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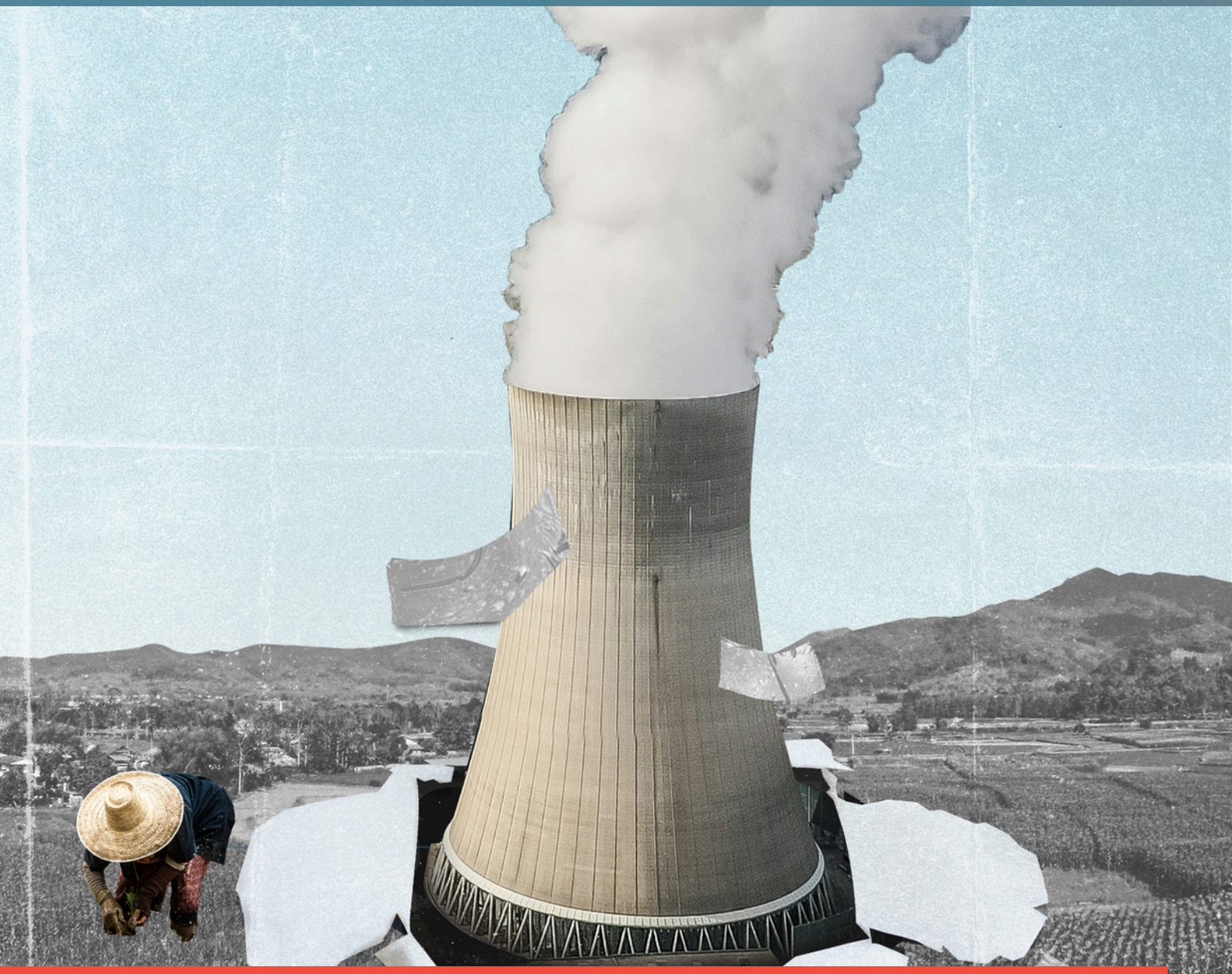
THAILAND UPR IV
2026

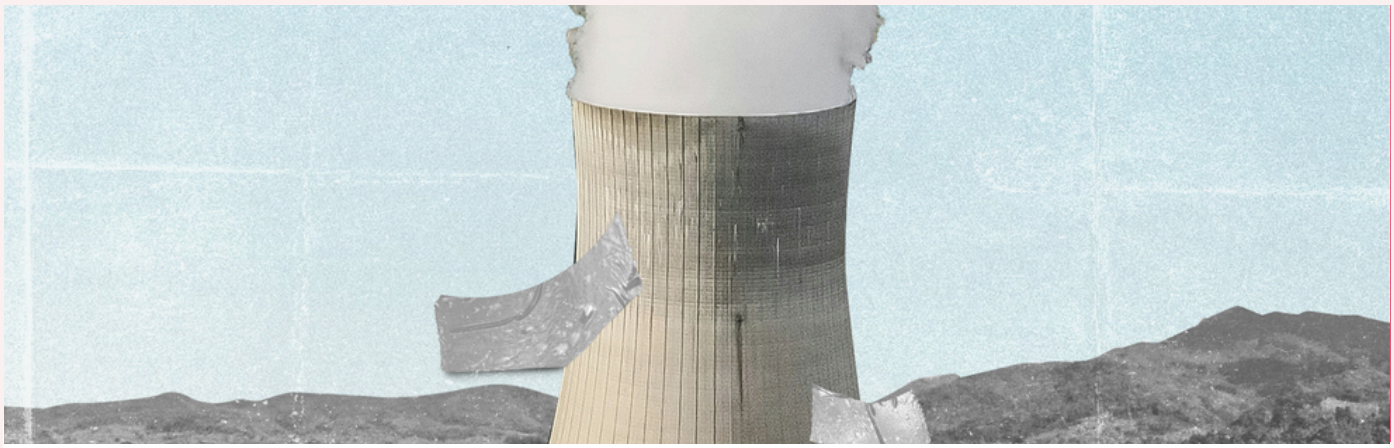
The Impacts of Biomass Power Plant Projects in Patani



Joint UPR Submission to the UN Universal Periodic Review

53rd Session of the UPR Working Group





Joint UPR Submission: The Impacts of Biomass Power Plant Projects in Patani
April 2026

Submission by

The Patani RESOURCE, Thai Business & Human Rights Network
and the Thai CSOs Coalition for the UPR and UN Mechanisms

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CITATION

The Patani RESOURCE, Thai Business & Human Rights Network and the Thai CSOs Coalition for the UPR and UN Mechanisms, (April 2026), *Joint UPR Submission: The Impacts of Biomass Power Plant Projects in Patani*, for the UN Universal Periodic Review of Thailand (4th UPR Cycle), 53rd Session of the UPR Working Group

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1. Introduction

1.1. In this submission, *The Patani RESOURCE* examines the compliance of the Thai Government with the recommendations received during the 3rd UPR cycle of Thailand, particularly in relation to the human rights impacts associated with the expansion of biomass power plant projects in the Patani region. The analysis focuses on concerns related to legal exemptions that weaken environmental protection, excess electricity capacity and continued power plant expansion, environmental and public health impacts, disruptions to traditional livelihoods and cultural practices, and limited public participation and access to information in project decision-making processes. The submission concludes with specific, measurable, and result-oriented recommendations aimed at strengthening environmental safeguards, ensuring meaningful community participation, and protecting the rights and well-being of affected communities.

1.2. During the 3rd UPR cycle, Thailand did not receive any recommendation regarding the environmental impact of business activities such as biomass power, despite the fact that multiple contamination cases are currently occurring, as it will be detailed in this submission. However Thailand received a recommendation from Indonesia urging it to enhance meaningful participation of local communities regarding land conservation and forest management, which was supported. While it is not directly related to power plants projects, it deals with land conservation and forest management. Nevertheless Thailand did not ensure public participation concerning these projects.

1.3. This submission indicates that Thailand does not have in place adequate policies and regulatory frameworks to effectively prevent and address the human rights impacts associated with the expansion of biomass power plant projects in the Patani region. In particular, legal exemptions, weak environmental safeguards, limited public participation, and centralised energy decision-making processes have contributed to environmental degradation, public health concerns, and disruptions to the traditional livelihoods and cultural practices of local communities. Moreover, communities affected by these projects face significant barriers in accessing information, participating meaningfully in decision-making processes, and ensuring that development policies reflect social, cultural, and environmental needs. These issues will be discussed in the following sections:

- **Section 2** discusses the centralised energy policy driving the expansion of biomass power plants in Patani.
- **Section 3** examines legal exemptions that undermine environmental protection mechanisms and weaken safeguards intended to protect community rights.
- **Section 4** discusses concerns regarding excess electricity capacity and the continued expansion of biomass power plant projects.
- **Section 5** analyses the environmental impacts of biomass power plants on water sources, agricultural production, and air quality.
- **Section 6** highlights the public health impacts associated with smoke exposure and air pollution from biomass combustion.
- **Section 7** explores the impacts of these projects on traditional livelihoods, cultural practices, and community ways of life.
- **Section 8** reviews challenges related to limited public participation and restricted access to information in project approval and governance processes.

2. Centralised energy policy driving the expansion of biomass power plants in Patani

2.1 Since the 2014 military coup, Thailand has accelerated the promotion of electricity generation policies, particularly in the southern border provinces, through projects known as "Pracharath Power Plants[11]" or Very Small Power Producers (VSPP)[22], with a generating capacity not exceeding 10 megawatts per plant. These projects received strong policy support during the period of the National Council for Peace and Order (NCPO).

2.2 These Pracharath power plant projects were officially framed as efforts to distribute income, create jobs, and address unrest in the three southern border provinces through local economic development under the 20-year National Strategy. In 2020, the Cabinet approved the implementation of the "Integrated Electricity Management Project in the Southern Border Provinces for Security, Prosperity, and Sustainability," with a total target generation capacity of 256.9 megawatts and a total budget of over 19,764 million baht.[33]

2.3 In practice, the expansion of biomass power plants has increased significantly across the Patani region. A survey conducted by volunteers from The Patani RESOURCE group in 2021 identified 32 biomass power plant projects, including 9 already in operation, 22 under development, and 1 with unknown status. In 2025, a further survey and impact study conducted through interviews with community members in 23 project areas covered 25 projects, located in several provinces in the southern border region.[44] [55]

2.4 Biomass power plants are already operating in the following areas:

1) Bang Khao Subdistrict, Nong Chik District, Pattani Province (2 projects in the same area).
2) Lipa Sango, Nong Chik District, Pattani Province.
3) Pa Rai Subdistrict, Mae Lan District, Pattani Province.
4) Phron Subdistrict, Mueang District, Yala Province.
5) Na Tham Subdistrict, Mueang District, Yala Province.
6) Budi Subdistrict, Mueang District, Yala Province (2 projects in the same area).
7) Tham Thalu Subdistrict, Bannang Sata District, Yala Province.
8) Kena Community, Bang Po Subdistrict, Mueang District, Narathiwat Province.
9) Sala Uma, Kayu Khla Subdistrict, Waeng District, Narathiwat Province.
10) Saba Yoi Subdistrict, Saba Yoi District, Songkhla Province.
11) Khu Subdistrict, Chana District, Songkhla Province.
12) Khun Tat Wai Subdistrict, Chana District, Songkhla Province.

2.5 Besides, biomass power plant projects are planned to be established in the following areas:

1) Ban Nam Won, Chang Phueak Subdistrict, Chanae District, Narathiwat Province.
2) Ban Sue Lo, Riang Subdistrict, Rueso District, Narathiwat Province.
3) Ban Ai Kros, Chanae Subdistrict, Chanae District, Narathiwat Province.
4) Chang Phueak Subdistrict, Chanae District, Narathiwat Province.
5) Ban Ai Kuemara, Chang Phueak Subdistrict, Chanae District, Narathiwat Province.
6) Chanae Subdistrict, Chanae District, Narathiwat Province.
7) Katong Subdistrict, Yaha District, Yala Province.
8) Ban Munung, Patae Subdistrict, Yaha District, Yala Province.

2.6 However, in the following areas, projects have been cancelled:

1) Ban Prang, Tha Kam Cham Subdistrict, Nong Chik District, Pattani Province.
2) Nong Raet Subdistrict, Yaring District, Pattani Province.

3. Legal exemptions undermining environmental protection

3.1 The expansion of biomass power plant projects in the southern border provinces has been facilitated by legal exemptions that weaken environmental protection frameworks. In particular, NCPO Order No. 4/2559[66] exempts power plant and waste management activities from compliance with comprehensive town planning regulations. As a result, numerous power plants have been established in areas where such developments were previously prohibited.

3.2 Land previously designated as green zones, agricultural areas, or community zones where power plants and waste facilities were not permitted has been opened for industrial development. This shift in land-use regulation has allowed the establishment of biomass power plants in areas that were originally intended to protect community livelihoods and environmental resources.

3.3 When these environmental safeguards are bypassed, communities have limited opportunities to review, question, or challenge projects that may affect environment, livelihoods, and health.

3.4 Although these policies have been justified by the government under narratives of national security and economic development in the southern border provinces[77]. Many biomass power plant projects have been approved and constructed in close proximity to residential areas, water sources, and agricultural land.

3.5 The location of these projects near communities and natural resources[88] increases the risk of long-term environmental degradation and potential public health impacts for local populations that depend heavily on these resources for livelihoods.

4. Excess electricity capacity and the expansion of biomass power plants

4.1 Thailand's electricity reserve margin is primarily determined through the Power Development Plan (PDP)[99], the national electricity generation planning framework prepared by the Ministry of Energy and the Electricity Generating Authority of Thailand. The PDP forecasts future electricity demand and determines the amount of generating capacity to be developed.

4.2 A key question raised by civil society movements and energy scholars is the necessity of building additional power plants in a situation where Thailand already has an electricity reserve margin far exceeding international standards. The reserve margin averages approximately 40–50%, compared to the international benchmark of 15%.[1010]

4.3 This surplus is linked to "Take or Pay" power purchase agreements, under which power plants receive availability payments even when they do not generate electricity. These costs are ultimately passed on to consumers through the Ft (fuel tariff) component in electricity bills.

4.4 Energy, as a tool of the state, can also be understood as part of a structural mechanism of control in the southern border provinces, under a centralised security framework that does not genuinely reflect the ways of life, culture, or needs of local communities.

4.5 Following resistance to the Thepha coal-fired power plant project in Songkhla in 2015[1111], the proliferation of smaller power plants may be interpreted as a strategy of "reducing size while increasing numbers" to minimize opposition. However, decision-making power and benefits remain concentrated among large capital groups and centralised state institutions, without enabling communities to determine energy futures.

5. Environmental impacts on water, agriculture, and air quality

5.1 According to Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992)[12][12], the Pollution Control Committee is in charge of setting emission or effluent standards regarding water and air. If a locality is found to be affected by pollution, or if there is a risk that such pollution may worsen and pose a threat to public health or environmental quality, the National Environment Board has the authority to issue a notification in the Government Gazette designating that area as a pollution control zone, with the aim of controlling, reducing, and eliminating pollution.[13][13] Concerning power plant sites, they are all located near water sources, as biomass power plants require water for cooling, system cleaning, and processing. However wastewater from biomass processing may contain ash, chemical solutions, corrosive substances, and heavy metals if not properly managed. Without adequate treatment systems, wastewater may flow into canals, groundwater, or small rivers, degrading water quality (pH levels, heavy metals, turbidity, odor) and affecting consumption, drinking water, and agricultural use.[14][14] [15][15]

5.2 Agricultural production is affected by dust and emissions settling on plant leaves, reducing photosynthesis, causing leaf damage (burn marks, black spots, discoloration), and lowering both quality and yield. Air pollutants such as sulfur dioxide, nitrogen oxides, and fine particulate matter (PM2.5) can directly damage plant cells or alter soil and water conditions, affecting growth.[16][16]

5.3 Air quality in areas surrounding biomass power plants is often poor due to the use of low-quality biomass and incomplete combustion, resulting in the emission of particulate matter, soot, exhaust gases, and odors, including toxic gases such as NO_x, CO, volatile organic compounds (VOCs), and potentially dioxins if contaminated materials are burned.[17][17]

5.4 Studies indicate that biomass burning is a major source of PM2.5, and communities near such plants report higher incidences of allergies, particularly among children and the elderly.[18][18] However, despite air and water pollution, no measures have been implemented to mitigate these issues.

6. Public health Impacts from smoke and air pollution

6.1 At the end of 2025, a Clean Air Bill was under consideration by the Senate, with the aim of urging polluters to reduce their gas emissions. However the Bill lapsed following the dissolution of Parliament on 12 December 2025[19][19] and needs to be reintroduced in Parliament within 60 days of the date the Parliament is convened for its first session (16 March 2026)[20][20]. In April 2026, Members of Parliament still disagreed on the content and the Bill remained unaddressed.[21][21]

6.2 Yet, medical evidence indicates that PM2.5 particles can penetrate deep into the lungs and bloodstream, leading to respiratory diseases such as asthma, bronchitis, and chronic obstructive pulmonary disease (COPD), as well as increased risks of lung cancer, cardiovascular disease, and premature death.[22][22]

6.3 Smoke and soot from burning contaminated biomass materials such as those containing chemicals, heavy metals, charcoal residues, fertilizers, or waste may produce toxic substances such as dioxins, arsenic, mercury, and lead, particularly where combustion systems and emission controls are inadequate.[23][23]

6.4 Long-term cumulative impacts include chronic bronchitis, allergies, heart disease, thoracic cancers, impaired respiratory development in children, and overall deterioration of health.[2424]

6.5 These impacts disproportionately affect vulnerable groups, including the elderly, children, and individuals with pre-existing conditions, and impose burdens on the public health system through increased hospital visits, medication use, medical migration, and higher mortality rates.[2525]

7. Impacts on traditional livelihoods and cultural practices

7.1 The gaps and limitations in Thailand's legal framework governing land use, environmental protection, and community rights. While the Constitution of the Kingdom of Thailand B.E. 2560 (2017)[2626] recognizes the right of communities to participate in the management of natural resources and the environment, these protections are not always effectively implemented in practice. In addition, policies promoting energy infrastructure development such as national energy planning and the promotion of small power producer projects often prioritize economic and security objectives over local livelihoods and cultural landscapes.

7.2 Communities in Patani are closely connected to traditional agriculture, fisheries, and natural resources. The establishment of biomass power plants near communities may disrupt these ways of life through noise, odor, dust, and competition for shared resources, undermining local knowledge systems and reducing biodiversity.[2727]

7.3 Areas of spiritual, religious, and cultural significance often located in quiet natural environments such as orchards and forest areas are affected by environmental changes, noise, nighttime disturbances, and vibrations from power plant operations.

7.4 Loss of agricultural land or reduced productivity may force communities to change livelihoods or relocate, leading to social fragmentation and reduced cultural security.[2828]

8. Limited public participation and restricted access to information

8.1 Although the Constitution[2929] affirms the rights of communities to be informed and have access to public information (Section 41) and affirms the State's duty to undertake Environmental and Health Impact Assessments (EHIA) through public hearings of communities in advance of any undertaking that might affect them and lays down the requirements for permitting such undertaking (Section 58), significant gaps remain in practice. Indeed, the accelerated development of biomass power plants has been accompanied by exemptions from important environmental regulatory requirements, including compliance with EIA procedures. These regulatory mechanisms normally serve as essential checks and balances to ensure that economic development projects properly assess and mitigate environmental and social impacts.

8.2 Public consultation and participation processes are often expedited, providing insufficient time and lacking clear and comprehensive information, such as baseline and post-project air quality data, environmental reports, health assessments, and project details.[30]

8.3 Information is often restricted, with project operators providing details only to selected participants invited to community meetings. In many cases, project proponents present information on the same day as consultations and proceed immediately to approval voting, without allowing adequate time for understanding or critical assessment.

8.4 These processes often present only positive aspects, resulting in incomplete information and enabling authorities to claim legitimacy for projects.

8.5 Access to information such as emissions data, EIA reports (where applicable), and health impact assessments is often limited or not publicly available, particularly in border areas where language barriers exist. Project approval processes and power purchase agreements (e.g., Take or Pay contracts) are conducted at policy or administrative levels beyond public scrutiny.

8.6 There is also a lack of ongoing monitoring and evaluation, such as air quality measurements and health assessments, and complaints are often not addressed transparently by state agencies.

9. Recommendations

9.1 Regarding legal exemptions undermining environmental protection

1) Review and repeal remaining NCPO orders, particularly Order No. 4/2559, to restore local decision-making authority over land use.
2) Enact legislation on pollutant release and transfer registers to ensure transparent, publicly accessible reporting of emissions and accountability mechanisms.

9.2 Regarding excess electricity capacity and the expansion of biomass power plants

1) Reform power purchase agreements (PPA), particularly “Take or Pay” contracts, to reduce the FT burden and prevent unnecessary expansion of power generation capacity.
2) Reform electricity tariff structures (Fair Tariff), including reducing or eliminating availability payments during periods of excess capacity.
3) Amend laws to support energy decentralization and establish clear targets for rooftop solar in the Power Development Plan (PDP), including net metering (1:1) systems.
4) Promote distributed solar energy systems enabling community ownership or co-ownership.

9.3 Regarding environmental impacts on water, agriculture, and air quality

1) Enforce local regulations on activities hazardous to health, including regular monitoring of air and water pollution.
2) Develop community energy and environmental charters through participatory processes.

9.4 Regarding public health impacts from smoke and air pollution

1) Establish proactive health surveillance systems, including respiratory health screenings and baseline data collection.

9.5 Regarding impacts on traditional livelihoods and cultural practices

1) Promote solar energy in public buildings to reduce public expenditure.
2) Pilot microgrid systems in remote areas.
3) Support community energy funds and co-financing schemes for solar installation.
4) Develop community-based energy literacy centers.

9.6 Regarding limited public participation and restricted access to information

1) Strengthen laws governing public participation processes, prevent rushed consultations, ensure access to information, and enable local referenda for large-scale projects.
2) Increase public representation in national energy committees (NEPC, ERC) to enhance transparency and ensure energy transition is grounded in community rights and equitable governance.
3) Establish accessible information and complaint centers in local languages (Patani Malay).

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Joint UPR Submission: The Impacts of Biomass Power Plant Projects in Patani
April 2026

Submission by

The Patani RESOURCE is The group for the Protection of Resource Base and Sustainable Development, an organisation dedicated to advancing development grounded in justice. It upholds the rights of the Patani people over the ownership of their natural resources. Its core mission is to protect local interests from policies that impact natural resources, while creating spaces for dialogue to reclaim decision-making power for communities so they can shape their own futures. The organisation also coordinates with civil society networks to establish mechanisms for sustainable development.

The **Thai Business and Human Rights Network** is an informal, inclusive and intersectional coalition of human rights defenders, community leaders, researchers, academics, and non-governmental organisations from the local, national and regional spheres, who are joining hands to ensure local communities are central to the business and human rights response in Thailand. The Network engages in advocacy, dialogue, and monitoring of business and human rights commitments made by the Royal Thai Government, in particular in engaging in the development and monitoring of the National Action Plan on Business and Human Rights.

The **Thai CSOs Coalition for the UPR and UN Mechanisms (Universal Periodic Review)**, established during Thailand's Second UPR cycle, is a people-led, intersectional feminist movement bringing together local communities and national civil society organisations across all human rights sectors. As one of the largest intersectional grassroots-led movements in Thailand, it engages with the UPR and UN treaty bodies, connecting struggles from Indigenous Peoples' rights, land and environmental justice, and labour rights to digital rights, freedom of expression, transnational repression, and the protection of human rights defenders, migrants, political refugees, youth, LGBTIQ+ individuals, and communities facing systemic marginalization. It fosters solidarity among communities facing shared challenges and strengthens collective action to demand accountability from the state and companies for their international human rights obligations.



The Patani RESOURCE

#ThaiBHRNetwork

Thai CSOs Coalition for the UPR and UN Mechanisms

THAILAND UPR IV 2026

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