Power and environmental conflict: A case study of the Mae Moh power plant in Thailand

Submitted in partial fulfilment of the requirements of the degree of Doctor of Philosophy

by

Nithiwadee Srangnitra

UNIVERSITY OF TECHNOLOGY, SYDNEY
Abstract

Managing environmental conflict is becoming increasingly important. This research explores management’s responses—mediated by the Thai government—to environmental conflict with the local community. The central research question of this thesis is ‘How did the Electrical Generating Authority of Thailand (EGAT) respond to local resistance arising from the environmental impact of the Mae Moh coal-fired electricity generating power station and how did this response demonstrate the unequal power relations of the key players in the dispute?’

This case study monitors the environmental dispute, with the research focusing on documenting the conflict between government, EGAT and the communities during the course of this dispute. Utilising the insights from political ecology theory this thesis looks at the unequal power relations that shape the dynamics of the conflict and outcomes of this dispute and how this has impacted on management’s responses in EGAT. The study has broader implications for understanding contemporary managerial responses to environmental conflict, not only for Thailand.

After the Mae Moh power plant started its operations, local villagers were affected by the emissions released from the power plant, causing the conflict between EGAT and the local residents. The communities had to resort to court action in an attempt to achieve resolution. This dispute involves more than the two main players and is influenced by political forces and traditions in Thailand as well as structures of government and the law.

In order to explore the uneven power relations that shape the contours of and outcomes of an environmental dispute the research design chosen is a single case study of the state enterprise at Mae Moh. It adopts mainly qualitative research instruments based on individual interviews to generate primary data about the conflict and the different perceptions of the major players and the outcomes that were imposed. It also draws on secondary data to provide more independent insights into the dispute.

Two trips have been made to Thailand to conduct fieldwork for this study, when data was collected from both primary and secondary sources. The expected outcome of the research is to make a significant contribution to the literature on management and environmental conflict issues, specifically in the social context of a less-developed country in Asia. While the area of state enterprise-NGO conflict resolution has been explored thoroughly in Western literature, there has been little research in less developed countries such as Thailand.
Acknowledgements

The completion of this thesis would not be possible without the support of the following exceptional individuals and institutions, Professor Jock Collins, Dr. Keri Spooner and Dr. Sarah Kaine who are in my supervisory panel.

Emeritus Professor Tony Moon who has provided continuously unwavering support.

My parents, without whom I would never have been able to begin this academic journey. They have given me unquestionable devotion and support even when I could be complicated at times.

My loving grandparents whom I dearly miss.

My aunts, uncles and Pompom, their love and support have kept me sane while I laboured throughout this endeavour. I have felt their care and concern even when I have been far from home.

The physicians, nurses and Fiona Board at UTS international for taking care of me.

My colleagues who have shared the same trials and tribulations through this adventure.

My interviewees who provided me with invaluable data on which to base my research.

Finally, I cannot emphasize enough how grateful I am to my parents for the positive role models they have set. Their personal excellence and high moral values have continued to inspire me as I push ever forward.
Statement of originality

The work contained in this thesis has not been previously submitted to meet requirements for a degree. The thesis does not include previously published components or written by another author except where due reference is made.

Production Note:

Signature: Signature removed prior to publication.

Signature: C.Nitiwadee Sraonikitara

Date: 09/Oct/16
Table of contents

Abstract ....................................................................................................................................... i
Acknowledgements.................................................................................................................... ii
Statement of originality ............................................................................................................ iii
Table of contents ....................................................................................................................... iv
List of tables .............................................................................................................................. xi
List of figures ........................................................................................................................... xii
Abbreviations and special terms ............................................................................................ xiii

1 Introduction ........................................................................................................................ 1
   1.1 Environmental conflict .......................................................................................... 2
   1.2 Corporate social responsibility .......................................................................... 3
   1.3 The Mae Moh power plant .................................................................................. 4
   1.4 The Thai context .................................................................................................... 5
   1.5 Political connection ......................................................................................... 6
   1.6 The changing social context ............................................................................. 7
   1.7 Western literature ............................................................................................. 9
   1.8 Aims ................................................................................................................ 9
   1.9 Research questions ......................................................................................... 10
   1.10 Methodology .................................................................................................. 11
   1.11 Key findings ................................................................................................... 11
   1.12 Contribution .................................................................................................... 13
   1.13 Thesis outline ................................................................................................. 14

2 Context.............................................................................................................................. 15
   2.1 The Thai context ............................................................................................. 15
   2.1.1 Thai politics ............................................................................................... 15
   2.1.2 Thai economy ............................................................................................. 17
   2.2 Thai NGOs and CSOs ................................................................................... 21
2.2.1 Traditional Thai life ................................................................. 21
2.2.2 Social structure implications ....................................................... 22
2.2.3 Political connection ................................................................. 22
2.2.4 Appearance of the development NGOs ....................................... 24
2.2.5 The role of civil society ............................................................. 25
2.3 Thailand’s political peasants .......................................................... 29
2.4 Weapons of the weak .................................................................... 31
2.4.1 Conclusion .................................................................................. 33
3 EGAT and EGAT Mae Moh ............................................................... 35
3.1 Mae Moh power plant and environmental degradation .................... 36
3.1.1 Resettlement of villagers .............................................................. 42
3.1.2 Pollution standards and concerns ............................................... 45
3.1.3 Social concerns identified by interviewing villagers ....................... 54
3.1.4 Impact of the power plant and mine .............................................. 57
3.1.5 Water supply issues ................................................................. 64
4 Theoretical insights .......................................................................... 68
4.1 Marxist theory ............................................................................... 68
4.2 Weber’s concept of domination ....................................................... 70
4.3 The environment and market failure .............................................. 72
4.4 The triple bottom line ................................................................. 73
4.5 Climate change and governance ..................................................... 76
4.6 NGOs and environmental conflict resolution ..................................... 78
4.6.1 Political ecology ......................................................................... 88
5 Research questions and methodology ............................................. 94
5.1 Research questions ......................................................................... 94
5.2 Research objectives ....................................................................... 95
5.3 Critical theory ............................................................................... 95
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3.1 Critical postmodernism</td>
<td>97</td>
</tr>
<tr>
<td>5.4 Qualitative research</td>
<td>98</td>
</tr>
<tr>
<td>5.4.1 Case study qualitative research</td>
<td>100</td>
</tr>
<tr>
<td>5.4.2 Research topics</td>
<td>105</td>
</tr>
<tr>
<td>5.4.3 Research instruments</td>
<td>108</td>
</tr>
<tr>
<td>5.4.4 Ethical considerations</td>
<td>108</td>
</tr>
<tr>
<td>5.4.5 Funding</td>
<td>109</td>
</tr>
<tr>
<td>5.4.6 Participants</td>
<td>109</td>
</tr>
<tr>
<td>5.4.7 Requirements</td>
<td>110</td>
</tr>
<tr>
<td>5.4.8 Travel &amp; compensation</td>
<td>110</td>
</tr>
<tr>
<td>5.4.9 Pre-existing relationships</td>
<td>110</td>
</tr>
<tr>
<td>5.4.10 Risks</td>
<td>110</td>
</tr>
<tr>
<td>5.4.11 Consent and special issues</td>
<td>111</td>
</tr>
<tr>
<td>5.4.12 Involvement of another institution or organisation or community group</td>
<td>111</td>
</tr>
<tr>
<td>6 Primary data</td>
<td>112</td>
</tr>
<tr>
<td>6.1 Pollution</td>
<td>114</td>
</tr>
<tr>
<td>6.1.1 Sulphur dioxide</td>
<td>114</td>
</tr>
<tr>
<td>6.1.2 Dust</td>
<td>117</td>
</tr>
<tr>
<td>6.1.3 Water sources</td>
<td>118</td>
</tr>
<tr>
<td>6.1.4 Noise</td>
<td>121</td>
</tr>
<tr>
<td>6.1.5 Vibration</td>
<td>122</td>
</tr>
<tr>
<td>6.1.6 Odour</td>
<td>123</td>
</tr>
<tr>
<td>6.1.7 Smoke</td>
<td>124</td>
</tr>
<tr>
<td>6.2 Health concerns</td>
<td>126</td>
</tr>
<tr>
<td>6.3 Villagers’ demands</td>
<td>127</td>
</tr>
<tr>
<td>6.3.1 Environment</td>
<td>127</td>
</tr>
<tr>
<td>6.3.2 Medical demands</td>
<td>128</td>
</tr>
</tbody>
</table>
6.3.3 Relocation ........................................................................................................ 128
6.3.4 Monetary compensation ................................................................................... 129
6.3.5 Assistance ........................................................................................................ 132
6.3.6 Employment ..................................................................................................... 132
6.3.7 Welfare ............................................................................................................. 132
6.4 Peaceful and non-peaceful methods of protest ........................................................ 133
6.5 EGAT’s responses ................................................................................................... 141
6.5.1 Corporate social responsibility ........................................................................ 149
6.5.2 Medical assistance ........................................................................................... 154
6.5.3 Media ............................................................................................................... 154
6.5.4 Funding ............................................................................................................ 155
6.5.5 The Population and Community Development Association ......................... 156
6.5.6 The Mae Moh Development Association ......................................................... 157
6.5.7 The Power Development Fund ........................................................................ 164
6.5.8 Environmental policy ....................................................................................... 173
6.5.9 Social and economic changes .......................................................................... 178
6.5.10 Social changes .................................................................................................. 178
6.5.11 Resettlement ..................................................................................................... 179
6.6 Conclusion ............................................................................................................... 189

7 Discussion....................................................................................................................... 191

7.1 Subsidiary Research Question 1 .............................................................................. 191
7.1.1 Sulphur dioxide ................................................................................................ 191
7.1.2 Dust .................................................................................................................. 192
7.1.3 Water sources .................................................................................................. 192
7.1.4 Noise ................................................................................................................ 192
7.1.5 Vibration .......................................................................................................... 192
7.1.6 Odour ............................................................................................................... 193
7.1.7 Deforestation .................................................................................................... 193
7.1.8 Smoke .............................................................................................................. 193
7.1.9 Villagers’ responses ......................................................................................... 193
7.2 Subsidiary Research Question 2 .............................................................................. 195
7.2.1 Trust, understanding and relationships ............................................................ 195
7.2.2 Funding ............................................................................................................ 195
7.2.3 Environmental policy ....................................................................................... 196
7.2.4 Social and economic changes .......................................................................... 196
7.2.5 Resettlement ..................................................................................................... 196
7.3 Subsidiary Research Question 3 .............................................................................. 200
7.4 Subsidiary Research Question 4 .............................................................................. 205
7.4.1 Employment ..................................................................................................... 206
7.4.2 Problems from resettlement ............................................................................. 206
7.4.3 Problems relating to the Power Development Fund ........................................ 206
7.4.4 Exaggerated demands ...................................................................................... 207
7.4.5 Supreme Administrative Court ordered EGAT to compensate villagers ......... 208
7.4.6 Villagers decided not to make further requests............................................... 208
7.4.7 The Occupational Health Patient Rights Network......................................... 208
7.4.8 Demand for electricity ..................................................................................... 210
7.4.9 Why EGAT prefers coal .................................................................................. 210
7.4.10 EGAT is willing to go the extra mile to please local communities ................. 211
7.4.11 Civil society forums ......................................................................................... 211
7.4.12 EGAT’s status as a state enterprise................................................................. 212
7.4.13 Local disagreement ........................................................................................ 212
7.4.14 Politics .............................................................................................................. 212
7.4.15 All parties should be involved in resolving the conflict .................................. 213
7.5 Key research question ............................................................................................. 213
List of tables

Table 1: Details of the construction of Units 1–13 ................................................................. 36
Table 2: Timeline of FGD installation in Units 4-13 ............................................................... 38
Table 3: Resettled households whose properties were required to allow for the construction of the Mae Moh power plant ................................................................................................. 43
Table 4: Examples of global emission standards .................................................................... 46
Table 5: Examples of global air quality standards ................................................................. 47
Table 6: Vibration standards applied in Thailand .................................................................... 48
Table 7: Limiting values of vibration expressed in mm/s DIN Standard 4150 (Western Germany, 1983) Source: Berta (1990) ..................................................................................... 49
Table 8: Australian Standard AS 2187-1983 ........................................................................... 50
Table 9: Vibration velocities normally recommended in appraising ground vibration damage risk to residential buildings with respect to the foundation of the building .......................................................... 50
Table 10: Air blast effects ........................................................................................................ 51
Table 11: Maximum momentary explosive charge (kg) as a function of distance from blast site .......................................................................................................................................... 52
Table 12: Thai noise standards for mining activities ............................................................... 54
Table 13: Impacts on the Mae Moh villages ............................................................................ 58
Table 14: Theoretical paradigms ............................................................................................. 96
List of figures

Figure 1: Vibration control graph DIN Standard 4150 (Western Germany, 1983) ................. 49
Figure 2: Circuits of political ecology ..................................................................................... 89
Figure 3: Circuits of political ecology ................................................................................... 216
### Abbreviations and special terms

- **ADB**: Asian Development Bank
- **APP**: Air Pressure Pulse
- **CCOP**: Coordinating Committee for Geoscience Programmes in East and South-East Asia
- **CDM**: Clean Development Mechanism
- **CEM**: Continuous Emission Monitoring
- **CSR**: Corporate Social Responsibility
- **CSO**: Civil Society Organisation
- **CMA**: Conflict Management Alternatives
- **ECR**: Environmental Conflict Resolution
- **EGAT**: Electrical Generating Authority of Thailand
- **EIA**: Environmental Impact Assessment
- **EPA**: United States Environmental Protection Agency
- **ERC**: Energy Regulatory Commission
- **FEMA**: Federal Emergency Management Agency
- **FGD**: Flue Gas Desulphurisation
- **FT**: The Automatic Tariff Adjustment
- **GDP**: Gross Domestic Product
- **GIN**: Greening of Industry Network
- **GONGO**: Governmental Organised Non-Governmental Organisation
- **GRP**: Gas Release Pulse
- **HREC**: Human Research Ethics Committee
- **IGO**: Intergovernmental Organisation
- **INGO**: International Non-Governmental Organisation
- **ISO**: International Organisation for Standardisation
- **Jit-asan**: EGAT’s voluntary unit
- **Lao PDR**: Lao People’s Democratic Republic
- **LED**: Light Emitting Diode
- **NDIR**: Non-Dispersive Infra-Red
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGO</td>
<td>Non-Governmental Organisations</td>
</tr>
<tr>
<td>Ngan</td>
<td>A measurement of land size</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>ONESDB</td>
<td>Office of the National Economic and Social Development Board</td>
</tr>
<tr>
<td>OTOP</td>
<td>One Tambon One Product</td>
</tr>
<tr>
<td>PAD</td>
<td>People’s Alliance for Democracy</td>
</tr>
<tr>
<td>PCD</td>
<td>Pollution Control Department</td>
</tr>
<tr>
<td>PDA</td>
<td>Population and Community Development Association</td>
</tr>
<tr>
<td>Rai</td>
<td>A measurement of land size</td>
</tr>
<tr>
<td>RPP</td>
<td>Rock Pressure Pulse</td>
</tr>
<tr>
<td>SCG</td>
<td>Siam Cement Group</td>
</tr>
<tr>
<td>SEC</td>
<td>Thai Security and Exchange Commission</td>
</tr>
<tr>
<td>SET</td>
<td>Stock Exchange of Thailand</td>
</tr>
<tr>
<td>SIA</td>
<td>Social Impact Assessment</td>
</tr>
<tr>
<td>SPA</td>
<td>Strategic Perspectives Analysis</td>
</tr>
<tr>
<td>SRP</td>
<td>Stemming Release Pulse</td>
</tr>
<tr>
<td>Tambon</td>
<td>Subdistrict organisation</td>
</tr>
<tr>
<td>TBL</td>
<td>Triple Bottom Line</td>
</tr>
<tr>
<td>UDD</td>
<td>United Front for Democracy</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
</tbody>
</table>