



REGIONAL RIVER BASIN CONSULTATIONS EVALUATION

Strategic Environmental Assessment of the
Hydropower Sector in Myanmar

IN PARTNERSHIP WITH:



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ABBREVIATIONS

ADB	Asian Development Bank
AIRBM	Ayeyarwady Integrated River Basin Management
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DMH	Department of Meteorology and Hydrology
DWIR	Directorate of Water Resources and Improvement of River Systems
EAG	Ethnic Armed Group
E&S	Environment and Social
FFI	Flora and Fauna International
GIA	Gender Impact Assessment
GOM	Government of Myanmar
HDWG	Hydropower Developers' Working Group
HPP	Hydropower Project
ICEM	International Centre for Environmental Management
IDP	Internally Displaced Person
IFC	International Finance Corporation
IHA	International Hydropower Association
IUCN	International Union for the Conservation on Nature
IAIA	International Association of Impact Assessment
IWMI	International Water Management Institute
IWT	Inland Water Transport
KIO	Kachin Independence Organization
KNPP	Karenni National Progressive Party
KNU	Karen National Union
NGO	Non-government Organization
MOALI	Ministry of Agriculture, Livestock and Irrigation
MOC	Ministry of Commerce
MOEE	Ministry of Electricity and Energy
MOI	Ministry of Industry
MOLIP	Ministry of Labour, Immigration and Population
MONREC	Ministry of Natural Resources and Environmental Conservation
MOPF	Ministry of Planning and Finance
MOSWRR	Ministry of Social Welfare, Relief and Resettlement
MOTC	Ministry of Transport and Communications
MRCB	Myanmar Centre for Responsible Business
MIC	Myanmar Investment Commission
NWRC	National Water Resources Committee
RAP	Resettlement Action Plan
SEA	Strategic Environmental Assessment
SEI	Stockholm Environment Institute
SEP	Stakeholder Engagement Plan
SEZ	Special Economic Zone
SOBA	State of the Basin Assessment
TAF	The Asia Foundation
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WCS	Wildlife Conservation Society

WLE	Water Land and Ecosystems
WWF	World Wildlife Fund

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1 INTRODUCTION

In response to planned hydropower development, the Ministry of Electricity and Energy (MOEE) and the Ministry of Natural Resources and Environmental Conservation (MONREC) with support from the International Finance Corporation (IFC), in partnership with the Australian Government, are conducting a strategic environmental assessment (SEA) of the hydropower sector in Myanmar. The overall objectives of this SEA are to i) define a sustainable development pathway for hydropower in Myanmar over the next 20 years and beyond; ii) achieve broad consensus on this pathway, based on environmental, social and economic considerations; and iii) promote long-term economic development and sustainable use and protection of natural resources and ecosystems.

1.1 Phases and outputs

The SEA commenced in October 2016 and is implemented in **three key phases**:

1. **Scoping and baseline assessment:** The geographic and temporal boundaries are determined. Through stakeholder consultations, sustainability principles and key themes are refined to identify the key strategic environmental and socio-economic issues for each river basin. Information and spatial data is collected to describe the existing status and trends in the key strategic issues.
2. **Sustainable development pathway setting and assessment:** The risks and opportunities associated with the implementation of the business-as-usual case and sustainable hydropower development strategy are assessed using trend analysis and GIS overlays for each of the strategic issues. Spatial multi-criteria analysis is used to rank the proposed hydropower projects according to impact and sustainability.
3. **Mitigation and recommendations:** Measures to enhance the benefits and to avoid, or mitigate, the negative effects of proposed hydropower development are defined.

The main outputs for the SEA include:

- A Stakeholder Engagement Plan (SEP);
- Scoping and baseline assessment report;
- Project sustainability analysis report;
- Impact assessment report;
- Project GIS database - key layers for the country by watershed/sub-watershed;
- Detailed Draft SEA; and
- Final SEA.

The phased approach envisages analysis, stakeholder engagement and documentation at each stage. With progressive reporting and review, this approach promotes transparency, consensus building, validation and respect for the process as it moves forward.

1.2 Identifying key issues and opportunities in the scoping and baseline phase

One of the key objectives of the scoping and baseline assessment phase is to identify and prioritize a list of key issues and opportunities that stakeholders consider strategically important for river basin development and management in Myanmar. The identification of key issues and opportunities will be stakeholder led. The key issues, opportunities and development objectives will be grouped into strategic themes and sorted according to their significance with input from stakeholders. The issues will be identified through regional river basin consultations, direct discussions with stakeholders and multi-stakeholder workshops.

From the initial SEA consultations, it is anticipated that the issues will relate to the following strategic themes:

- Hydropower;
- Economic development;

- Geomorphology and sediment;
- Aquatic ecology and fisheries;
- Biodiversity and climate change;
- Economic development and land use;
- Social and livelihoods; and
- Conflict.

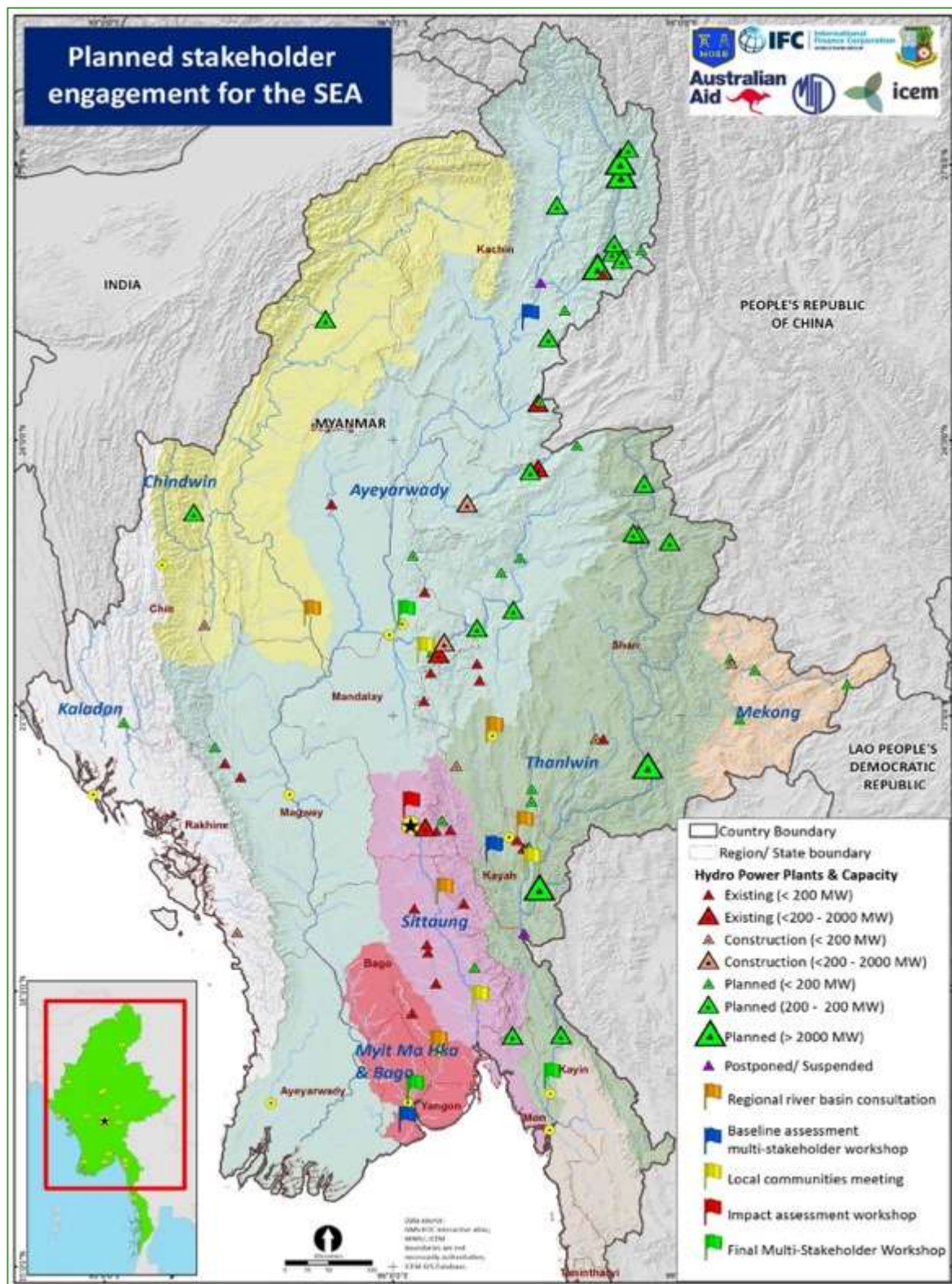
1.3 Stakeholder Engagement Plan (SEP)

The SEP outlines the stakeholder consultation and communication through each phase of the SEA. Stakeholder engagement will be delivered primarily through the following key consultation events:

- **Kick-off meeting:** Meeting with IFC, Government of Myanmar (GOM) and other stakeholders to introduce the SEA methodology and process.
- **Regional river basin consultations:** Meetings and workshops with different stakeholder groups at the basin and region/state level to identify the key environment and social (E&S) issues and opportunities.
- **Multi-stakeholder baseline assessment workshops:** Review findings from regional river basin consultations to identify and prioritize specific issues and opportunities at the national and basin level for the Ayeyarwady-Chindwin and Thanlwin river basins.
- **Consultation with local communities:** Discussions with local communities affected by existing HPPs in the Thanlwin, Ayeyarwady-Chindwin and Sittaung river basins.
- **Impact assessment workshops:** Review findings of the impact assessment and project sustainability analysis report and frame the sustainable hydropower development pathway.
- **Final multi-stakeholder workshops:** Review the draft SEA and provide comments and suggestions through group discussion and activities.

The key stakeholder consultation events were designed to capture as many states/regions as possible, and include multiple visits to major river basins in Myanmar.

Figure 1.1: Planned stakeholder engagement activities for the SEA



Stakeholder engagement will occur through all key steps; however, the scoping and baseline phase is most important for defining the geographic scope and key themes and issues to be covered in the SEA. This report provides a summary and key findings for the regional river basin consultations conducted in November and December 2016.

1.4 Regional River Basin Consultations

The scope of the SEA includes planned and existing hydropower development (greater than 10MW) in five river basins and two coastal basins in Myanmar:

- Ayeyarwady-Chindwin
- Thanlwin
- Sittaung
- Bago and Myit Ma Hka
- Mekong
- Tanintharyi and Rakhine coastal basins

The Ayeyarwady-Chindwin, Thanlwin and Sittaung are classified as the three major river basins in Myanmar. Also, there is an existing HPP in the Bago and Myit Ma Hka; and planned HPPs in the Mekong, and the Tanintharyi (Tenasserim) and Rakhine (Arakan) coastal basins.

Initially, regional river basin consultations were planned for the Thanlwin and Sittaung river basins and the Tanintharyi and Rakhine coastal basins due to the significance of planned and existing HPPs and the gaps in data and information. The Bago and Myit Ma Hka and Mekong basins were not included as the Mekong is in conflict areas and the Bago and Myit Ma Hka has only one existing 20MW project and no planned projects.

Originally, the Ayeyarwady-Chindwin river basin was not included in the regional river basin consultations as the SEA intended to rely on the multi-stakeholder platforms and field work implemented as part of the Ayeyarwady Integrated River Basin Management (AIRBM) State of the Basin Assessment (SOBA). However, due to ongoing conflict in Rakhine State and uncertainty concerning when the SOBA studies would commence the Chindwin Basin was included in the regional river basin consultations.

The regional river basin consultations which were conducted in the Thanlwin, Sittaung, Chindwin and Tanintharyi river basins, took place in November and December 2016 (Table 1.1). The consultations consisted of two separate events:

- Roundtable meetings with region/state offices of MONREC, MOEE and other ministries; and
- Civil society workshops.

Table 1.1: Dates and locations of regional river basin consultations

Thanlwin River Basin		
<i>Date</i>	<i>Event</i>	<i>Location</i>
Monday, November 7, 2016	Consultation with State government	Taunggyi, Shan State
Tuesday, November 8, 2016	Civil society workshop	Taunggyi, Shan State
Thursday, November 10, 2016	Consultation meeting with State government	Loikaw, Kayah State
Friday, November 11, 2016	Civil society workshop	Loikaw, Kayah State
Sittaung River Basin		
<i>Date</i>	<i>Event</i>	<i>Location</i>
Tuesday, November 15, 2016	Consultation with Division government	Bago, Bago Division
Thursday, November 17, 2016	Civil society workshop	Taungoo, Bago Division
Chindwin Basin		
<i>Date</i>	<i>Event</i>	<i>Location</i>

Tuesday, December 6, 2016	Consultation with Region government	Monywa, Sagaing Region
Wednesday, December 7, 2016	Civil society workshop	Monywa, Sagaing Region
Tanintharyi Region		
<i>Date</i>	<i>Event</i>	<i>Location</i>
Tuesday, December 13, 2016	Consultation with Region government	Dawei, Tanintharyi region
Wednesday, December 14, 2016	Civil society workshop	Dawei, Tanintharyi region

1.5 Objectives

The purpose of the regional river basin consultations was to engage stakeholders at the river basin level early in the SEA process to:

- Present the SEA objectives and identify how stakeholder can engage with the process;
- Carry out participatory stakeholder mapping and analysis at the river basin level;
- Identify key E&S issues and opportunities; and
- Group the E&S issues and opportunities into key (or strategic) themes.

The participants were also encouraged to discuss E&S values and uses of the river, and development issues facing the basin or region. The agenda for the Civil Society Organisation (CSO) workshops is provided in Annex 1.

1.6 Participants

A total of 209 participants attended the consultations in the Thanlwin, Sittaung, Chindwin and Tanintharyi river basins (Table 1.2). About one third of both the state/region government and CSO participants were women. The participant lists from these meetings were recorded to ensure that the stakeholders are invited to participate in future multi-stakeholder workshops at the basin and state/region level.

Table 1.2: Total participant numbers for regional river basin consultations

City/town	CSO workshop		Region/State government	
	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>
Taunggyi	16	17	4	6
Loikaw	13	8	11	7
Bago	0	0	4	4
Taungoo	18	6	0	0
Monywa	22	10	15	4
Dawei	19	5	16	4
TOTAL	88	46	50	25

More than 75 government staff from MONREC, MOEE and other government departments participated actively in the consultations. In Loikaw, the Kayah State Minister of Environment attended. 134 participants from 60 CSOs attended the civil society workshops (Annex 2). The CSOs represented a broad range of interests, including: environmental, social, governance and security, transparency and accountability, law enforcement, conflict, peace process and ethnic minorities.

2 METHODOLOGY

2.1 Affinity diagrams

The SEA team used an ‘affinity diagram’ process which combines individual/group brainstorming with a structured approach to display the ideas/products of the brainstorming according to common themes. These themes were then used by the groups as a basis for determining the key E&S values in each of the basins. The stakeholder groups decided which themes they thought were most relevant. The stakeholder consultations yielded a total of 540 issues and 298 opportunities in the Chindwin, Thanlwin, Sittaung and Tanintharyi river basins.

When the results from all groups were combined it became clear that different groups formulated different themes and placed similar issues under different themes. Therefore, to get more stringent and detailed categories the data were recorded with new themes based on a closer reading of their underlying content. Annex 3 shows the themes and key words that were applied to the various issues and opportunities under each of the groups’ themes.

The categorization of the issues and opportunities is not a stringent science, but more of an art, which means that the underlying content of issues in some of the categories overlaps. For example, many issues can be placed into both the categories of Conflict and Governance, or similarly under both Hydropower dams and Sedimentation to mention two. Therefore, the report also includes the actual wording provided by the participants on the specific issues and opportunities.

2.2 Participatory mapping

The SEA is making extensive use of maps, geographical information system (GIS) analysis and participatory mapping. Groups were provided with base maps of the river basin to draw locations of key areas for biodiversity and livelihoods. The results have been digitized and will be presented under the key findings for each of the river basins.

2.3 Frequency analysis

Although the results of the stakeholders’ group work are qualitative in character, and the groups were not asked to prioritize the issues and opportunities they identified, the frequency with which specific or similar issues and opportunities were mentioned is indicative of the importance that stakeholders placed on them. Therefore, analyses of the percentage distribution of the categories of issues and opportunities that were identified in each basin by each stakeholder group are included and shown in bar charts.

2.4 Word clouds

The use of word clouds is becoming widespread, not least on webpages, and is for many a familiar graphic representation. Word clouds give a sense of tendencies in a large amount of data, at a glance. It shows the frequency of specific, single words by their placement (as applied here, placed in the centre), and size, in a cluster of words. Word clouds do not include phrases or sentences, and thus do not reflect arguments or other relationships between words and concepts. Separate word clouds for identified issues and opportunities are presented for each river basin.

2.5 Assessment of the identified issues and opportunities

To identify key issues and opportunities a qualitative and contextual reading and assessment of the results has also been carried out. This reading is the basis for graphs that show selected issues and opportunities.

The river basin consultations produced a wealth of material. The present report is by no means exhaustive with regard to the potential use and application of the insights and views of stakeholders in the process of the SEA. It is therefore suggested that the results are used as reference for further exploration, investigation and discussion of the many aspects of hydropower development in the complex context of Myanmar.

3 RESULTS OF STAKEHOLDER CONSULTATIONS FROM RIVER BASINS

The consultations proved that CSOs and state/region government staff in Myanmar have substantial and important local knowledge about issues relating to rivers, the environment, hydropower and development in general, and a wealth of ideas for river basin management and planning. The first point of analysis is whether the stakeholders in the four basins identify different issues and opportunities relating to, for example, hydropower development, based on the environmental and socio-economic context of each basin.

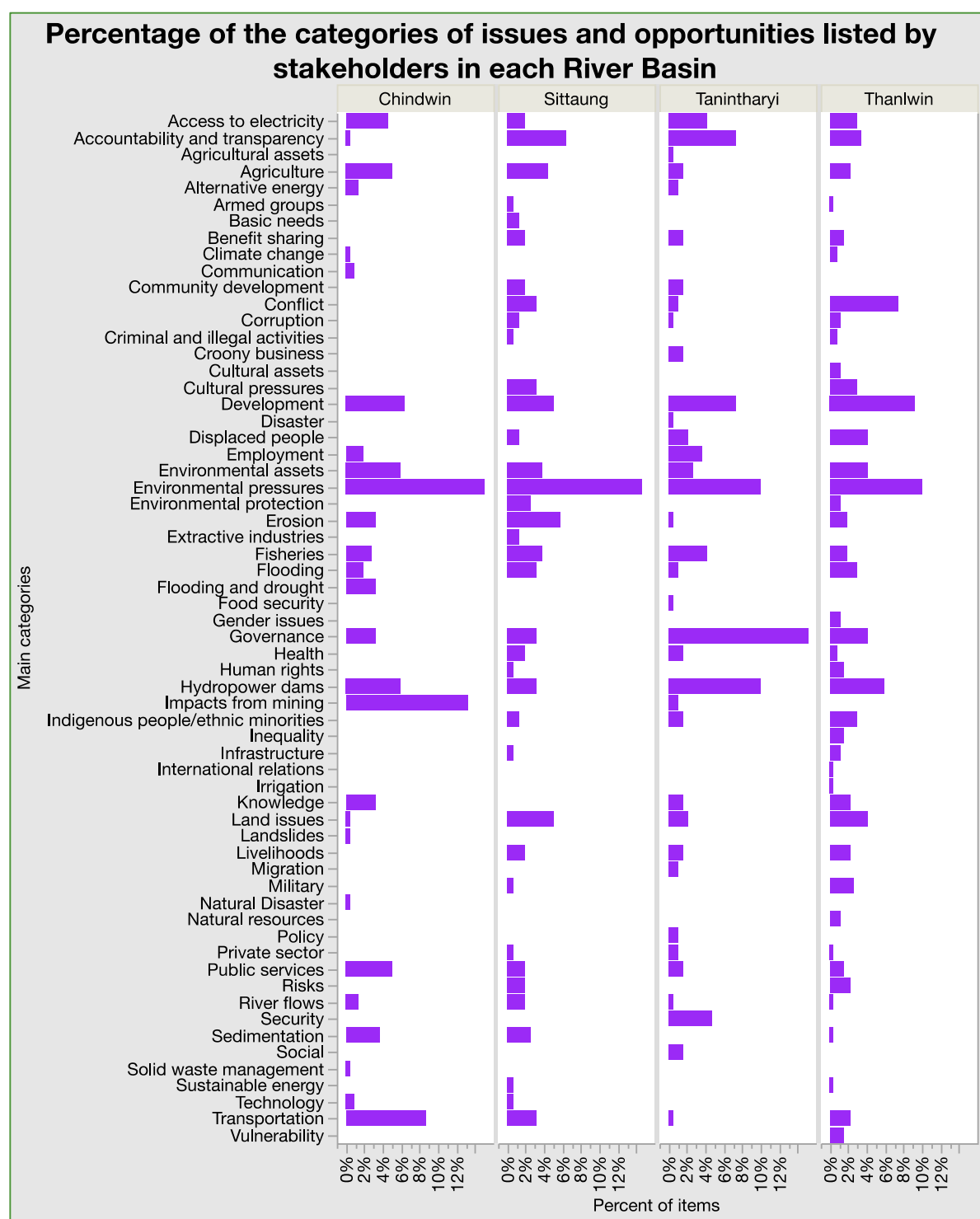
The status of hydropower development in each of the basins is also worth considering (Table 3.1). For example, stakeholders in the Sittaung River Basin offered more insight into the impacts of existing hydropower. Stakeholders in Thanlwin River Basin were concerned more about planned hydropower development.

Table 3.1: Status of hydropower development in Thanlwin, Sittaung, Chindwin and Tanintharyi basins

Basin	Existing	Under construction	Planned	Suspended	Total
Thanlwin	4	1	15	1	21
Sittaung	9	0	3		12
Chindwin	1	0	1	1	3
Tanintharyi	0	0	1		1

Figure 3.1 shows a quantitative approach to comparing the results from each basin. The percentage distribution of the main categories of issues and opportunities identified in each basin are shown side by side.

Figure 3.1: Percentages of frequencies of items listed in main categories by river basin



Overall the issues and opportunities identified in each basin have many similarities. All stakeholder groups were introduced to the SEA, saw the same presentation and were given a common framework for the group work. Issues in the category ‘Environmental Pressures’ were the most frequently listed in three basins and the second-most listed in the Tanintharyi River Basin. Issues around accountability and transparency emerged in the Thanlwin, Sittoung and Tanintharyi river basins. Riverbank erosion and sedimentation were listed more frequently in the Sittoung and Chindwin river basins. Some of the main differences that came out of the river basins consultations were:

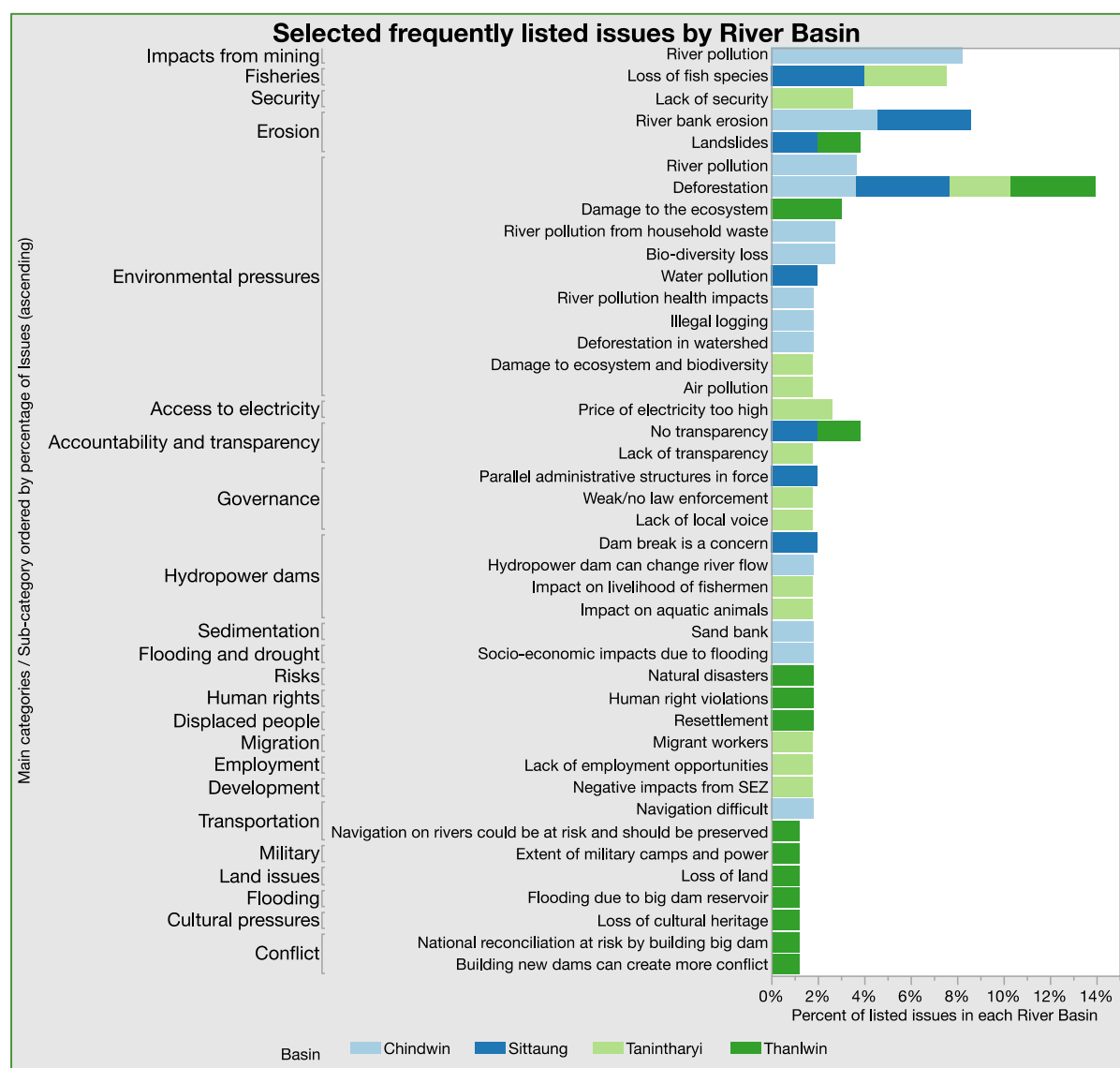
- **Thanlwin:** Conflict and indigenous/ethnic minorities issues were more significant;

- **Tanintharyi:** Governance and security issues featured more prominently; and
- **Chindwin:** Issues around the environmental and social impacts of mining and sedimentation affecting inland water transport (IWT) were more significant.

3.1 Issues

For further analysis, Figure 3.2 shows frequently identified issues. The graph shows the percentages of selected issues in the main categories for each basin. The selection of individual issues is based on the frequency of listing, excluding similar issues to avoid overlap. Thus, the graph shows the most important single issues identified.

Figure 3.2: Selected frequently listed issues by river basin



Deforestation was reported as the most significant environmental pressure affecting rivers in all basins. River pollution, mainly from uncontrolled mining activities in the Chindwin River Basin and loss of fish species, were identified in the Sittaung and Tanintharyi river basins. Issues with riverbank erosion and sedimentation were also raised in the Chindwin and Sittaung basins.

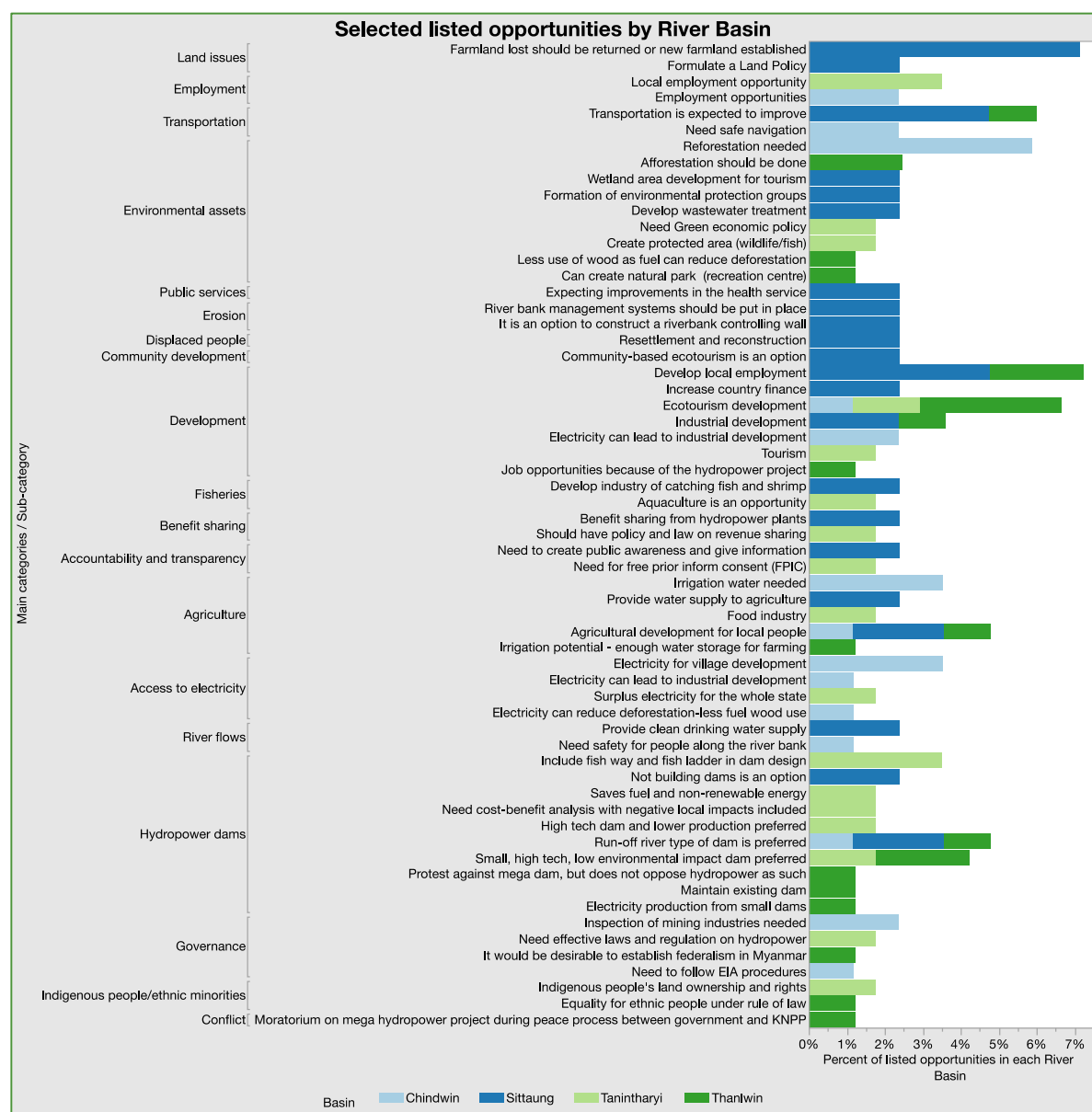
Governance issues, including lack of transparency by government and private sectors, parallel administrative structures, weak or absent law enforcement and lack of local voices were reported as affecting all economic developments including hydropower development. Participants in the Thanlwin River Basin reported conflict over the control of land and natural resources by military and armed groups as

serious issues affecting development. The Tanintharyi participants reported a lack of security. CSOs in all basin consultations pointed to the fact that large hydropower dams could be detrimental to the peace process unless accompanied by changes in governance structures.

3.2 Opportunities

Stakeholders were also asked to discuss opportunities for river basin development, including hydropower. Figure 3.3 shows a selection of the identified opportunities. Of these, selecting the most important was more difficult than in the case of identified issues, due to the broad range of suggestions under many categories.

Figure 3.3: Selected opportunities by river basin



Development opportunities included more general suggestions such as developing local employment and industry, including hydropower, to increasing Myanmar's finances. More specific ideas included tourism and ecotourism. Participants recognised that access to electricity is needed to develop local villages and industries. Hydropower could also reduce the need for burning wood for fuel, potentially contributing to reducing deforestation.

Relating to hydropower dams, one opinion expressed was not to build dams. At the Thanlwin River Basin stakeholder consultation, a CSO suggested a moratorium on large-scale hydropower projects until

the ongoing peace process between the government and Karenni National Progressive Party (KNPP) is resolved. In general, the CSOs protest mega dams, but see some potential for small, high-tech hydropower dams with lower environmental impact. The need for maintenance of existing dams was also highlighted by some participants.

To ensure that negative local impacts of hydropower development are mitigated, and EIA procedures followed, the importance of implementing effective laws and regulation was raised by participants. Other issues raised in relation to governance included:

- Increased transparency and accountability for hydropower companies;
- Effective public consultation and information disclosure at the project level;
- Corporate Social Responsibility (CSR) should be developed and enforced;
- Laws on revenue, and local benefit sharing from hydropower should be developed; and
- Policy to compensate farmers for loss of agricultural land must be formulated.

Some participants also raised the issue that hydropower projects can produce enough electricity for a state/region, but that the electricity should be locally distributed and not exported to other countries. Green Economic Policy that promotes the protection of environmental assets was suggested to promote reforestation, wastewater treatment, wetland development for eco-tourism and the extension of protected areas. It was recognised that water for irrigation is necessary to improve agricultural production in local areas.

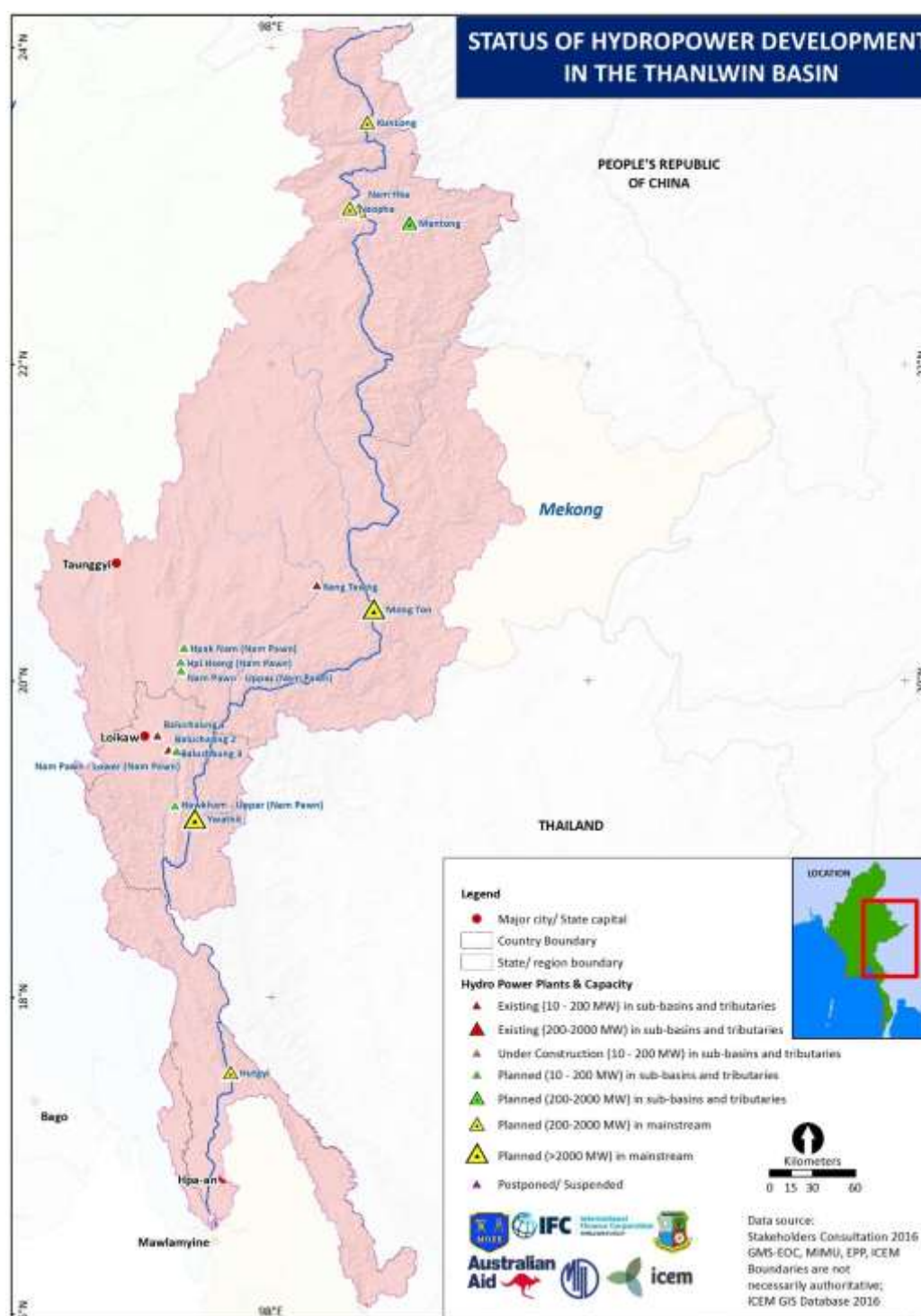
The following sections provide an overview of the finding and the key issues and opportunities identified in the Thanlwin, Sittaung, Chindwin and Tanintharyi river basins.

4 SUMMARY OF RESULTS FROM THANLWIN BASIN

The Nu-Thanlwin River is the second longest river in the region, flowing 2,400 km through China, Thailand, and Myanmar. The Thanlwin River Basin covers 266,000 km², of which 52% is in China, 7% is in Thailand and 41% is in Myanmar. It is commonly referred to as the Nu (Upper Salween) in China and the Thanlwin (Lower Salween) in Myanmar and Thailand. Currently largely undeveloped, the river has very significant potential for hydropower (Figure 4.1). In summary, there are:

- Four existing HPPs, one under construction and 15 planned, while the Mong Ton HPP has been suspended;
- Existing capacity of 302MW and 51MW under construction, increasing to around 20 903MW if all projects proceed; and
- Six of these planned projects on the mainstream of the Thanlwin River.

Figure 4.1: Planned and existing hydropower projects in the Thanlwin Basin



4.1 Key issues and opportunities

The regional river basin consultations in the Thanlwin were conducted in Taunggyi, Shan State and Loikaw, Kayah State with state government representatives and CSOs. The main issues and opportunities can be placed under the themes of conflict, development, environmental assets, environmental pressures, governance and hydropower.

- Deforestation, partly through illegal logging;
- Negative impacts from gold mining;
- Damage to ecosystems and changes in river flows due to existing hydropower projects;
- Lack of proper waste management;
- Decline of fish species due to overfishing;
- Erosion of riverbanks and soil erosion; and
- Loss of fish species due to hydropower, discussed as a future concern.

Flooding: Stakeholders raised concerns about flooding events and future flooding from the reservoirs of big dams.

Land issues: Stakeholders reported a lack of clear land rights and ownership and that land grabbing and conflicts over land had occurred in the past.

Resettlement: Another concern raised was in relation to displacement and resettlement. Stakeholders reported that in the past, large numbers of people were forcibly displaced by the military. The CSOs pointed out there are many internally displaced persons (IDPs) and people in refugee camps due to civil war. They expressed concern about the potential resettlement or displacement of people associated with the construction of large hydropower dams.

Benefit sharing: Stakeholders expressed fears that the use of natural resources, including hydropower, will only benefit central government or foreign investors and not local people. The CSOs raised the point that there is presently no resource sharing.

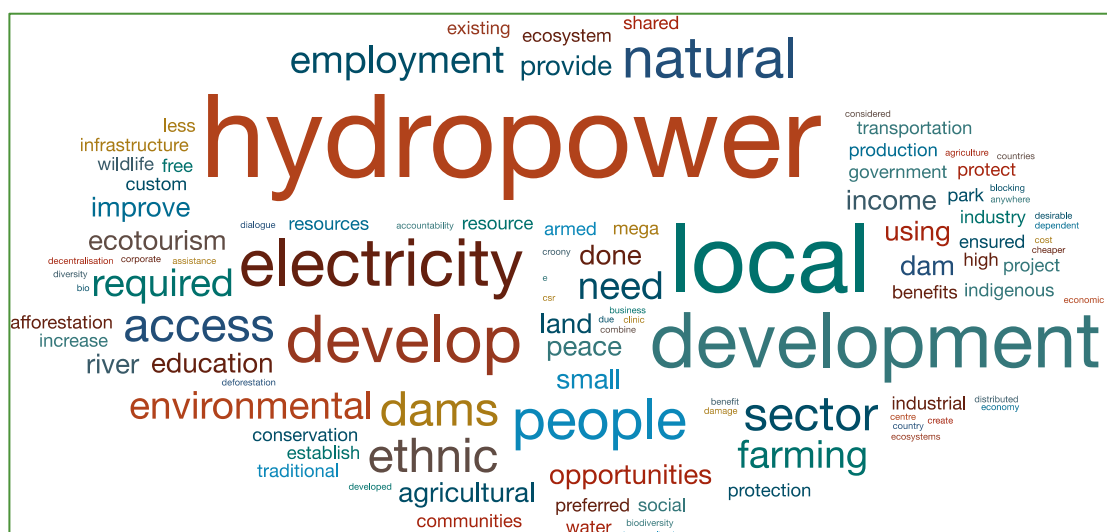
Livelihoods: Many livelihoods are dependent on the resources of the Thanlwin River Basin and stakeholders expressed concern that food security and livelihoods would be threatened by the construction of hydropower dams.

National development: Stakeholders provided insights on hydropower development in relation to national development. On the one hand, it was recognized that hydropower can increase revenue for economic development. On the other hand, stakeholders raised the concern that the country may go into debt due to the construction of large-scale HPPs. China's influence on Myanmar's hydropower development was also raised as a concern.

4.1.2 Opportunities

Figure 4.3 below shows the word cloud for the most frequently listed opportunities in the Thanlwin River Basin.

Figure 4.3: Thanlwin word cloud – opportunities



The main opportunities raised were in relation to hydropower, small-scale hydropower, development, benefit sharing, livelihoods and protecting environmental assets. A summary is provided below.

Hydropower: Due to the potential to increase local revenue through taxes, supply of electricity and reduce the current use of wood for fuel, and thereby reduce deforestation, hydropower was listed as an opportunity.

Small-scale hydropower: Although there was strong opposition to big dams, the CSO's do not oppose hydropower *per se*. Several opportunities for hydropower development were mentioned, including building small dams with lower environmental impact and costs. Small dams, using advanced technological development, which do not block rivers, were preferred options for some stakeholders.

Development: Stakeholders' main concerns were ensuring that development brings economic security for ethnic people, promotes economic growth in underdeveloped areas and creates employment opportunities for local communities. Stakeholders discussed the development of ecotourism several times and the tourism sector more broadly.

Industrial and hydropower development: The groups listed industrial development, including hydropower, under opportunities. Some participants recognised that hydropower may bring employment opportunities for local communities. Participants were of the opinion that revenue raised from hydropower should be used at the state level for the development of education, the economy and well-being. Access to electricity was listed as an important opportunity to ensure there is sufficient energy for local economic development. Water for irrigation was also mentioned as a benefit from hydropower.

Benefit sharing: Stakeholders promoted the equal sharing of natural resources, which should include sharing benefits from hydropower and other economic developments.

Livelihoods: Relating to agriculture and farming, combinations of livestock and agriculture were mentioned as opportunities.

Environmental assets: Environmental assets comprise a wide range of ecosystems with high biodiversity (e.g. Pala Wildlife Sanctuary) and those reported to be in a natural condition by stakeholders. Natural resources such as gold, valuable teak-, and other forests were discussed. Participants also proposed future opportunities for creating national parks and eco-tourism in the basin.

By and large, the stakeholders in Shan and Kayah states raised the same issues and opportunities. Some differences included:

- Governance issues were discussed more in Shan State (nine items) compared to Kayah (two items);

- CSO stakeholders in Shan State identified 11 issues related to hydropower dams compared to only four issues in Kayah State;
- In Kayah State it was also mentioned that the three existing Lawpita (Balauchaung 1, 2 & 3) dams produce sufficient power to distribute to the whole state, but today, 40 years after the construction of Balauchaung 1, some local communities are still without access to electricity;
- 15 different types of environmental pressures were listed in Kayah State, and only one environmental asset. 10 environmental assets were mentioned in Shan State, and 11 environmental pressures; and
- Gender issues were only mentioned in the Kayah State.

4.1.3 Issues and opportunities by CSOs and government

The word clouds and analysis above combine the frequency of listed issues and opportunities by both the CSOs and Kayah and Shan state government representatives. Figure 4.5 shows a breakdown of the frequency of listed issues (left) and opportunities (right) for CSOs and government. The main differences were:

- Government had a higher frequency of issues related to environmental pressures, displaced people and flooding than CSOs;
- Issues of accountability and transparency, governance and ethnic minorities were not listed by the government;
- CSOs have a higher frequency of issues related to conflict; and
- Government had a higher frequency of opportunities related to development, access to electricity and environmental assets.

4.2 Participatory mapping

The inputs from the participatory mapping exercise in Taunggyi and Loikaw were combined to create a digitized map of key environmental and social values for the Thanlwin River Basin (Figure 4.4). The key areas mapped in the Thanlwin Basin mainly included issues related to:

- **Conflict:** Active conflicts, restricted areas, land confiscated by military, location of armed groups and ethnic minority groups;
- **Biodiversity and forests:** Conservation areas and virgin forests (valuable teak forest);
- **Areas of socio-cultural importance:** Ancient natural cave; and
- **Environmental changes:** Bank erosion and flooding, mining issues and natural alluvial land.

Figure 4.4: Digitized participatory map for Thanlwin River Basin

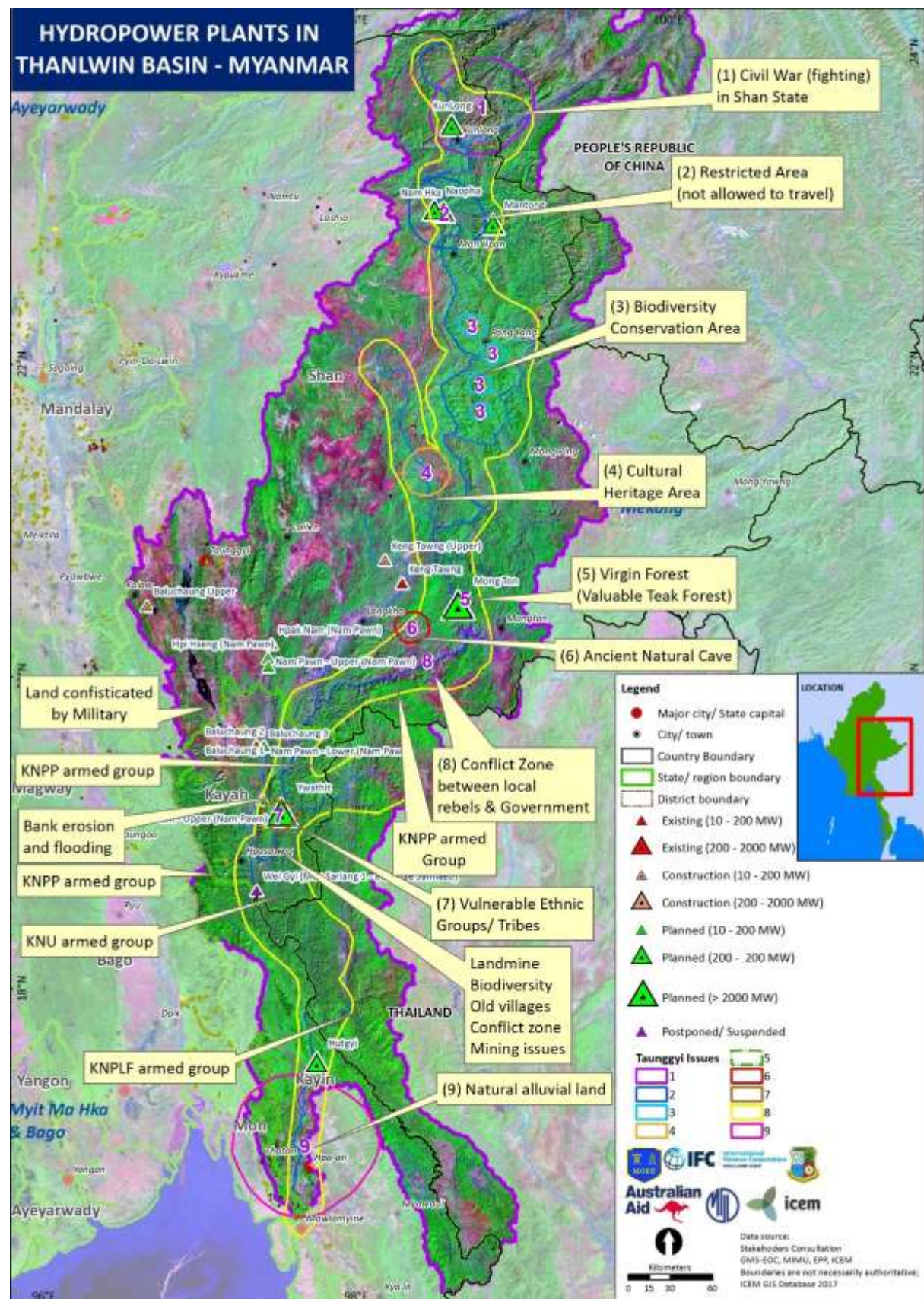
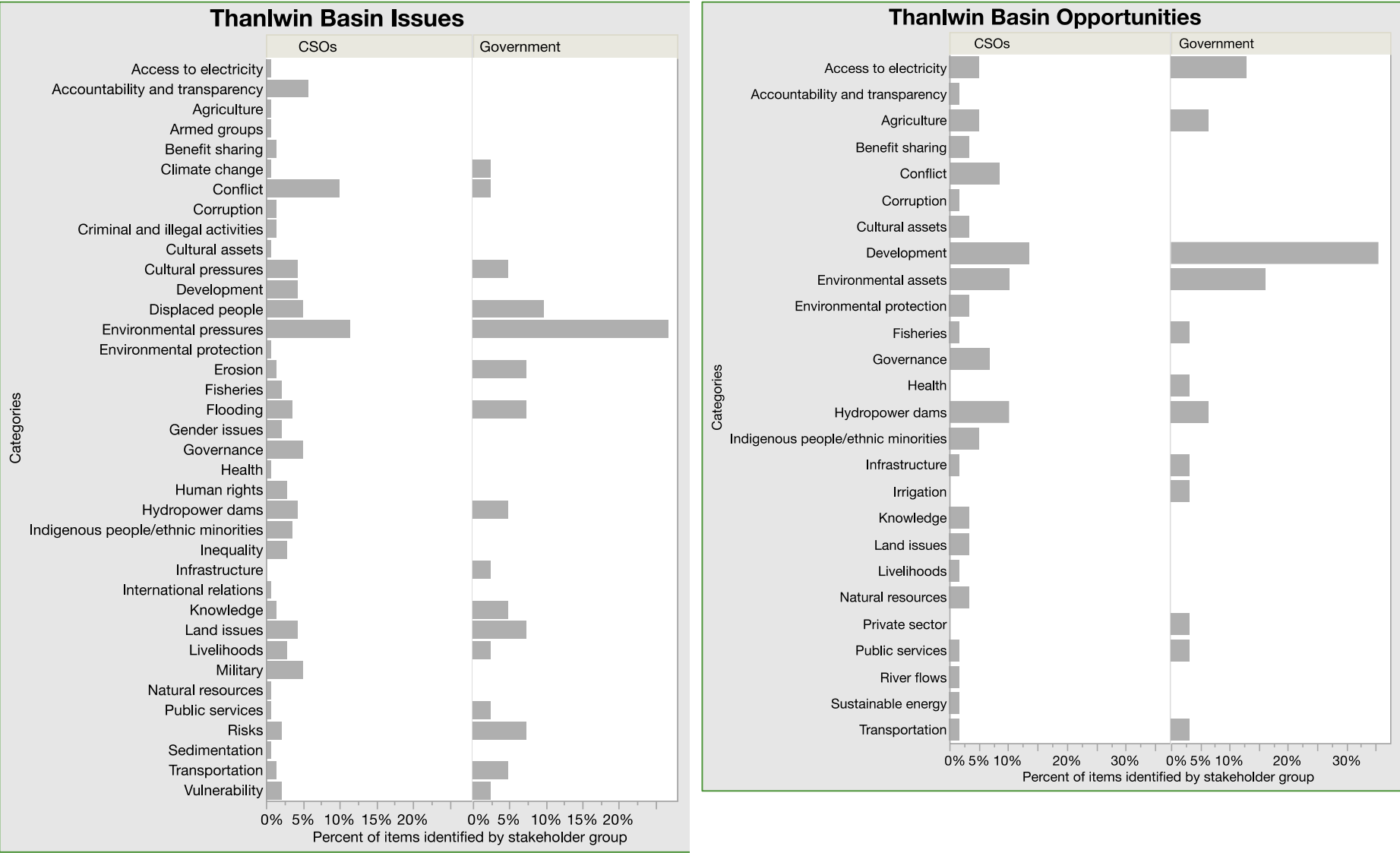


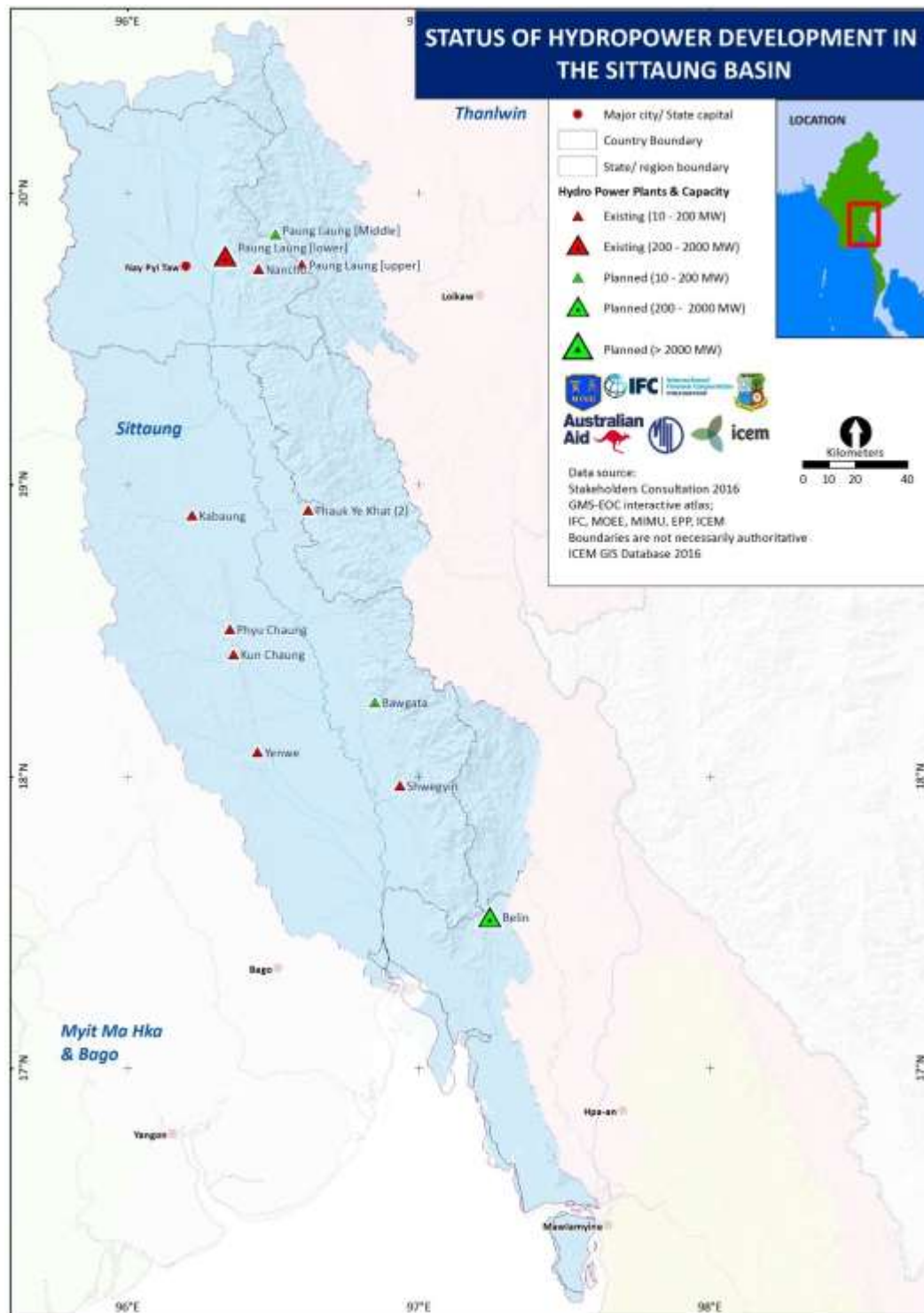
Figure 4.5 Thanlwin Basin issues (left) and opportunities (right) by CSOs and government



5 SUMMARY OF RESULTS FROM SITTAUNG BASIN

The Sittaung River rises northeast of Yamethin on the edge of the Shan Plateau and flows south with a catchment area of 48100 km² for 420 km to empty into the Gulf of Martaban of the Andaman Sea. The broad Sittaung Basin lies between the forested Bago Mountains on the west, and the steep Shan Plateau on the east. There are nine existing projects in the Sittaung Basin with an installed capacity of 810 MW and additional three project are planned to add an additional 540MW (Figure 5.1).

Figure 5.1: Planned and existing hydropower plants in the Sittaung Basin



The team facilitated two workshops in the Sittaung Basin; one with the Bago division government representatives and the other with CSOs in Taungoo. The key issues and opportunities raised by both stakeholder groups are outlined in the following sections.

Figure 5.2 below shows the word cloud for the most frequently listed issues in the Sittaung Basin. This analysis is a combination of results from the Bago and Taungoo workshops, including feedback from both the CSOs and government participants.

[illegible]

Environmental pressures: Stakeholders identified several environmental pressures, including deforestation, water pollution, wastewater from gold mining and the overuse of fertilizers and pesticides in agriculture. The stakeholders also reported that there has been loss of wildlife habitat, biodiversity and wetlands and damages to aquatic ecosystems. The pressures on fisheries included the loss of fish species. Potential opportunities raised were the development of aquaculture for fisheries and shrimp.

Hydropower development: The participants listed earthquakes and dam breaks as major concerns.

Livelihoods: Local communities are at risk due to the confiscation or grabbing of land grabbing, which could also happen in connection with hydropower development. These actions threaten traditional livelihoods.

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Hydropower: Two options were proposed for hydropower development: 1) not building dams at all, or 2) building run-of-river dams. Alternative energy systems like solar were mentioned as opportunities.

Agriculture: Stakeholders reported that there are opportunities for improving agricultural development for local people and raising awareness of agricultural diversification. Farmland can be used for rice and a variety of beans, for example. Stakeholders acknowledged that agricultural land can be inundated by reservoirs in association with HPPs, but the reservoirs can also provide water for agriculture and domestic supply. Water shortages in summer and a lack of clean drinking water were also reported.

Transportation: Transportation is expected to improve in future. Stakeholders acknowledged that hydropower development could contribute to improved road transport.

Public services: Stakeholders also reported that more education and health staff are needed to improve public services. It is expected that improvements could be made to health services as a result of future hydropower development.

Land policy: Formulation of land policy was an important opportunity raised during the consultations. The groups recommended that farmland lost by communities should be returned or new farmland established.

Environmental assets and protection: Stakeholders reported that there are rare pasture lands and wetlands in the state that could developed for tourism. Additionally, the formulation of environmental protection groups could contribute to address pressures on the environment.

5.1.3 Issues and opportunities by CSOs and government

The word clouds and analysis above combine the frequency of listed issues and opportunities by both the CSOs and region/state government representatives. Figure 5.5 shows a breakdown of the frequency of listed issues (left) and opportunities (right) for government in Bago and CSOs in Taungoo. The main differences were:

- Government had a higher frequency of issues related to environmental pressures, livelihoods, flooding, sedimentation and hydropower than CSOs;
- Issues of accountability and transparency, governance and ethnic minorities were not listed by the government;
- CSOs have a higher frequency of issues related to conflict, transportation, erosion and fisheries;
- Government had a higher frequency of opportunities related to development, access to electricity, environmental assets and agriculture; and
- CSOs have a higher frequency of opportunities related to land issues, public services and transportation.

5.2 Participatory mapping

The inputs from the participatory mapping exercise in Bago with government representatives and Taungoo with CSOs were combined to create a digitized map of key environmental and social values in the Sittaung River Basin (Figure 5.4). The key issues mapped were:

- **Biodiversity and forests:** Areas with high biodiversity, rare species, Ku La Mountain, Koe Pyin Forest, protected forests and Than Taung were indicated as a potential sites for eco-tourism activities;
- **Areas of socio-cultural importance:** Pagodas, historical towns, fruit and vegetable gardens and medicinal plants;

- **Environmental changes:** Loss of fish species, flooding, increased run-off, riverbank erosion, soil degradation, increased sedimentation, changes in water levels, irregular flow, changes in delta formation and increased salinity;
- **Existing developments:** Hydropower, mining, rubber plantations and bridges,;
- **Pa Thi Dam:** Issues with flooding, land loss and no benefits reported by stakeholders; and
- **Bawgali Town:** Stakeholders experiencing land loss and poor transportation.

Figure 5.4: Digitized participatory map for Sittaung Basin

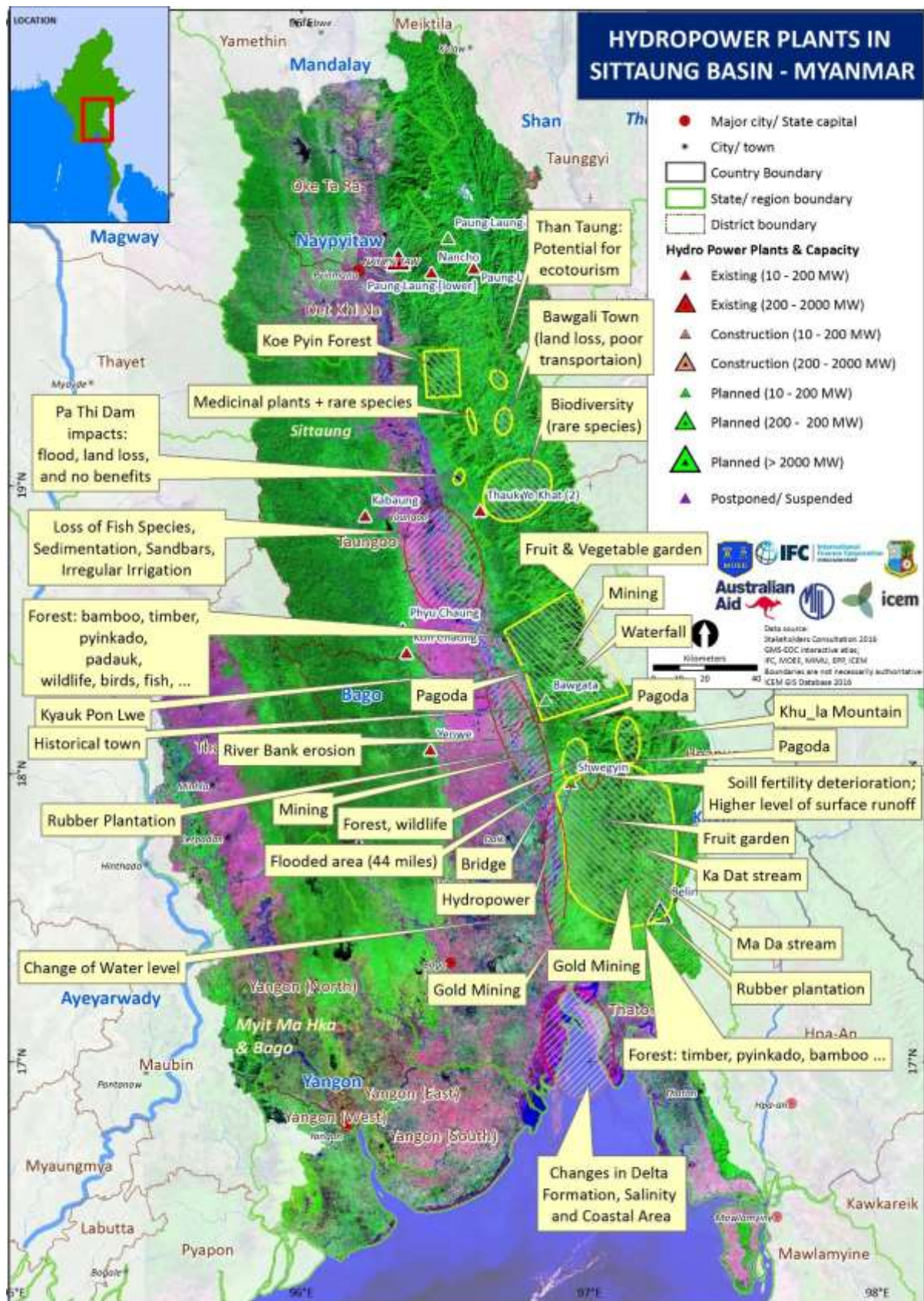
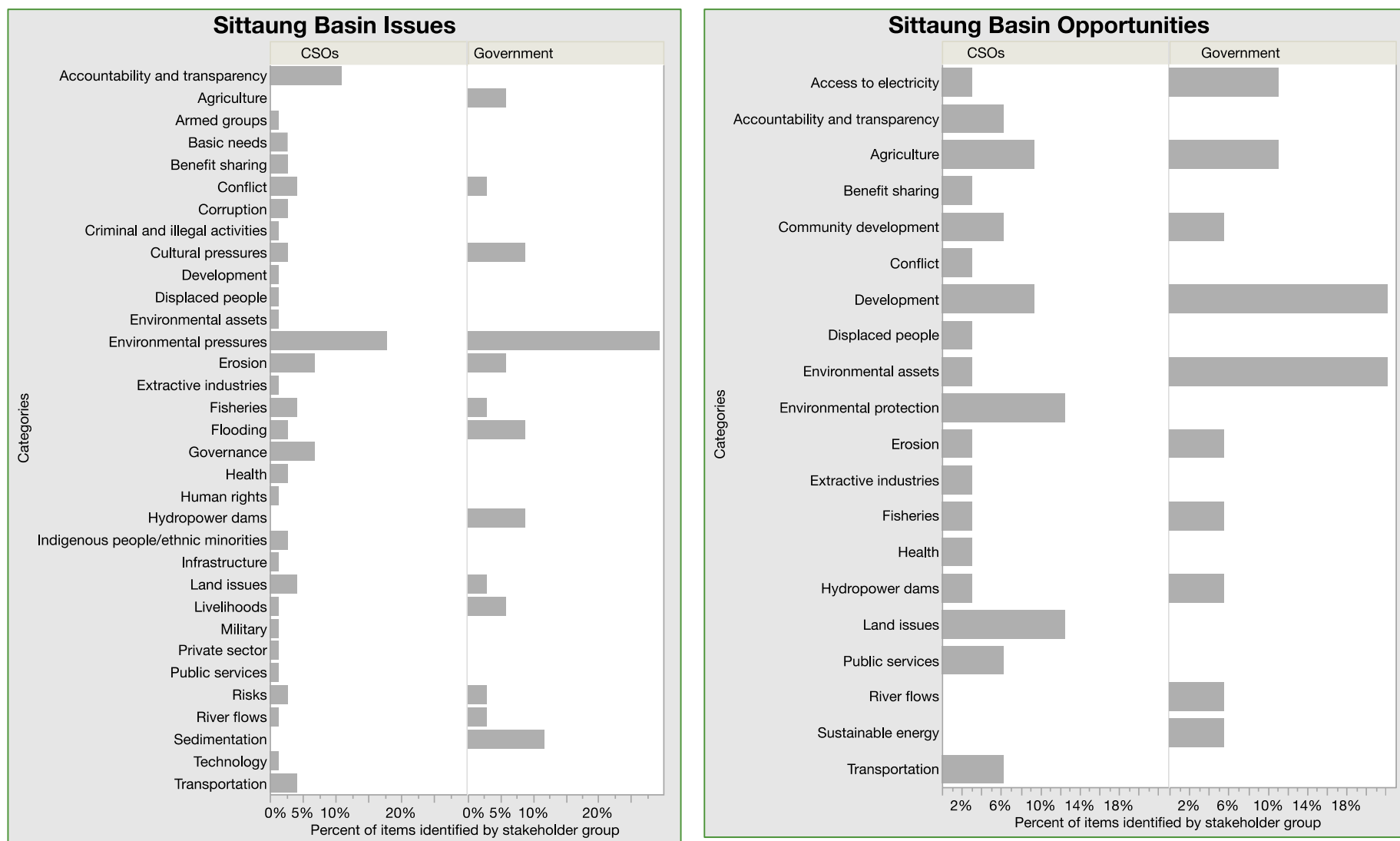


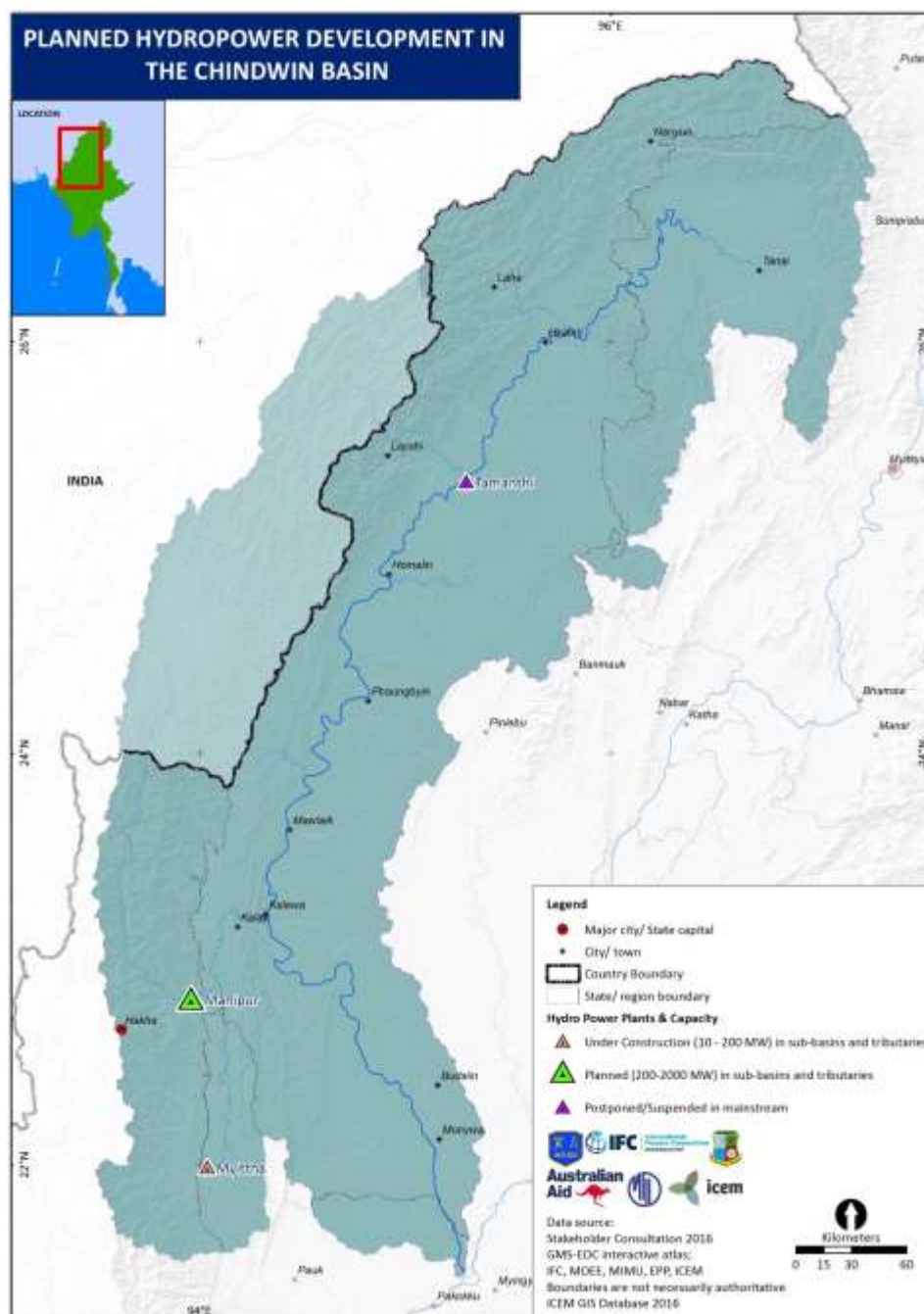
Figure 5.5: Sittang Basin issues (left) and opportunities (right) by CSOs and government



6 SUMMARY OF RESULTS FROM CHINDWIN BASIN

The Chindwin River is the major tributary of the Ayeyarwady River. Originating in the Himalayas, it runs south through a region of fertile meadows rich in natural resources for about 1,100 km before it joins the Ayeyarwaddy south of Mandalay. There is one existing HPP (40MW), and two planned HPPs in the Chindwin River Basin. The 1200MW Tamanthi HPP, for export of electricity to India remains suspended (Figure 6.1).

Figure 6.1: Planned and existing hydropower projects in the Chindwin Basin



6.1 Summary of issues and opportunities

The team facilitated two separate workshops in the Chindwin River Basin with Sagaing regional government representatives and CSOs in Monywa. The key issues and opportunities raised by both stakeholder groups is outlined in the following sections.

Figure 6.2 below shows the word cloud for the most frequently listed issues in the Chindwin River Basin. This analysis is a combination of both the CSO and government participants.

[illegible]

Environmental pressures: The environmental pressures reordered were:

- Health impacts were also reported in relation to pollution as the water is not suitable for drinking and cause skin problems.

Flooding: The Chindwin River Basin suffers from both extreme floods and droughts. Flooding occurs twice a year, damaging farmland and resulting in socioeconomic impacts.

Hydropower: The concerns raised were that hydropower may change river flows and increase flooding. Dams may block fish migration routes; threatening fisheries, biodiversity and local livelihoods.

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low water levels. Navigation is placed at further risk from hydropower development due to changing flows and increasing sedimentation.

Governance: Stakeholders reported that the regional government lacks authority and violates labour rights.

Figure 6.3 shows the word cloud for the most frequently listed opportunities in the Chindwin River Basin by Sagaing regional government representatives and CSOs. The main opportunities raised were in relation to development, hydropower, access to electricity, renewable energy, agriculture, transportation, fisheries and improved governance and forest management.



Development: The Lower Chindwin has economic opportunities, and it was observed that electricity can lead to further industrial development, especially in the industrial zones of Kalay and Monywa. More opportunities are eco-tourism development, trade and business. A need to improve production of the forest and fisheries sectors was mentioned.

Access to electricity: Stakeholders recognised that electricity is needed for future industrial development. Improving electricity access can create employment opportunities and improve education and living standards. Further, electricity may reduce the use of fuelwood for energy and reduce deforestation.

Agriculture: Stakeholders reported that agricultural development can be improved by improving irrigation and water supply and further mechanizing farming systems.

Transportation: Opportunities include building bridges and improved implementation of navigation laws to increase the safety of navigation. Navigation creates trade and employment opportunities and there is a need to improve it. Designs for hydropower on the mainstream should consider ship locks to allow passage of ships.

Governance: Governance can be improved by enforcing laws and rules in general. There is a need to control alluvial gold mining and improve monitoring and inspection of the mining sector. EIA procedures for all sectors must be followed. Management of wastewater from mining and systematic regulation of the sector are necessary.

Forest management: The need for reforestation was highlighted by stakeholders. Effective forest management and establishment of community forests would help protect the forests. Regulation of logging, sand and gravel mining is needed to protect the environment. Environmental monitoring groups could be established, and waste could be recycled.

Fisheries: Opportunities to improve fisheries include fish stocking in the rivers, constructing fish ladders if hydropower dams are built, and improving the marketing of the fisheries sector.

6.1.3 Issues and opportunities by CSOs and government

Figure 6.5 shows a breakdown of the frequency of listed issues (left) and opportunities (right) for Sagaing government representatives and CSOs. Some of the main differences were:

- CSOs had a higher frequency of issues related to environmental pressures and impacts from mining than government;
- Government had a higher frequency of issues related to public services, sedimentation and transportation than CSOs;
- Government had a higher frequency of opportunities related to hydropower, access to electricity and development; and
- CSOs have a higher frequency of opportunities related to agriculture, alternative energy, environmental assets, governance and transportation.

6.2 Participatory mapping

The inputs from the participatory mapping exercise in Monywa, with Sagaing region government and CSOS were combined to create a digitized map of key environmental and social values in the Sittaung River Basin (Figure 6.4). The key issues that were mapped include:

- **Extensive mining areas:** Gold, copper, jade, ruby and alluvial gold mining at Naungpoaung Creek, gold and jade production at Khamti and deforestation due to coal mining;
- **Biodiversity and protected areas:** Chutthin Wildlife Sanctuary, Inndawgyi Lake, Pasohtone Reserved Forest, protected areas, forest and key biodiversity areas;
- **Cultural heritages sites:** Shwemuhtaw Pagoda, Phowintennaung ancient pagoda, Bawdihahtaung Pagoda, Shwedaungoo Pagoda; and
- **Naga Land:** Poor education, health and transportation services reported.

During discussions, it was noted there was also flooded areas and deforestation reported in Kalay, Mawlite and Hpaungpyin regions in the Chindwin River Basin.

Figure 6.4: Digitized participatory map for Chindwin Basin

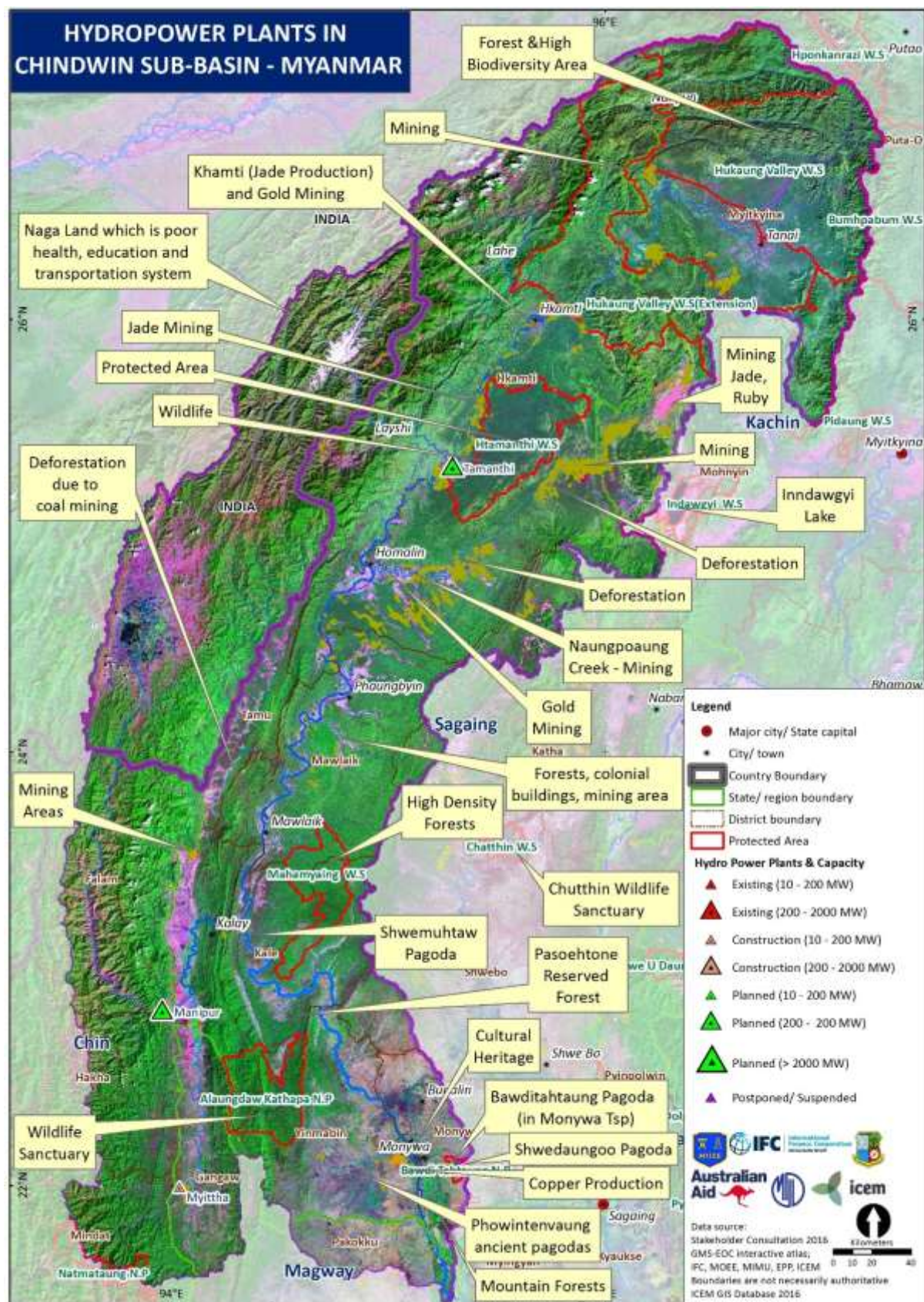
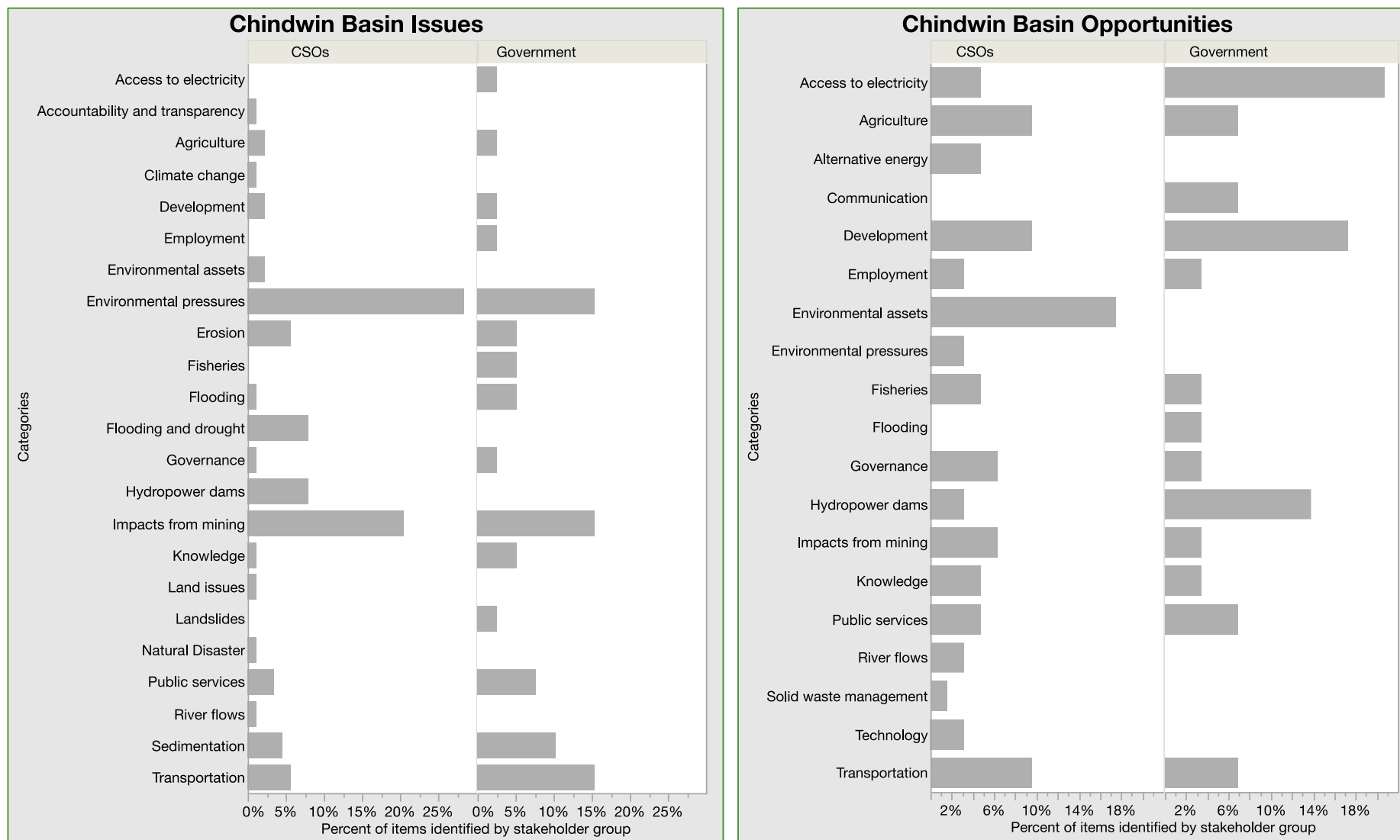


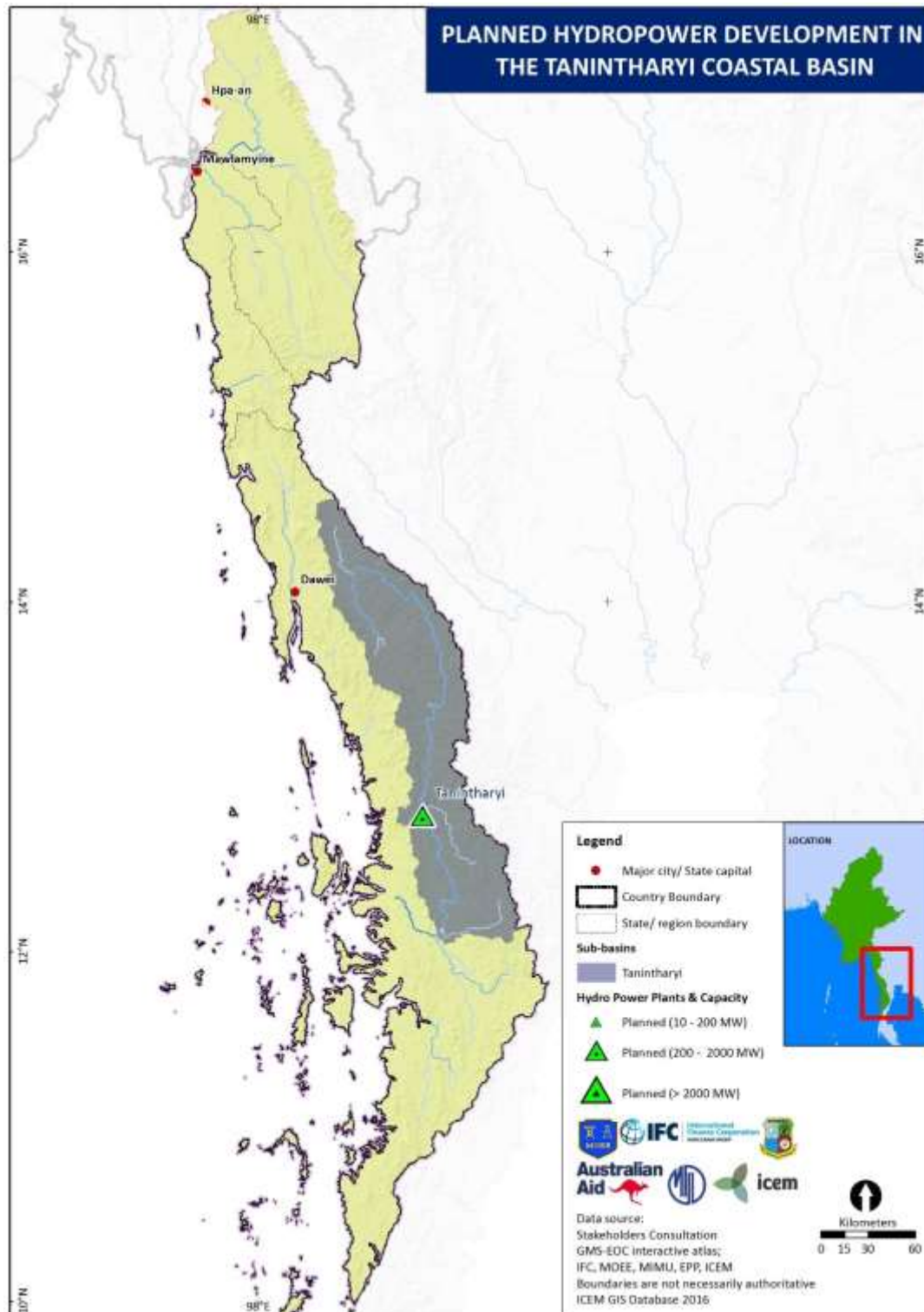
Figure 6.5 Chindwin Basin issues (left) and opportunities (right) by CSOs and government



7 SUMMARY OF RESULTS FROM TANINTHARYI REGION

The Tanintharyi River flows through the Tanintharyi Region, before entering the sea at Myeik (Mergui). The river rises from the Tenasserim Range at an altitude of 2,074 m and flows into the Andaman Sea. There is one planned HPP on the Tanintharyi River (Figure 7.1).

Figure 7.1: Planned hydropower project in the Tanintharyi Region



The ES team facilitated two separate workshops with CSOs and Tanintharyi regional government representatives in Dawei. The key issues and opportunities raised by both stakeholder groups is outlined in the following sections.

Figure 7.2 shows the word cloud for the most frequently listed issues in the Tanintharyi region. This analysis is a combination of both the CSOs and government participants.

[illegible]

Governance: Stakeholders listed issues around governance as major concerns. The lack of local voices and public participation emerged as important issues. Poor coordination between central, regional and local government, and the limited authority of local government was reported. Governance is further complicated by the existence of parallel administrative systems. It was also reported that the existing laws are weak and not enforced. Some specific cases discussed were:

- In relation to the export of gas from Tanintharyi, it was pointed out that communities living near the project do not have access to electricity and the price of electricity is too high.

Transparency and accountability: There is a lack of both transparency and accountability and sometimes, misinformation by companies about the projects and whether or not there has been local ac-

ceptance of projects. EIAs are weak and often omit information on negative impacts. Often, no compensation is paid to local people affected by the project. There is a need to include local knowledge in EIAs and before project design.

Development: Stakeholders reported that there is often a feeling of insecurity around development projects as foreign investments threaten local people's livelihoods and have negatively impacted vulnerable communities.

The CSO's perception of development mainly related to past negatives experiences from development of the special economic zone (SEZ). Some of the main issues reported were that the SEZ uses lots of water, impacts negatively on social aspects, results in no benefits to local people and has led to loss of labour rights and wage inequality due to an influx of migrant workers.

Conflict: Conflict in areas of the basin controlled by armed groups was a concern raised by stakeholders.

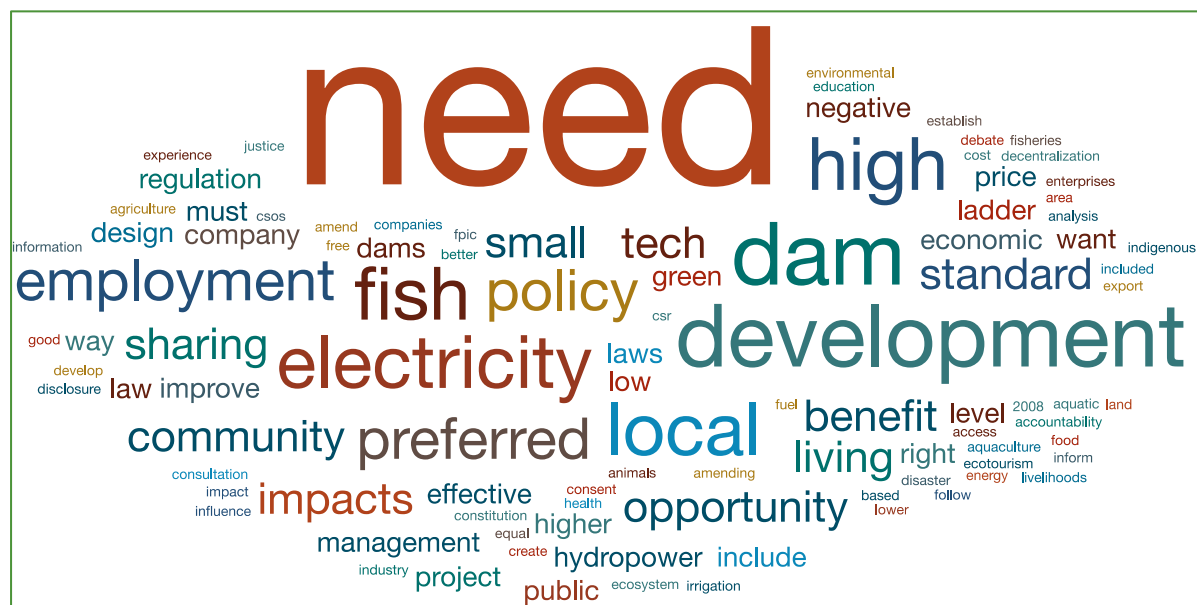
Hydropower: The main issues identified were the impacts of hydropower on aquatic species and the livelihoods of fishers, deforestation, biodiversity loss and flooding. It was also mentioned that currently the technology and knowledge for hydropower is limited in Myanmar.

Land issues: Stakeholders highlighted that land is confiscated for development projects, often without payment of adequate compensation. The confiscation of land often leads to loss of employment, which is a critical issue as generally there are limited employment opportunities in the Tanintharyi region.

7.1.2 Opportunities

Figure 7.3 shows the word cloud for the most frequently listed opportunities in the Tanintharyi region by CSOs and Tanintharyi regional government representatives. The main opportunities raised were in relation to development and hydropower, improving governance and protecting environmental assets. A summary of the issues is provided below.

Figure 7.3: Tanintharyi word cloud - opportunities



Development: Opportunities for development include ecotourism and tourism, trade, development of small and medium enterprises (SME) and manufacturing of export products, all of which should focus on achieving local development.

Accountability and transparency: Decision-making could be improved by having a mediator between private companies and communities. The need for free prior and informed consent (FPIC) through effective public consultation and information disclosure at the project level was proposed by some participants.

Stakeholders pointed out that private sector actors should implement CSR and consider the selling of shares locally. A policy and law on revenue sharing was suggested to ensure that local communities benefit from development.

Governance: Opportunities for improving governance include amending the 2008 Constitution for decentralization to the state and regions. Stakeholder also reported the need for effective laws and regulations for the hydropower sector. Compliance and monitoring are necessary to ensure companies follow the law. Specifically, the groups highlighted that civil society must have the right to participate in decision-making, that public spaces are must be provided for debate and discussion and that social justice and indigenous people's rights must be respected.

Hydropower: Opportunities listed relating to hydropower dams were to construct small high-technology dams with reduced environmental impacts and lower energy production. The cost-benefit analysis should include consideration of negative impacts at the local level.

Groups pointed out that fish ways and fish ladders should be included in hydropower dam design. Some stakeholders recognised that hydropower dams are good and are sources of renewable energy which can save fuel. However, they also pointed out that there is no need for hydropower with the large deposits of natural gas resources in the region.

Environmental assets: Ecosystems and wildlife can be protected through introducing more sustainable economic policy, creating additional protected areas for wildlife and fish and establish national parks. Groups pointed out the need to protect aquatic animals in rivers and streams. Community-based natural resource management was also raised as an opportunity to protect biodiversity.

7.1.3 Issues and opportunities by CSOs and government

Figure 7.5 shows a breakdown of the frequency of listed issues (left) and opportunities (right) for CSOs and government representatives and for the Tanintharyi region. Some of the main differences were:

- CSOs had a higher frequency of issues related to accountability and transparency, governance and environmental pressures;
- Government had a higher frequency of issues related to access to electricity, hydropower and conflict;
- Government had a higher frequency of opportunities related to access to electricity, development, hydropower and protecting environmental assets; and
- CSOs have a higher frequency of opportunities related to benefit sharing, governance, employment and livelihoods.

7.2 Participatory mapping

The inputs from the participatory mapping exercise in Dawei with Tanintharyi region government and CSOs were combined to create a digitized map of key environmental and social values in the Tanintharyi River Basin (Figure 7.4). The key issues that were mapped include:

- **Mining and resource exploitation:** Kanbaut minerals, natural gas reserves, Heinda (minerals processing and tin and tungsten mining);
- **Coal mining:** Electricity production from coal, Thakyettaun, Hteeoo and Banchaung coal mines;
- **Industrial zone:** Dawei Deep Sea Port, SEZ and proposed economic zone;
- **Protected areas and conservation zones:** Proposed Leye Protected Area Extension, Lampi National Marine Park, Tiger Conservation Zone and reserve forests, Proposed Tanintharyi Nature Reserve and Heinnay natural forests;
- **Mountains:** Morse, Mahlwal and Nat Eain;

- **Islands:** Pearl, Mali, Pyinbugyi, Kayakyet and Maungmakan beach;
- **Cultural and socio-economic:** Mawkin tribe, edible bird nest production; and
- **Fishing zones.**

Figure 7.4: Digitized participatory mapping for Tanintharyi Region

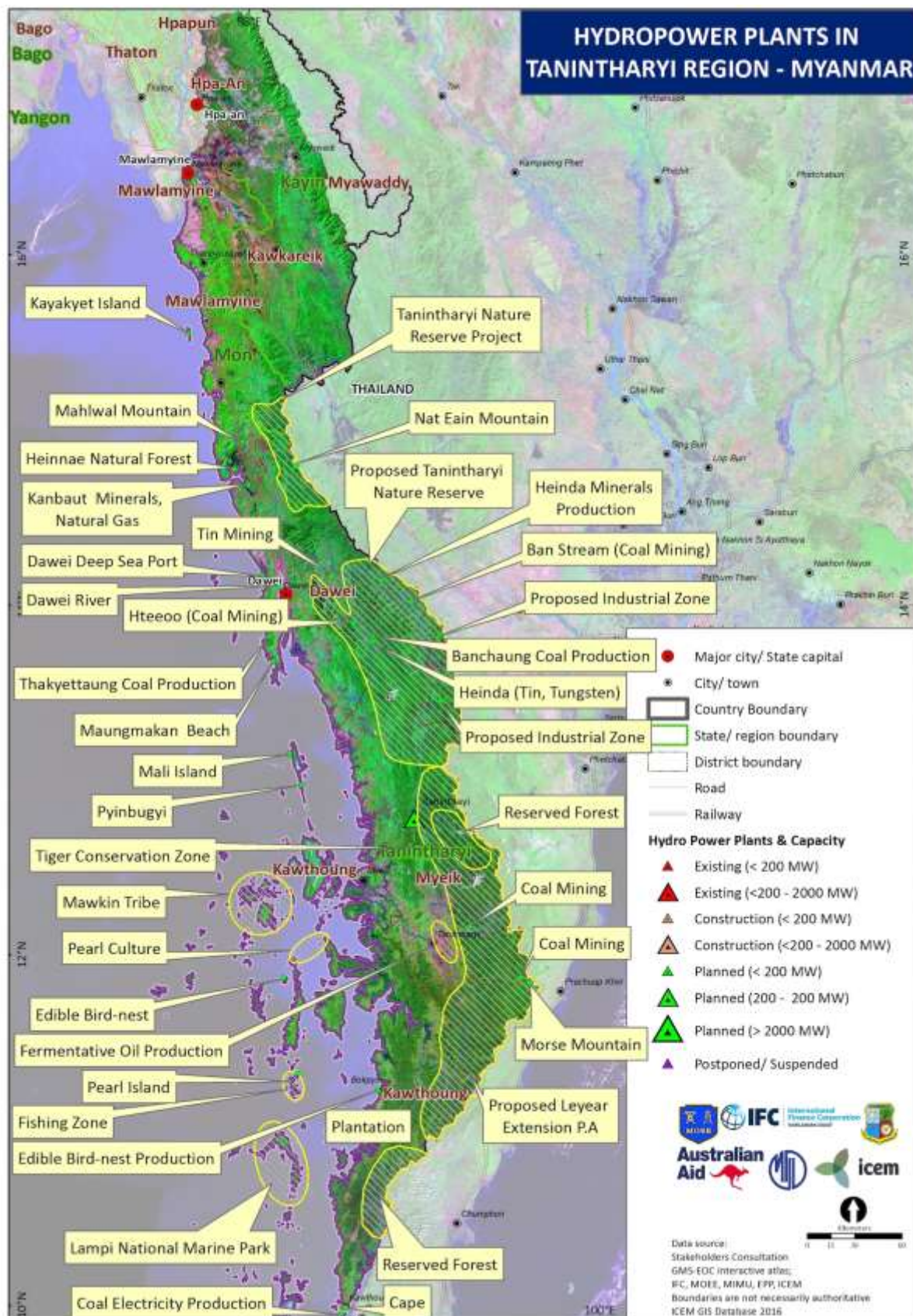
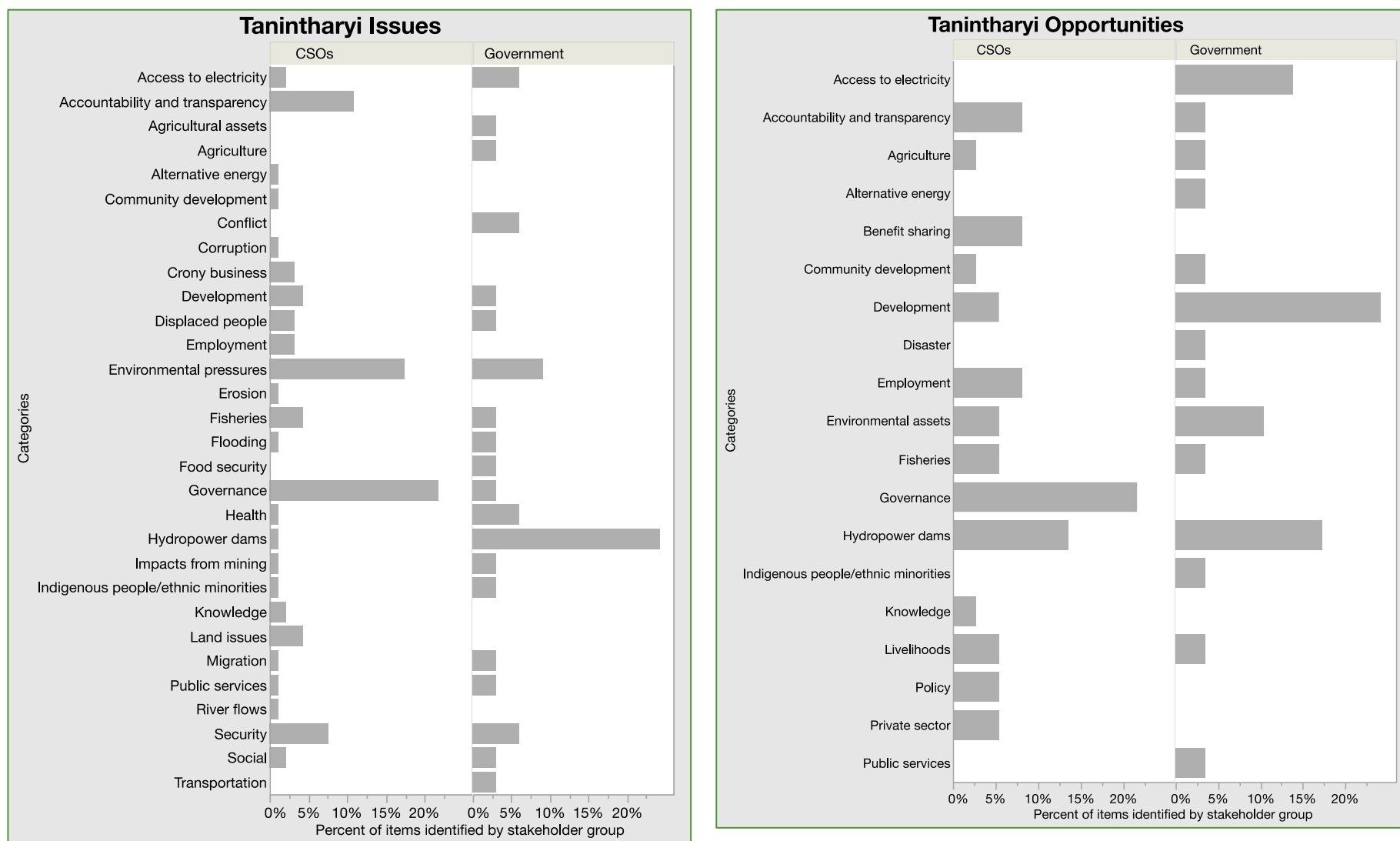


Figure 7.5: Tanintharyi issues (left) and opportunities (right) by CSOs and government



8 CONCLUSION

The regional river basin consultations were the first opportunity in the SEA to engage with stakeholders at the river basin level. Discussing the issues and opportunities facing river basin development in the Thanlwin, Sittaung, Chindwin and Tanintharyi offered important inputs in defining the SEA key themes and highlighting specific areas in the river basins for further analysis.

Conflict and ethnic minorities emerged as significant issues in relation to hydropower development. CSOs in the Thanlwin, Tanintharyi and Sittaung basins raised issues around conflict, control of natural resources and ethnic minority groups. Many of the planned large-scale hydropower projects are in contested areas; areas that have experienced past conflict events or states/regions that are pushing for increased revenue sharing and control of natural resource projects. Due to the complex and evolving nature of conflict in Myanmar it was decided that conflict would be analysed as a separate strategic theme in the SEA. The IFC have provided additional resources for trend and spatial analysis for conflict and peacebuilding.

Highlighting and mapping existing environmental pressures guided the analysis for the strategic themes. Stakeholders in the Sittaung River Basin reported changes in flow, sedimentation and riverbank erosion, loss of fisheries and social issues associated with existing hydropower. Assessing the impacts, benefits and cumulative effects of the nine existing HPPs in the Sittaung can be used to inform sustainable hydropower development in other major basins by learning from past experiences and observed changes in natural resources and social systems.

Mining was raised as a significant issue in the Chindwin River Basin. Such activities led to water quality pollution, riverbank erosion and sedimentation and will be assessed in the geomorphology and sediment and economic themes. Deforestation and illegal logging were highlighted in all basins; informing the biodiversity theme in mapping protected areas, forest estates and changes in forest cover. Understanding the existing environmental pressures from existing hydropower, mining and other land uses is important for establishing the baseline and the impact assessment phase when overlaying the planned HPPs.

Identifying the opportunities for river basin development defined the economic sectors and land use for analysis in the SEA. As with the issues above it is important to consider the existing economic sectors, land uses and opportunities for development at the basin level. From the regional river basin consultations, the key economic sectors identified in addition to hydropower were mining, agriculture, forestry and transportation, including inland water transport (IWT). The relationships between hydropower and these economic sectors will be analysed in the baseline and impact assessment phases.

While there were diverging views on hydropower and river basin development, the impacts and benefits were well recognised and will form the basis of future stakeholder dialogue. Stakeholders listed hydropower, development, governance, transparency and accountability and benefit sharing as issues, but also as opportunities. Under hydropower for instance, the environmental and social impacts of existing and planned hydropower were listed but also the potential benefits of hydropower including access to electricity, improved public services and agricultural and economic development. So, although some CSOs were against large-scale hydropower development until the peace process is resolved there is a starting point for dialogue on options for hydropower development that may benefit local communities and generate revenue for states and regions.

Stakeholders in the regional river basin consultations will be invited to participate in upcoming multi-stakeholder workshops focussing on issues specific to the Ayeyarwady-Chindwin and Thanlwin basins. To ensure that stakeholder engagement happens at each key step in the SEA the participants from the regional river basins will be invited to participate in the following baseline assessment workshops in Yangon, Loikaw and Myitkyina in January and February 2017.

ANNEXES

Annex 1: Agenda for CSO Workshop

Time	Session
08:45 – 09:00	Registration
09:00 – 09:15	Welcome
09:15 – 09:25	Project background and introduction of the Consultant Team
09:25 – 10:00	Overview of the SEA of Hydropower Sector in Myanmar
10:00 – 10:20	Q&A
10:20 - 10:40	<i>Refreshments</i>
10:40 – 11:20	Group Discussion: Discuss environmental and socio-economic (E&S) values and uses of the Thanlwin River, and key development issues facing the basin.
11:20 – 12:00	Group Activity 1: Outline the E&S values and the issues and concerns around the development of the Thanlwin River Basin.
12:00 – 12:30	Presentation of group discussions and feedback
12:30 - 13:30	<i>Lunch</i>
13:30 – 13:45	Group Discussion: Spatial analysis of the Thanlwin River Basin.
13:45-14:30	Group Activity 2: Groups are provided with base maps of the Thanlwin River, using the maps to: <ul style="list-style-type: none"> • Draw the locations of key areas for biodiversity and livelihoods in the basin • Identify stakeholders at the basin and local level
14:30- 15:00	Presentation of group discussion and feedback
15:00 - 15:20	<i>Refreshments</i>
15:20- 15:35	Overview of communications tools for SEA
15:35-15:50	Next steps and implementation schedule
15:50- 16:30	Discussion on how stakeholders can interact with SEA and communication tools

Annex 2: Participant list

1. Participating government stakeholders

Organization	Position	N
AGM; Internal Water Transport (I.W.T), Sagaing	Staff	1
D.W.I.R, Sagaing	Assistant Director	1
Department of Agriculture (Regional Office), Tanintharyi	Staff	1
Department of Fishery, Sagaing	Staff	1
Department of Fishery, Tanintharyi	Deputy Director	1
Department of Meteorology and Hydrology, Kayah State	Asst. Director	1
Department of Rural Development, Sagaing	Assistant Director	1
Department of Social Welfare (Regional Office), Tanintharyi	Staff	1
DEPP (MOEE), Sagaing	Staff	1
DEPP, Tanintharyi	Staff	1
Dept. of Geography, Bago University	Ass. Professor	1
DHPI, Department of Hydropower, Sagaing	Staff Officer (Civil)	1
DOA, Department of Agriculture, Sagaing	Deputy Director	1
DRD, Department of Rural Development, Sagaing	Staff	1
DWIR, Tanintharyi	Staff	1
Dy. CE, Tanintharyi	Staff	1
ECD Head Office, Naypyitaw	Staff	2
ECD, Bago	Asst. Director	1
	Deputy Staff Officer	2
	Director	1
	Staff Officer	3
ECD, Kayah State	Accountant-2	1
	Asst. Director	2
	Deputy Staff Officer	1
	Minister	1
	Staff Officer	2
ECD, Sagaing	Staff	5
ECD, Shan State	Asst. Director	1
	Deputy Staff Officer	4
	Staff Officer	2
ECD, Tanintharyi	Staff	7
EERI, Tanintharyi	Staff	1
ESE, Sagaing	Assistant Division Engineer	1
Irrigation and Water Utilization Management Office, Kayah State	Staff Officer	1
Irrigation Department, Sagaing	Staff	1
Ministry of Agriculture, Livestock and Irrigation, Kayah State	Asst. Supervisor	1
	Staff Officer	1
Ministry of National Planning and Development, Kayah State	Asst. Director	1
Ministry of Social Welfare, Kayah State	Staff Officer	1
Planning Department, Tanintharyi	Deputy Director	1
Planning, Sagaing	Staff	1
R.O Forestry, Tanintharyi	Staff	1
Relief & Resettlement Department, Sagaing	Staff	1
Relief and Resettlement Department (RRD), Tanintharyi	Staff	1
Water Resource Utilization Department, Tanintharyi	Staff	1
All	All	65

2. Participating Civil Society Organisation (CSO) stakeholders

	Chindwin	Sittaung	Tanintha- ryi	Thanlwin		All
Organization	Sagaing	Bago	Tanintha- ryi Division	Kaya h	Shan	
88 Generation Peace & Open Society			2			2
88 Open Society Student Generation Group	1					1
ACTS					2	2
BG Blood Donation Group	2					2
Cherry Image					2	2
Chindwin Network	1					1
DANU					1	1
DANU Literature and Cultural					2	2
DANU Youth Network					4	4
ECD					2	2
F.S				1		1
Farmer Union			2			2
Fauna & Flora International			1			1
Future Light	9					9
Gal Bar Literature and Cultural		1				1
Gal Bar Women Development		1				1
GMS Power Public Co. Ltd.			3			3
Green Network			1			1
Hand and Land					1	1
Human Right Watch Group	1					1
Interfaith					3	3
K.D.W (Kyauk Kyi)		6				6
K.N.G.Y				1		1
KCSN				1		1
KEAN				1		1
KEG				2		2
KHRG (Thandaung)		1				1
KSWDC				1		1
KyWO				1		1
LAIN				1		1
LAIN/MATA				1		1
Law Home				1		1
Letpadaung mining watch group	1					1
LuMuHtar		2				2
Maing Pan Youth					2	2
Metta					1	1
Mizzima Hnalonethar				3		3
Monywa University Student Union	2					2
Moo Du Village			3			3
MPA					1	1
Observer	3	1		1		5
OFI (Our Future Initiative)			1			1
Paung Ku		1				1
Peace and Justice Legal Aid					2	2
Protection of Letpadaung peoples' benefit	1					1
Regional Development			2			2

	Chindwin	Sittaung	Tanintha- ryi	Thanlwin		All
Organization	Sagaing	Bago	Tanintha- ryi Division	Kaya h	Shan	
Rule of Law Network					2	2
Sagaing Youth Network	2					2
Sapal & Kyaysin Mountain Mining Watch Group	1					1
Sar Mu Htaw		5				5
Sein Yaung Soe (Kathar)	2					2
Shan State Peace Task Force					1	1
Shwe Yeik Sit		5				5
SNLD					2	2
Southern Shan Women Org					2	2
T.Y.O			1			1
Taung Yoe					3	3
Taungoo Community Center		1				1
Tavoyon Women's Union			3			3
The Peoples' Voice					2	2
Thuriyasandar Environmental Conser- vation Group	2					2
Trip Net			1			1
UCYN - Upper Chindwin Youth Net- work	1					1
UKSY				3		3
Writer					1	1
YWCA (TGI)					1	1
All	29	24	20	18	37	128

3. Consultant Team

Jens Sjorslev	Social and Livelihood Specialist	SEA team
Dr. Lwin Wai	Stakeholder Consultation Specialist	SEA team
U Nyo Maung	Professor (Rtd)	ECCSi
Dr. Win Myint	Environmental Specialist	SEA team
Yinn Mar Swe Hlaing	Social Specialist	SEA team
U Sein Aung Min	Asst. Director	MONREC HQ (Nay Pyi Taw)
Daw Thandar Hlaing	Staff Officer	MONREC HQ (Nay Pyi Taw)
Thinzar Oo	Administrative Officer	MIID (Yangon)

Annex 3: Conversion table: themes formulated by groups (in bold) and the categories under each used for analysis (based on Thanlwin River Basin consultations)

Agriculture	Development	Economic	Environment
Agriculture	Access to electricity	Access to electricity	Accountability/transparency
Fisheries assets	Accountability/transparency	Accountability/transparency	Agriculture
Environmental pressures	Agriculture	Agriculture	Agriculture pressures
Development	Benefit sharing	Basic needs	Climate change
Technology	Community development	Benefit sharing	Cultural pressures
Economic Development	Conflict	Community development	Displaced people
Access to electricity	Corruption	Corruption	Environmental assets
Sustainable energy	Cultural pressures	Development	Environmental pressures
Community development	Development	Displaced people	Environmental protection
Development	Displaced people	Economy	Erosion
Water flow	Environmental assets	Environmental assets	Extractive industries
Hydropower dams	Fisheries assets	Environmental pressures	Fisheries pressures
Hydropower Development	Health	Environmental protection	Flooding
Access to electricity	Human rights	Fisheries assets	Health
Agriculture	Hydropower dams	Flooding	Hydropower dams
Conflict	Inequality	Governance	Knowledge
Cultural pressures	Infrastructure	Hydropower dams	Land issue
Development	Knowledge	Inequality	Livelihoods
Fisheries assets	Land issue	Infrastructure	Public services
Hydropower dams	Livelihoods	Irrigation	Risks
Livelihoods	Public services	Land issue	Sedimentation
National development	Transportation	Livelihoods	Transportation
Employment	Vulnerability	National development	Use of natural resources
Development	Governance	Risks	Water flow
Politics/Peace	Accountability/transparency	Sustainable energy	Government Admin. Work
Accountability/transparency	Benefit sharing	Transportation	Accountability/transparency
Administrative structures	Governance	Security	Corruption
Armed groups	Indigenous people/ethnic minorities	Criminal and illegal activities	Natural Resource Extraction
Conflict	Hydropower dams	Development	Environmental assets
Conflict and hydropower	Knowledge	Environmental protection	Environmental pressures
Corruption	Land issue	Governance	Environmental protection
Cultural pressures	Use of natural resources	Human rights	Fisheries pressures
Displaced people	Social and Human Rights	Livelihoods	Land Issues
Governance	Access to electricity	Social	Agriculture pressures
Inequality	Agriculture	Basic needs	Cultural pressures
Infrastructure	Conflict	Benefit sharing	Hydropower dams
International relations	Cultural assets	Conflict	Land issue
Military	Development	Criminal and illegal activities	Private sector
Use of natural resources	Displaced people	Cultural pressures	Education
Legal	Gender issues	Displaced people	Public services
Accountability and transparency	Governance	Indigenous people/ethnic minorities	Knowledge
Environmental pressures	Health	Health	Women and Child
Environmental protection	Human rights	Land issue	Criminal and illegal activities
Erosion	Indigenous people/ethnic minorities	Public services	Indigenous people/ethnic minorities pressures
Land issue	Inequality	Ethnic	Gender issues

Agriculture	Development	Economic	Environment
Risks	Land issue	Cultural assets	
	Livelihoods	Cultural pressures	
	Military	Indigenous people/ethnic minorities	
	Private sector	Vulnerability	
	Transportation	Culture	
	Vulnerability	Indigenous people/ethnic minorities	
		Cultural pressures	