as it is unrealistic for government officials to spend two days participating. Considering the primacy of government officials as stakeholders, we amended our workshop design and decided to hold the workshop for just one day. The T-Lab process ended up being a learning experience for all concerned.

T-Lab workshop 1

Our first T-Lab workshop involved 19 participants, of whom 6 were from academia, 4 were from civil society, 5 were government officials, 2 were from NGOs, 1 was from the private sector and 1 was from the media (see Figure 8.1). We conducted the workshop in S City, Hebei Province in October 2016.

BOX 8.1 POLICY/PROJECT IMPACT SIMULATION EXERCISE

Simulation involves the imitation of real-world processes and may be used in education and training, clinical healthcare or entertainment. Simulation is very useful for educational purposes, particularly often used in training workshops. We used a policy/project impact simulation exercise in the first T-Lab workshop of the China hub. The method had previously been developed within the “Good governance” project in Southwest China by Action Aid, and also used in development projects in Guizhou, China by Partnerships for Community Development.

In the exercise, all participants are assigned roles in a hypothetical community. They stand shoulder to shoulder in a straight line, and hear the facilitator read out examples of imaginary policies that will be applied in that hypothetical local context. Then, based on their assigned role and situation, participants react to each policy by either taking steps forward (if they would expect to benefit from the policy) or backward (if the policy would be personally detrimental to them). After some time, the different individuals – who started at the same position – have accumulated varying positive or negative impacts, readily visible through their position in the room. This method revealed individual experiences of change due to different policy/project implementation, including different impacts on women and men. The China hub’s adapted policy/project impact simulation allowed all participants to have a vivid view of various people in a community that looks exactly like the one they come from/live. We incorporated gender perspectives into the simulation, and also integrated it into the narrative (forward/backward) exercise that illustrated how particular policies had winners and losers.

We used three facilitation methods in our first T-Lab: interviews with different stakeholders; policy/projects impact simulation (see Box 8.1); and narrative sharing from laid-off cement workers. Through the first T-Lab, we found that the government officials had never really faced the laid-off workers’ concerns directly. The T-Lab helped them to really sit together with the workers, so they were able to communicate, hear their voices and experience their emotions, beginning the process of transformation at the individual level. The laid-off workers reflected that it was a great experience to have the opportunity to be heard and to be understood. The T-Lab had helped them to build up a safe space to share their stories. They reported that “they were amazed that some people really cared about their lives”. As most of the participants had never participated in a stakeholder meeting, it took time to get used to talking with one another equally. For instance, the government officials had never attended a meeting together with these different types of people and, therefore, they initially looked uncomfortable to openly discuss in the small groups. This T-Lab provided an opportunity to build up a channel for communication. In our evaluation of the

first T-Lab workshop, we agreed that we would have liked to invite more female participants, particularly female laid-off workers, and better prepare the policy / projects impact simulation to give a more explicit gender-focus (see Box 8.2).

To move between the two T-Lab workshops, we started by collecting participants' expectations for the second workshop. This included introducing more cases of green transformations, conducting field visits; conducting a case study and providing the research results/outputs to decision-makers. We initially went back to S City for a three-day field trip in December of 2016 to re-interview participants and other laid-off workers. We were trying to figure out the main reasons for the relative silence of laid-off workers' after the factory shutdowns, and the laid-off workers' resilience in terms of their livelihoods. The research report was written up and shared for the second T-Lab workshop. We then prepared and submitted research proposals to the Forum on Health, Environment and Development (FORHEAD), and exchanged insights from our research on different forums and platforms engaging in environmental policy and green transformation. We conducted follow-up field trips in late June and early July 2017 to investigate what actions and measures participants took following the first T-Lab. While we did not observe any direct policy changes, we did observe a general raising of awareness in local government officials, which allowed us to focus on further awareness raising in the second T-Lab.

BOX 8.2 THE TRIPLE ROLE APPROACH TO GENDER ANALYSIS

- Draw a "time line" picture that reflects a day in the life of a man/woman. The picture should show the main work or responsibilities that the person carries out from the time he or she gets up in the morning, to the time he or she retires in the evening.
- Table for daily routine work done by women and men:

<i>Work done by women</i>	<i>Time of day</i>	<i>Work done by men</i>
e.g. fetch water/wash	5:00am	Sleep
e.g. kitchen work begins	6:00am	Dress and wash self
...	7:00am	...
	...	

- Categorize the activities as (a) reproduction; (b) productive; (c) socio-cultural
- Identify other roles that are not listed and add these to the chart.

<i>Women</i>	<i>Men</i>
Reproductive and household roles	Reproductive and household roles
Productive roles	Productive roles
Socio-cultural/community roles	Socio-cultural/community roles

(Continued)

Then we asked participants to think about:

- Do both men and women participate in reproductive and household roles?
- Are any of the roles in this category performed by both men and women? Who had the greatest responsibility for reproductive and household roles? Men or women?
- Do both men and women participate in productive roles? Are any of the roles in this category performed by both men and women? Who has the greatest responsibility for productive roles?
- Do both men and women play a role at the community level? Are there roles in this category that are performed by both men and women? Who has the greatest responsibility for community roles?
- Which roles in the community carry the most status? Are these performed mostly by men, by women, or by both men and women?
- Which roles are the least respected? Are these roles performed mostly by men, by women, or by both men and women?
- How have men's and women's triple roles changed in green transformation? Are there any gender differences?
- What are the challenges and opportunities men and women have in green transformation?
- How should the government and NGOs support men/women in establishing new livelihoods?

T-Lab workshop 2

The second T-Lab workshop was conducted in April 2018 in the L Township district of S City, Hebei Province, with the specific purpose of “creating the collective sense of a need for change”. We engaged 20 participants, of whom: four were from academia, one was a government official, five were from NGOs, five were laid-off workers and one was from the private sector (see Figure 8.1).

We expanded on the work done in the first T-Lab workshop by focussing on seeing the system and preparing for a designed innovation. A great deal of the work was on creating the collective sense of a need for change, awareness about the problem and engaging stakeholders (instead of challenging public policy and bringing the change directly). We spent more time getting to know the different stakeholders by conducting field work and paying them visits. It was a significant breakthrough to be able to interview a governmental official from a key government sector, the District Air Pollution Prevention and Control Office. This is a steering team which mainly coordinates the environmental protection work in L Township district. The interview led to their participation in the second T-Lab workshop, during which they were able to engage with other stakeholders.

Moving between the two T-Lab workshops, we found that most of the participants in the initial workshop could not attend the second. Indeed, most of the participants of the second T-Lab workshop were new to multi-stakeholder interactions using a participatory approach, which meant that more time was needed to create a safe space for them to interact. To build this mutual trust, we conducted collective activities, and as a result, they were able to share their stories and opinions in terms of their lives and green transformation. For instance, the female laid-off workers who had been engaged reflected that they were happy to be heard in front of multiple stakeholders and that the T-Lab workshop had provided an opportunity for them to share their lives and expressed their concerns. In addition, they got the chance to have direct engagement with the local authority so that they could understand the development plans of the town where they live. Such information enables villagers to make more informed decisions around their family development. As the first T-Lab allowed us to accumulate experience in multi-stakeholder interactions, during the second we were more skilled in facilitation and promotion of participation.

Lessons from the T-Lab process

Compared with the initial PIPA assessment, which found a broad spread of alignment across potential stakeholders, the two workshops primarily engaged with highly aligned actors. The power of the actors in the workshops was also markedly lower than the average power of actors in the PIPA, which reflected our concentration on local rather than central actors. In terms of specific sectors, academics were seen as more powerful as time went on, and more powerful governmental actors were engaged with in the second T-Lab. A more powerful set of governmental actors, the District Air Pollution Prevention and Control Office, was invited to participate in the second T-Lab workshop, with great success.

We specifically designed the second T-Lab workshop to include more female participants, and in particular female laid-off workers. Therefore, we invited four women laid-off workers and highlighted gender perspectives in the second T-Lab workshop. The main method used in our second T-Lab was gender analysis. Gender analysis is a socio-economic analysis that uncovers how gender relations affect a development problem (Cai et al. 2017). The aim is to show that gender relations will probably affect the solution or to show how they will affect the solution and what could be done. Gender analysis is an important approach to ensure gender equality and women's empowerment.

We incorporated gender analysis into the project design stage, e.g. by identifying the specific needs of women. We highlighted the gender perspectives and gender analysis tools in this workshop and invited more female laid-off workers to participate, ensuring that women's voices were heard. Through the participation of women, we tried to explore women's specific needs in the process of large-scale lay-off.

A key method in our gender analysis was the Triple Roles Approach. The purpose of this was to identify the different roles and gender divisions of labour in the household pre- and post-green transformation. We divided the participants into four mixed groups and let them fill in the chart of “an ordinary day of my family/household” using the Triple Roles Analysis Framework (Box 8.2).

Using this approach, all participants were able to recognize the triple role of women and realize that women have specific gender needs in this process of transformation. In addition, women undertook more responsibilities post-green transformation. In particular they had to take paid work in factories, restaurants, hotels and other informal service sectors. They undertook more productive roles as well as reproductive roles. The participatory discussion concluded that we should ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, because women are undertaking the roles as bread-winners as well as the men.

All of our project activities, including both T-Lab workshops, engaged with a diverse set of actors drawn from those identified in the PIPA. This included local government officials, scholars, media workers, NGOs, laid-off workers and the cement factory managers and owners. Some small businesses that relied on the cement factory to survive, such as restaurants and hairdressers, should also have been involved in the project. Therefore, we interviewed them and also tried to invite them to participate in the T-Lab workshops.

Beyond the workshops themselves, we were able to co-produce knowledge during follow-up field visits and direct communication with those actors. Both of the T-Lab workshops enabled key stakeholders to interact, and we were able to share our research in different academic seminars.

Contribution of the T-Lab to outcomes and pathways

From the beginning of this project, we identified that the problem was not recognized by civil society, the research community, the media or the private sector. Although it was recognized by the government, there had not been high-level discussions and critically, the major stakeholders had not been involved. The locked-in strategy of the government was to provide new working opportunities for laid-off workers by optimizing the investment environment and attracting enterprises from other regions to invest in L Township. However, this had not been successful, and there was little exploration of alternative pathways. The T-Lab process was therefore a window of opportunity to spark discussion between government stakeholders and a diverse set of actors. We believed if enough input were provided by all actors involved, better solutions or alternatives could be found.

The T-Lab workshop could not help the government attract enterprises or create any job opportunities for laid-off workers. However, it provided an opportunity for multiple stakeholders to think about the problem space and reframe it. It was the first time for the system actors to experience this sort of participatory

workshop. As a result, the participants gained awareness of the problem, and created the collective sense of a need for change. They worked together and reframed the problem.

We conducted follow-up field work and observed and recorded the changes following the T-Lab workshops and the interviews. We did observe some change in the government sectors during the interview since the first T-Lab workshop. For example, the Bureau of Human Resources and Social Security provided training opportunities to the laid-off workers (which had been proposed in the first T-Lab workshop), including in welding, and domestic service trainings for women, which has helped some laid-off workers find jobs.

It is hard to identify the extent and nature of change over the short life of a project, or to attribute causality. However, since we are the first group to address this problem and work on it, we believe that our activities have contributed to this change.

Re-framing sustainability challenges

Over the course of the T-Lab, there has been a significant shift in how participants have been thinking about the problem space. The T-Lab workshops increased all stakeholders' awareness of the potential social impact in environmental policy implementation. Local level government officials increased their knowledge and interest in learning about social concerns and crucially, the participants started thinking about how to bring changes for themselves. For example, through the Triple Roles activity, male and female villagers identified their specific challenges in the process of green transformation and clarified their specific needs and presented them to local government officials and others.

The T-Lab workshops provided an opportunity for different stakeholders to work on the same issues together, giving them the chance to reframe the problem at both an individual and group-level. This is key as we believe that real change should be bottom-up, from the individual to group/institutional level, and from the group/institutional to social level.

Innovation and alternative pathways

An important aspect of the work the T-Lab did was to encourage us to provide more information for local governments in helping them mapping out new transformation strategies. Through the process, we helped foster connections with experts in different sectors, such as economists and legal experts. We found that social innovations require the input of all stakeholders, and that building multi-stakeholder workshops with majority-aligned groups can be useful for finding new solutions to complex challenges.

It was important for us to spend time getting to know the different stakeholders throughout the process. We found that bringing together diverse actors contributed a wider set of embodied resources to the project. The diversity of

actors involved in the T-Lab workshops and the safety of the spaces we constructed were instrumental in bringing together local government officials and other stakeholders. This meant that government officials, who are often under pressure to provide new working opportunities for laid-off workers using limited/ineffective strategies, were able to communicate with other actors.

The project produced stronger relationships between us as academics and both government officials and local communities. These networks have developed since the project's inception through bringing in auxiliary stakeholders, such as restaurants and hairdressers that relied on the cement factory to survive. Both these new actors included in the project, and the central stakeholders led to the formation of new alliances.

Specific insights from the disciplines, culture and context of the China hub

The purpose of a T-Lab is – in general – to generate innovations that can overcome lock-ins to unsustainable practices and create seeds of change with the potential to have a transformative impact on the broader society towards sustainability (Olsson 2016). In our case, we applied this approach to an ongoing transformation involving the closing down of polluting factories, but focussed on the challenges of ensuring this was done in a socially just way. We did make the participants aware of this problem and – through the first T-Lab – created a collective sense of a need for change. The participants realized that alternative pathways (especially supporting the laid-off workers) should have been considered before the shutting down, and the policy-making should be more inclusive.

Transdisciplinary research involving academics from different disciplines as well as other stakeholders such as policy-makers, workers and civil society is extremely rare in China and very seldom reported in the scholarly literature. As such, the approach adopted in this project was relatively innovative and path-breaking. The relationship between social science research and policy is also very different to that in the other countries that form the hubs of the “Pathways” transformative knowledge network (TKN). This is illustrated by the collaborative rather than adversarial engagement with policy-makers in the China hub (in comparison to others), and the subtle ways in which individual-level interactions contributed to changing perceptions in decision-makers, possibly influencing wider processes of change.

We believe the T-Lab is a process instead of a “one time” or “two times” events, and – as explained – our engagement went well beyond the two main workshops. The work of the China hub attempted to make the multiple stakeholders aware of the problem, and tried to build up the collective sense of a need for change through the T-Lab process. We also highlighted gender perspectives in the project activities, such as promoting gender awareness and helping the participants to analyse gender relations, which will probably affect the solution. As the only hub that adopted gender as a central focus of our work, we believe

that our experiences are important for the wider network, and for the Transformations community. While it is only one manifestation of the power imbalances that drive particular directions of (transformative) pathways, gender represents an important consideration in both analysis and intervention in our search for transformations that are caring and socially just.

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