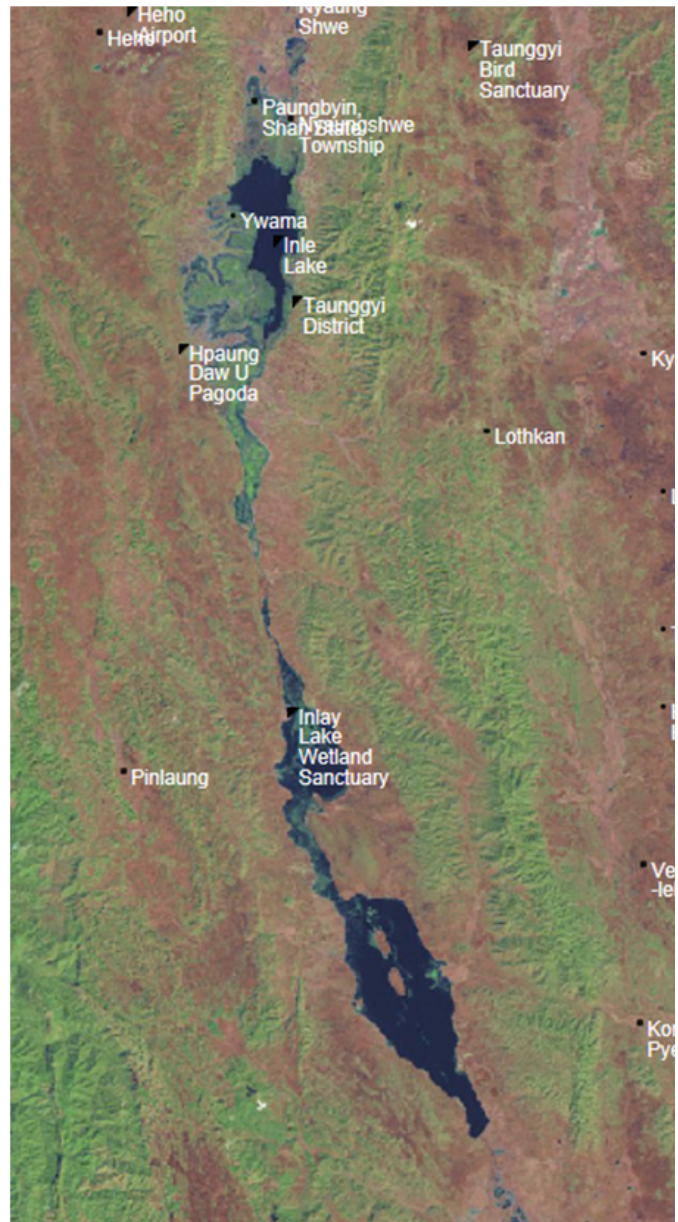


# A proposal for an administrative set up of river basin management in the Sittaung River Basin

By Zaw Lwin Tun, Bo Ni, and Sein Tun and Ingrid Nesheim



# REPORT

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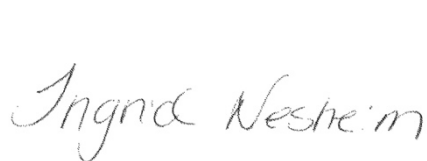
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| Summary<br>The purpose of this report is to present a proposal for how an administrative approach based on River Basin Management can be implemented in Myanmar. The Sittaung River Basin has been used as an example area to investigate how the basin can be administered according to the IWRM principles of cooperation between the different sectors and the administrative units, including stakeholder involvement. |
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## Preface

The authors of this report present experiences gained through testing implementation of the River Basin Management approach in the Sittaung River Basin. These activities are implemented as part of the project, Integrated Water Resources Management – Institutional building and training, hereafter called the IWRM project.

The IWRM project is a collaboration between the Norwegian institute for water research (NIVA) and the Ministry of Natural Resources and Environmental Conservation (MONREC). The project which is part of the Norwegian – Myanmar Bilateral Environment Programme, 2015-2018, is funded by the Norwegian Ministry of Foreign Affairs. The project leader at MONREC is U Bo Ni, director of Watershed Management Division, Forest Department, and Researcher Ingrid Nesheim is project leader at NIVA. The steering group has representatives from Forest Department (FD), Irrigation and Water Utilisation Management Department (IWUMD), the Directorate for Water Resources and Improvement of River Systems (DWIR) and NIVA. The project leaders have a close dialogue with the National Water Resources Committee in Myanmar.

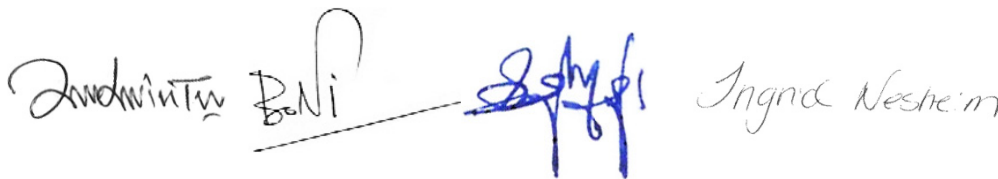
The development goal of the IWRM project is to make a significant and positive contribution to the implementation and functioning of Integrated Water Resources Management in Myanmar, for inland waters at the national level. The objective is to establish methods and standards for Integrated Water Resources Management and to support initiation of the implementation process. The outputs of the project include 1) training in integrated water resources management (IWRM) and IWRM tools, 2) establishment of water quality criteria, 3) establishment of a water quality laboratory, 4) case study in Sittaung River Basin - introduction of the river Basin management approach, 5) case study in Bago River Basin - performing water management work tasks in a river system, 6) case study in Inle Lake including development of a monitoring programme, 7) database for monitoring and water management and 8) project management and administration.

The current report is a deliverable under output 4. Case study in Sittaung River Basin – introduction of the River Basin Management approach.

The main purpose of the report is to propose how an administrative approach based on River Basin Management can be implemented in Myanmar. The Sittaung River Basin has been used as an example area to investigate how the basin can be administered according to the IWRM principles of cooperation among the different sectors and the administrative units, including stakeholder involvement. The report has been prepared by Dr. Zaw Lwin Tun (IWUMD), U Bo Ni (FD), Sein Tun (DWIR) and Ingrid Nesheim (NIVA). Daw Hla Oo Nwe (IWUMD) and Daw A Thi Ko (FD) have contributed to the report.

An important aim of testing of the implementation of the RBM approach is to create national experience on what works and what are challenging issues. We hope the report can be useful regarding future implementation of the River Basin Management approach at a broader scale in Myanmar.

22 December 2016

The image shows four handwritten signatures in blue ink. From left to right: 'Zaw Lwin Tun', 'Bo Ni', 'Sein Tun', and 'Ingrid Nesheim'. A horizontal line is drawn under the first two signatures.

*Zaw Lwin Tun, Bo Ni, Sein Tun, Ingrid Nesheim*

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အမှာစာ

မြန်မာနိုင်ငံသည် စစ်တောင်းမြစ်ဝှမ်းကိုအခြေခံ၍ မြစ်ဝှမ်းဒေသတစ်ခုလုံးကို လွှမ်းခြုံအခြေခံသော ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ်တစ်ရပ်ကို စမ်းသပ်အကောင်အထည်ဖော်လျက် ရှိပါသည်။ မြစ်ဝှမ်းဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ်အရ မြေပြင်တွင် လက်တွေ့ဆောင်ရွက်ရန် လိုအပ်သည့် ရေသယံဇာတစီမံခန့်ခွဲမှုနှင့် စပ်လျဉ်းသည့် လုပ်ငန်းများကိုမူ ပဲခူးမြစ်ဝှမ်းဒေသကို အခြေခံ၍ ဆောင်ရွက်လျက်ရှိပါသည်။

အထက်ပါ လုပ်ငန်းများသည် နော်ဝေနိုင်ငံ ရေသုတေသနဌာန (Norwegian Water Research Institute-NIVA) နှင့် သစ်တောဦးစီးဌာနတို့ ပူးပေါင်းဆောင်ရွက်လျက်ရှိသော ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်ခြင်း - စွမ်းဆောင်ရည်မြှင့်တင်ခြင်းနှင့် လေ့ကျင့်ပညာပေးခြင်းစီမံကိန်း (Integrated Water Resource Management – Institutional Building and Training)တွင် အပါအဝင်ဖြစ်သည့် လုပ်ငန်းများ ဖြစ်ပါသည်။ ဤစီမံကိန်းသည် နော်ဝေ- မြန်မာနှစ်နိုင်ငံ ပတ်ဝန်းကျင်ဆိုင်ရာ ပူးပေါင်းဆောင်ရွက်မှု အစီအစဉ် (၂၀၁၅-၂၀၁၈)တွင်ပါဝင်သည့် စီမံကိန်းတစ်ရပ်ဖြစ်ပြီး နော်ဝေနိုင်ငံ နိုင်ငံခြားရေးဝန်ကြီးဌာနက ရန်ပုံငွေ ထောက်ပံ့ပါသည်။

ဤစီမံကိန်း၏ မြန်မာနိုင်ငံဘက်မှ စီမံကိန်းတာဝန်ခံမှာ ဦးဘိုနီ ( ညွှန်ကြားရေးမှူး၊ သစ်တောဦးစီးဌာန) ဖြစ်ပြီး နော်ဝေနိုင်ငံ ရေသုတေသနဌာနဘက်မှ စီမံကိန်းတာဝန်ခံမှာ Dr. Ingrid Nesheim ဖြစ်ပါသည်။ ဤစီမံကိန်းတွင် မြန်မာနိုင်ငံဘက်မှ ဆည်မြောင်းနှင့်ရေအသုံးချမှု စီမံခန့်ခွဲရေးဦးစီးဌာန၊ ရေအရင်းအမြစ်နှင့် မြစ်ချောင်းများဖွံ့ဖြိုးတိုးတက်ရေးဦးစီးဌာနတို့ကလည်း ပူးပေါင်းပါဝင်ဆောင်ရွက်လျက်ရှိပါသည်။

ဤစီမံကိန်းဆောင်ရွက်ရာတွင် မြန်မာနိုင်ငံအမျိုးသားရေသယံဇာတကော်မတီနှင့်လည်း အနီးကပ် ပူးပေါင်းဆောင်ရွက်လျက်ရှိပါသည်။ စီမံကိန်း၏ ရေရှည်ရည်ရွယ်ချက်ပန်းတိုင်မှာ မြန်မာနိုင်ငံ၏ ကုန်းတွင်းပိုင်း ရေသယံဇာတများအား ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုလုပ်ငန်းများ ပီပြင်စွာဆောင်ရွက်နိုင်ရန်ဖြစ်ပါသည်။ ရေတို ရည်ရွယ်ချက်မှာ ရေသယံဇာတဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများနှင့် ရေအရည် အသွေးဆိုင်ရာ စံများသတ်မှတ်ရန်နှင့် လက်တွေ့အကောင်အထည်ဖော်မှု လုပ်ငန်းများ စတင်နိုင်ရန်ဖြစ်ပါသည်။ စီမံကိန်းတွင် ပါဝင်သည့် အဓိကလုပ်ငန်းများမှာ-



- (က) ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ သင်တန်းများဖွင့်လှစ်ပို့ချခြင်း၊
- (ခ) ရေအရည်အသွေးဆိုင်ရာစံများ သတ်မှတ်ခြင်း၊
- (ဂ) ရေအရည်အသွေးခါတ်ခွဲခန်းတစ်ခု တည်ထောင်ခြင်း၊
- (ဃ) စစ်တောင်းမြစ်ပုန်းဒေသတွင် မြစ်ပုန်းဒေသ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ ရှေ့ပြေးလုပ်ငန်းများ ဆောင်ရွက်ခြင်း၊
- (င) ပဲခူးမြစ်ပုန်းဒေသတွင် ရေသယံဇာတစီမံခန့်ခွဲမှုဆိုင်ရာ လက်တွေ့လုပ်ငန်းများနှင့်ပတ်သက်သည့် ရှေးပြေးစီမံကိန်းလုပ်ငန်းများဆောင်ရွက်ခြင်း၊
- (စ) အင်းလေးကန်တွင် ကြီးကြပ်ဆန်းစစ်မှုဆိုင်ရာ အစီအစဉ်ရေးဆွဲရေး ရှေ့ပြေးလုပ်ငန်းများ ဆောင်ရွက်ခြင်း၊
- (ဆ) ရေသယံဇာတစီမံခန့်ခွဲမှုဆိုင်ရာ သတင်းအချက်အလက်စနစ်ထူထောင်ခြင်း နှင့်
- (ဇ) စီမံကိန်းလုပ်ငန်းတစ်ခုလုံးအား ကြီးကြပ်စီမံခန့်ခွဲခြင်း တို့ဖြစ်ပါသည်။

ဤအစီရင်ခံစာသည် စီမံကိန်းလုပ်ငန်းခေါင်းစဉ် အမှတ် (၄) စစ်တောင်းမြစ်ပုန်းဒေသ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ ရှေ့ပြေးစီမံကိန်းဆောင်ရွက်ခြင်းပါ လုပ်ငန်းစဉ်တစ်ခုအရ ပြုစုထုတ်ပြန်ရမည့် အစီရင်ခံစာတစ်ခု ဖြစ်သည်။ ရည်ရွယ်ချက်မှာ မြန်မာနိုင်ငံတွင် မြစ်ပုန်းဒေသများ စီမံအုပ်ချုပ်လုပ်ကိုင်ရာတွင် စီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ် မည်သို့ ချမှတ်သင့်သည်ကို အဆိုပြုတင်ပြရန် ဖြစ်သည်။ ဤအစီရင်ခံစာ မရေးသားမီ စစ်တောင်းမြစ်ကိုအခြေခံလျက် ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှု ဆိုင်ရာအခြေခံမူများနှင့်အညီ မတူကွဲပြားသောလုပ်ငန်းကဏ္ဍများ၊ အဆင့်ဆင့်သောအုပ်ချုပ်ရေးယူနစ်များနှင့် သက်ဆိုင်ရာအကျိုးဆက်စပ်ပတ်သက်သူများ ပါဝင်လျက် မြစ်ပုန်းဒေသတစ်ခုကို မည်သို့ ပူးပေါင်းစီမံခန့်ခွဲနိုင်မည် ဆိုသည်ကို လေ့လာ ဆန်းစစ်ခဲ့ပါသည်။ ဤအစီရင်ခံစာအား ဆည်မြောင်းနှင့်ရေအသုံးချမှု စီမံခန့်ခွဲရေးဦးစီးဌာနမှ ဒေါက်တာ ဇော်လွင်ထွန်း (ညွှန်ကြားရေးမှူး)နှင့် ဒေါ်လှဦးနွယ် ( ဒုတိယညွှန်ကြားရေးမှူး) ၊ ရေအရင်းအမြစ်နှင့် မြစ်ချောင်းများ ဖွံ့ဖြိုးတိုးတက်ရေးဦးစီးဌာနမှ ဦးစိန်ထွန်း (ဒုတိယညွှန်ကြားရေးမှူးချုပ်(ငြိမ်း)၊ အကြံပေးအရာရှိ)၊ သစ်တောဦးစီးဌာနမှ ဦးဘိုနီ(ညွှန်ကြားရေးမှူး)နှင့် ဒေါ်အေသီကို(တောအုပ်ကြီး)၊ နော်ဝေနိုင်ငံ ရေသုတေသနဌာနမှ Dr. Ingrid Nesheimတို့က ပူးပေါင်းရေးသားခဲ့ကြခြင်း ဖြစ်ပါသည်။

ဤရှေ့ပြေးစီမံကိန်းဆောင်ရွက်ခြင်းဖြင့် မြစ်ပုန်းဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ်တစ်ခု အကောင်အထည်ဖော်ရာတွင် ကြုံတွေ့ရသည့် ပြဿနာများအား မည်သို့ဖြေရှင်းအကောင်အထည်ဖော်ရမည် ဆိုသည့် အတွေ့အကြုံများရရှိခဲ့ပါသည်။

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## Abbreviations

|         |  |
|---------|--|
| ADB     | Asian Development Bank   |
| ARBRO   | Ayeyarwaddy River Basin Research Organization                          |
| CSO     | Civil Society Organization   |
| DMH     | Department of Meteorology and Hydrology                                |
| DWIR    | Directorate of Water Resources and Improvement of River Systems        |
| ECD     | Environmental Conservation Department                                  |
| EU WFD  | European Union Water Framework Directive                               |
| FRI     | Forest Research Institute  |
| GAD     | General Administrative Department                                      |
| ITC     | Irrigation Technology Center   |
| IWUMD   | Irrigation and Water Utilisation Management Department                 |
| IWRM    | Integrated Water Resource Management                                   |
| MFA     | Ministry of Foreign Affairs (Norway)                                   |
| MmWP    | Myanmar Water Partnership  |
| MOAI    | Ministry of Agriculture and Irrigation                                 |
| MOALI   | Ministry of Agriculture, Livestock and Irrigation                      |
| MOECAF  | Ministry of Environmental Conservation and Forestry (Myanmar)          |
| MOEE    | Ministry of Electricity and Energy                                     |
| MOH     | Ministry of Health   |
| MOHA    | Ministry of Home Affairs   |
| MOI     | Ministry of Industry   |
| MONREC  | Ministry of Natural Resources and Environmental Conservation (Myanmar) |
| MOPF    | Ministry of Planning and Finance                                       |
| MOTC    | Ministry of Transport and Communications                               |
| NGO     | Non-Governmental Organization  |
| NLD     | National League for Democracy  |
| NORAD   | Norwegian Agency for Development Cooperation                           |
| NWFD    | National Water Framework Directive                                     |
| NWP     | National Water Policy  |
| NWRC    | National Water Resources Committee                                     |
| NWRC EG | National Water Resources Committee Expert Group                        |
| TDC     | Township Development Committee   |
| UNESCO  | United Nations Educational, Scientific and Cultural Organization       |
| USDP    | The Union Solidarity and Development Party                             |



## Extended summary

The purpose of this report is to propose how an administrative approach based on River Basin Management (RBM) can be implemented in Myanmar. The Sittaung River Basin has been used as an example area to investigate how a river basin can be administered according to the IWRM principles of cooperation between the different sectors and the administrative units, including stakeholder involvement. An important aim of such pilot projects for implementing the RBM approach is to create local experience which can be used to improve water management in the country. The report presents recommendations on all major steps for implementing the RBM approach. The recommendations are based on discussions in three workshops and in various bilateral interviews with authorities, experts and stakeholders, which have been organized as part of the project, Integrated water resources management – Institutional building and training. The project builds upon two national policies, the National Water Framework Directive (NWFD) and the National Water Policy (NWP). On the international level, the project is inspired by the EU Water Framework Directive.

The river basin administrative approach as tested for the Sittaung basin, is based on several steps, and has led to the following suggestions:

- (i) An administrative Sittaung River Basin Area needs to be delineated as a step zero; it is recommended that the delineation consider hydrological boundaries; this delineation must be agreed by the sector and environmental authorities.
- (ii) Representation of sector and environmental authorities in the River Basin Area Committee, the coordinating arena within the river basin has to be decided.
- (iii) There is a need to decide on which issues decisions need to be made, also what are the decision making processes within the Committee.
- (iv) It is recommended to specify and delineate Sub-basin Areas within the River Basin Area to ensure local involvement and for better coordination of practical water management tasks.
- (v) Representation of sector and environmental authorities in the Sub-basin Area Committees needs to be decided.
- (vi) There is a need to describe processes for stakeholder involvement; this should include who to consult, when – during which steps of the water management cycle and how.

Determining a River Basin Area (RBA), the administrative river basin unit, involves identifying the main rivers within the RBA together with a precise description of the boundaries of the river basin. It is recommended that the geographic coverage of river basins should be introduced into a government appointed geographic information system (GIS).

The hydrological Sittaung River Basin Area covers most of the Bago Region and smaller parts of six other Regions and States, Shan State, Kayin State, Kayah State, Mon State and Nay Pyi Taw. There are 23 major tributaries to the Sittaung River (Table 1). The Sittaung River which is linked to the Bago River by a 61 km long canal. The canal was built in 1878 to regulating flooding and is currently an important supplier for local irrigation. The Sittaung River valley lies between the forested Bago Mountains to the west and the steep Shan Plateau to the east.

Four alternative River Basin Areas were proposed in workshops by sector authorities:

- Sittaung River Basin Area (A1)– delineation based on hydrological boundaries
- Sittaung River Basin Area (A2) – delineation based on hydrological boundaries and considering the transfer of water through the Bago Sittaung Canal
- Sittaung River Basin Area (B)– a version to exclude areas with high conflict levels
- Sittaung River Basin Area (C) – a version emphasizing similar issues within the river basin

To ensure due consideration of local perspectives and to facilitate for coordination of practical work tasks, delineation of River Basin Areas into Sub-basin Areas is recommended. The sub-basin unit commonly includes the main river and its tributaries, but it also often considers relevant administrative borders. The whole River Basin Area needs to be covered by Sub-basin units. The proposed Sub-basins within the Sittaung River Basin Area are listed below. This proposal largely reflects current political administrative borders, and less so the hydrological issues.

- Nay Pyi Taw Sub-Basin Area
- Taungoo Sub-Basin Area
- Bago Sub-Basin Area

A coordinating arena, a River Basin Area (RBA) Committee for discussion of management decisions is needed. The development of River Basin Management Plans has not been previously practiced in Myanmar, but such plans are now declared a specific objective in the NWFD. The purpose of a RBA Committee should be the development of a River Basin Management Plan for the RBA. Members of a RBA Committee should embrace all relevant sector and environmental authorities within the (political)-administrative units of the River Basin Area. All authorities which may affect the water situation by their decision, or whom could be affected by the decisions of the committee should have the possibility to take part in the discussion. Actual attendance by the specific authorities, however, will depend on the relevancy of the meeting agenda for their area of responsibility. Decision making procedures needs to be decided. The common practice for managing committees in Myanmar is to have one institution serving as Secretary, and another institution serving as the Chairperson. The “Secretary” has the responsibility of inviting people to meetings, preparing agendas, and ensuring that the timeline is followed, while coordinating the decision-making is typically specified to the Chairperson. It is important to allocate additional financial and work force resources to these institutions to enable them to do the required tasks. The RBA Committee members should meet a certain number of times during the year to discuss and to reach an agreement on specified issues:

- 1 The overall work plan for development of the RBMP,
2. Prioritizing water management issues /the main environmental problems in the basin,
3. Specification of environmental aims,
4. Prioritize a Programme of Measures,
5. Draft RBMP and final RBMP. Input to these discussion issues is better provided by the Committee in the Sub-basin Areas (Section 4.2).

It is recommended to consider a step wise approach for implementing the River Basin Management Approach and according to what is feasible. A step wise approach may refer to the implementation of the RBM approach in certain river basins, or also only in selected sub-basins where: conflict levels are low, where important departments for water management are interested in the approach, and where participation of NGOs, CBOs and civil society can be ensured.

It is the responsibility of governments to ensure the participation of relevant stakeholders. This involves also including vulnerable groups within the population and avoiding skewed influence of certain actors. The importance of participation is acknowledged and stressed in all IWRM frameworks, including such as the UNESCO guidelines, guidelines of the Asian Development Bank and the EU Water Framework Directive. None of the frameworks however, presents a description for how exactly to involve stakeholders and the public in water management. Myanmar needs to develop a framework of participation based on its own traditions and history. This framework needs to specify access to information and ways of distributing information to stakeholders and the public, and when stakeholders should be consulted and how. The anticipated outcomes of participation such as increased awareness and acceptance of decision making are dependent on the process leading to participation. Information needs to be accessible for all stakeholders, both by means of text in familiar languages and presented in an easy manner.

Three models of participation are described; (i) Non-governmental Stakeholders Group, (ii) The River Basin Organization model, and (iii) the Public Hearing model. The main difference between the River Basin Organization model and the Non-governmental Stakeholder Group is the system for discussion among Non-governmental stakeholders apart from a River Basin Committee, which includes authorities; in a River Basin Organization, authorities and Non-governmental stakeholders are together. The Non-governmental Stakeholder Group will discuss decision-making issues and prepare input to the River Basin Area (RBA) Committee. This system is according to that of the EU WFD. The views of the Group should be presented as a formal written text to the RBA Committee. A Non-governmental Stakeholder Group should be organized on both the River Basin Area and Sub-basin Area levels.

အစီရင်ခံစာအကျဉ်းချုပ်

ဤအစီရင်ခံစာသည် စီမံကိန်းလုပ်ငန်းခေါင်းစဉ် အမှတ် (၄) စစ်တောင်းမြစ်ပုန်းဒေသ ဘက်စုံစီမံ အုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ ရှေ့ပြေးစီမံကိန်းဆောင်ရွက်ခြင်းပါ လုပ်ငန်းစဉ်တစ်ခုအရ ပြုစုထုတ်ပြန်ရမည့် အစီရင်ခံစာဖြစ်သည်။ ရည်ရွယ်ချက်မှာ မြန်မာနိုင်ငံတွင် မြစ်ပုန်းဒေသများ စီမံအုပ်ချုပ်လုပ်ကိုင်ရာတွင် စီမံအုပ်ချုပ် လုပ်ကိုင်မှုစနစ် မည်သို့ချမှတ်သင့်သည်ကို အဆိုပြုတင်ပြရန်ဖြစ်သည်။ ဤအစီရင်ခံစာရေးသားမီ စစ်တောင်း မြစ်ကိုအခြေခံလျက် ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ အခြေခံမူများနှင့်အညီ မတူကွဲပြား သောလုပ်ငန်းကဏ္ဍများ၊ အဆင့်ဆင့်သောအုပ်ချုပ်ရေးယူနစ်များနှင့် သက်ဆိုင်ရာအကျိုးဆက်စပ်ပတ်သက် သူများပါဝင်လျက် မြစ်ပုန်းဒေသတစ်ခုကို မည်သို့ပူးပေါင်းစီမံခန့်ခွဲနိုင်မည်ဆိုသည်ကို လေ့လာဆန်းစစ်ခဲ့ ပါသည်။ ရှေ့ပြေးစီမံကိန်းဆောင်ရွက်ခြင်းဖြင့် မြစ်ပုန်းဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ်တစ်ခု အကောင် အထည်ဖော်ရာတွင် ကြုံတွေ့ရသည့် ပြဿနာများအား မည်သို့ဖြေရှင်း အကောင်အထည်ဖော်ရသည်ဆိုသည့် အတွေ့အကြုံများ ရရှိခဲ့ပါသည်။

ဤအစီရင်ခံစာတွင် မြစ်ပုန်းဒေသစီမံအုပ်ချုပ်လုပ်ကိုင်မှုစနစ်အား အကောင်အထည်ဖော်ရာ၌ ဆောင် ရွက်ရမည့် လုပ်ငန်းစဉ်အဆင့်ဆင့်ကို အကြံပြုဖော်ပြထားသည်။ ဤစီမံကိန်းအရဆောင်ရွက်ခဲ့သည့် အလုပ်ရုံ ဆွေးနွေးပွဲ (၃) ကြိမ်တွင် ဆွေးနွေးရရှိချက်များနှင့် သက်ဆိုင်ရာအစိုးရဌာနတာဝန်ခံများ၊ ကျွမ်းကျင်ပညာရှင် များ၊ အကျိုးဆက်စပ်ပတ်သက်သူများနှင့် တွေ့ဆုံဆွေးနွေးရရှိချက်များအပေါ်တွင် အခြေခံ၍ အကြံပြုချက်များ ကိုရယူထားခြင်းဖြစ်သည်။ စီမံကိန်းအကောင်အထည်ဖော်ရာတွင် မြန်မာနိုင်ငံအမျိုးသားအဆင့် ရေမူဝါဒနှင့် အမျိုးသားအဆင့် ရေသယံဇာတ မူဘောင်လမ်းညွှန်ချက်များကို အခြေခံအုတ်မြစ်များအဖြစ် အသုံးပြုသည်။ ထို့အပြင် ဥရောပယူနိုက်တံဒ် ရေသယံဇာတ မူဘောင်လမ်းညွှန်ချက်များကိုလည်း မှီငြမ်းပြုသည်။

စစ်တောင်းမြစ်ပုန်းဒေသနှင့်ဆိုင်သည့် ရေသယံဇာတ စီမံခန့်ခွဲမှုစနစ်ကို စမ်းသပ်အကောင်အထည်ဖော် ရာတွင် အခြေခံရမည့်အဆင့်များမှာ-

- (က) စစ်တောင်းမြစ်ပုန်းဒေသ နယ်နိမိတ်သတ်မှတ်ခြင်း ဆောင်ရွက်ရန်၊ သတ်မှတ်ရာတွင် ရေဝေရေလဲ နယ်နိမိတ်များကိုအခြေခံရမည်ဖြစ်ပြီး သတ်မှတ်ရန်ရည်ရွယ်သည့် နယ်နိမိတ်အပေါ်တွင် လုပ်ငန်း ကဏ္ဍအလိုက် တာဝန်ရှိသူများကသဘောတူညီရန်၊
- (ခ) မြစ်ပုန်းဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုကော်မတီတွင် ပါဝင်ရမည့်လုပ်ငန်းဌာနနှင့် အုပ်ချုပ်ရေးဌာန များရွေးချယ်သတ်မှတ်ရန်၊
- (ဂ) ကော်မတီမှ မည်သည့်ကိစ္စရပ်များကို ဆွေးနွေးဆုံးဖြတ်မည်ဆိုသည်နှင့် ဆုံးဖြတ်ရာတွင် အသုံးပြု မည့်နည်းလမ်းများသတ်မှတ်ရန်၊
- (ဃ) မြစ်မကြီးအတွင်းစီးဝင်သည့် မြစ်ငယ်တစ်ခုစီ၏ ရေဝေရေလဲ ( မြစ်ပုန်းငယ် ) နယ်နိမိတ်များ သတ် မှတ်ရန်၊

- (င) မြစ်ပွန်းငယ် စီမံအုပ်ချုပ်လုပ်ကိုင်မှုကော်မတီများတွင် ပါဝင်ရမည့် လုပ်ငန်းဌာနနှင့် အုပ်ချုပ်ရေးဌာန များသတ်မှတ်ရန်၊
- (စ) စီမံခန့်ခွဲမှုလုပ်ငန်းစဉ်အဆင့်ဆင့်၏ မည်သည့်အဆင့်၊ မည်သည့်အချိန်တွင် မည်သည့်ဌာနဆိုင်ရာ ကိုယ်စားလှယ်များတက်ရောက်ခြင်းနှင့်ဆိုင်သည့် လုပ်ထုံးလုပ်နည်းများသတ်မှတ်ရန်။

မြစ်ပွန်းဒေသတစ်ခု သတ်မှတ်ရာတွင် မြစ်မကြီးသာမက မြစ်မအတွင်းသို့ စီးဝင်သော မြစ်ငယ်များ၏ မြစ်ပွန်းဒေသနယ်နိမိတ်များကိုပါသတ်မှတ်ရန်လိုအပ်သည်။ မြစ်ပွန်းဒေသများ၏ နယ်နိမိတ်များကို နိုင်ငံအဆင့် ပထဝီဝင်သတင်းအချက်အလက်စနစ်တွင် ထည့်သွင်းဖော်ပြရန် လိုအပ်သည်။

စစ်တောင်းမြစ်ပွန်းဒေသသည် ပဲခူးတိုင်းအတွင်းဧရိယာအများအပြားပါဝင်လျက်ရှိပြီး ရှမ်းပြည်နယ်၊ ကယားပြည်နယ်၊ ကရင်ပြည်နယ်၊ မွန်ပြည်နယ်နှင့် နေပြည်တော်တိုင်းဒေသကြီးတို့အတွင်းတွင်လည်း ဧရိယာ အနည်းငယ်စီပါဝင်လျက်ရှိသည်။ စစ်တောင်းမြစ်ပွန်းဒေသအတွင်း မြစ်ငယ်ပေါင်း (၂၃)ခုပါဝင်သည်(ဇယား-၁)။ စစ်တောင်းမြစ်နှင့် ပဲခူးမြစ်တို့အား (၆၁) ကီလိုမီတာရှည်လျားသည့် စစ်တောင်းတူးမြောင်းဖြင့် ဆက်သွယ်ထား သည်။ တူးမြောင်းကို ၁၈၇၈ ခုနှစ်တွင် ဖောက်လုပ်ခဲ့ခြင်းဖြစ်ပြီး ဆက်သွယ်ရေး၊ ရေကြီးရေလျှံမှုလျော့နည်းရေး နှင့်စိုက်ပျိုးရေးသွယ်ယူသုံးစွဲရေးတို့အတွက် အသုံးပြုလျက်ရှိသည်။ စစ်တောင်းမြစ်ပွန်းဒေသသည် သစ်တော ထူထပ်သည့် ပဲခူးရိုးမနှင့် မတ်စောက်သည့် ရှမ်းကုန်းပြင်မြင့်တို့အကြားတွင် တည်ရှိသည်။

ကျင်းပပြီးစီးခဲ့သည့် အလုပ်ရုံဆွေးနွေးပွဲများအတွင်း စစ်တောင်းမြစ်ပွန်းဒေသ သတ်မှတ်ရန်အတွက် အဆိုပြုချက် (၄)မျိုး ပေါ်ထွက်ခဲ့သည်။

- (က) စစ်တောင်းမြစ်ပွန်းဒေသ (A1) ရေဝေရေလဲဒေသများကို အခြေခံ၍ သတ်မှတ်သည်၊
- (ခ) စစ်တောင်းမြစ်ပွန်းဒေသ (A2) ရေဝေရေလဲဒေသများကို အခြေခံ၍လည်းကောင်း၊ စစ်တောင်း တူးမြောင်း၏ ရေဝေရေလဲဒေသများကိုပါ ထည့်သွင်း၍လည်းကောင်း သတ်မှတ်သည်၊
- (ဂ) စစ်တောင်းမြစ်ပွန်းဒေသ (B) ပြဿနာဖြစ်ပွားနေသောနေရာများကို ဖယ်ထုတ်၍ သတ်မှတ်သည်၊
- (ဃ) စစ်တောင်းမြစ်ပွန်းဒေသ (C) တူညီသည့်ပြဿနာများနှင့် ရင်ဆိုင်နေမှုအပေါ်တွင်မူတည်၍ သတ်မှတ်သည်။

မြစ်ပွန်းဒေသကြီးတစ်ခုကို မြစ်ပွန်းဒေသငယ်(Sub-basin)အဖြစ် ထပ်မံခွဲစိတ်သတ်မှတ်ရာတွင် ဒေသခံ ပြည်သူများ၏ ဆန္ဒကိုရယူရန်လိုအပ်ပြီး လက်တွေ့တိုင်းတာသတ်မှတ်ရာတွင်လည်း အကျိုးဆက်စပ်ပတ်သက် သူများနှင့် ပူးပေါင်းညှိနှိုင်းဆောင်ရွက်ရန် လိုအပ်သည်။ မြစ်ပွန်းဒေသငယ်များသတ်မှတ်ရာတွင် အဆိုပါမြစ်နှင့် ၎င်းအတွင်းစီးဝင်သော မြစ်/ ချောင်းငယ်များ၏ ရေဝေရေလဲဧရိယာများကိုပါ ထည့်သွင်းရန် လိုအပ်သည်။



စစ်တောင်းမြစ်ပွားဒေသအား အောက်ပါအတိုင်း အပိုင်း (၃)ပိုင်းခွဲရန် အလုပ်ရုံဆွေးနွေးပွဲများတွင် အကြံပြုခဲ့ရာ အုပ်ချုပ်ရေးနယ်နိမိတ်ကိုအခြေခံ၍ အဆိုပြုထားခြင်းဖြစ်ကြောင်း တွေ့ရသည်။

- (က) နေပြည်တော်အပိုင်း
- (ခ) တောင်ငူအပိုင်း
- (ဂ) ပဲခူးအပိုင်း

မြစ်ပွားဒေသကော်မတီ ဖွဲ့စည်းပြီးနောက် စီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ ဆုံးဖြတ်ချက်များ ချမှတ်ရန် အတွက် မည်သို့ပူးပေါင်းညှိနှိုင်းဆောင်ရွက်မည်ဆိုသည့် နည်းလမ်းသတ်မှတ်ရန် လိုအပ်သည်။ မြန်မာနိုင်ငံတွင် ယွင်က မြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုစီမံချက် ရေးဆွဲဆောင်ရွက်သည့် အလေ့အထမရှိခဲ့သော်လည်း ယူအခါ ထိုသို့ဆောင်ရွက်ရန် အမျိုးသားအဆင့် ရေသယံဇာတအဖွဲ့အစည်းဆိုင်ရာ လမ်းညွှန်ချက်များတွင် ထည့်သွင်း ဖော်ပြထားသည်။ မြစ်ပွားဒေသကော်မတီ ဖွဲ့စည်းခြင်း၏ရည်ရွယ်ချက်မှာ မြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှု စီမံချက်ရေးဆွဲချမှတ်နိုင်ရန် ဖြစ်သင့်သည်။ မြစ်ပွားဒေသကော်မတီ ဖွဲ့စည်းရာတွင် မြစ်ပွားဒေသအတွင်း ပါဝင် လျက်ရှိသော အုပ်ချုပ်ရေးနယ်မြေများမှ သင့်လျော်သည့် လုပ်ငန်းဌာနများနှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ ဌာနများမှ ကိုယ်စားလှယ်များ ပါဝင်သင့်သည်။ ဆုံးဖြတ်ချက်ကြောင့် ရေသယံဇာတတည်ရှိမှုအပေါ် အကျိုး သက်ရောက်မှုရှိနိုင်သည့်ဌာနများနှင့် ဆုံးဖြတ်ချက်ကြောင့် ထိခိုက်မှုရှိနိုင်သည့်ဌာနများမှ ကိုယ်စားလှယ်များ သည် ရေသယံဇာတဆိုင်ရာ ဆွေးနွေးညှိနှိုင်းမှုဖြစ်စဉ်တွင် ပါဝင်စေသင့်သည်။ ဆွေးနွေးညှိနှိုင်းပွဲ တက်ရောက် ရန်ဖိတ်ကြားရာတွင် မည်သူများအားဖိတ်ကြားမည်ဆိုသည်မှာ ဆွေးနွေးပွဲအစီအစဉ်ပေါ်တွင် မူတည်သည်။ ကော်မတီဖွဲ့စည်းခြင်း၏ ရည်ရွယ်ချက်များနှင့်အညီ လုပ်ငန်းများဆောင်ရွက်နိုင်ရန်အတွက် ရန်ပုံငွေနှင့်လူသား အရင်းအမြစ်များပံ့ပိုးပေးရန် အထူးလိုအပ်သည်။ မြစ်ပွားဒေသကော်မတီဝင်များအနေဖြင့် အောက်ပါလုပ်ငန်း တာဝန်များဆောင်ရွက်နိုင်ရန် သင့်လျော်သည့် အချိန်ဇယားရေးဆွဲဆောင်ရွက်ရန် လိုအပ်သည်။

- (က) မြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှု စီမံကိန်းရေးဆွဲရန်အတွက် အချိန်ဇယားရေးဆွဲခြင်း၊
- (ခ) စီမံခန့်ခွဲမှုဆိုင်ရာဦးစားပေးလုပ်ငန်းများသတ်မှတ်ခြင်း/ မြစ်ပွားဒေသအတွင်း ရင်ဆိုင်နေရသော အဓိကပြဿနာများ ဆန်းစစ်ဖော်ထုတ်ခြင်း၊
- (ဂ) မြစ်ပွားဒေသအတွင်း ပတ်ဝန်းကျင်ဆိုင်ရာ ရည်မှန်းချက်များ ဖော်ထုတ်ခြင်း၊
- (ဃ) လက်တွေ့အကောင်အထည်ဖော်မည့် လုပ်ငန်းများချမှတ်ခြင်း၊
- (င) မြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှု စီမံကိန်းမူကြမ်းပြုစုခြင်းနှင့် အတည်ပြုခြင်း။

နိုင်ငံအတွင်း အခြေအနေအရပ်ရပ်ပေါ်တွင်မူတည်၍ မြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုလုပ်ငန်းများ ကိုအဆင့်ဆင့် ဆောင်ရွက်သင့်သည်။ နိုင်ငံအတွင်းမြစ်ပွားဒေသ စီမံအုပ်ချုပ်လုပ်ကိုင်မှုလုပ်ငန်းတွင် စိတ်ဝင်စားမှု ရှိသော ရေသယံဇာတဆိုင်ရာအစိုးရဌာနတစ်ခုက ခေါင်းဆောင်၍ ပဋိပက္ခလျော့နည်းပြီး NGO, CSO နှင့်

ပြည်သူလူထုပူးပေါင်းပါဝင်မှု ကောင်းမွန်သည့် မြစ်ပုန်းဒေသကြီး/ မြစ်ပုန်းဒေသငယ်များတွင် မြစ်ပုန်းဒေသစီမံ အုပ်ချုပ်လုပ်ကိုင်မှုလုပ်ငန်းကို အဆင့်ဆင့် ဆောင်ရွက်သင့်သည်။

ရေသယံဇာတစီမံအုပ်ချုပ်လုပ်ကိုင်ရာတွင် သက်ဆိုင်ရာ အကျိုးဆက်စပ်ပတ်သက်သူများအားလုံးပါဝင် မှုရှိစေရန်မှာ နိုင်ငံအစိုးရ၏တာဝန်ဖြစ်သည်။ အထူးသဖြင့် လူနည်းစု/ လူမျိုးစုများနှင့် အပယ်ခံအဖွဲ့အစည်းများ ပါဝင်စေရန် အရေးကြီးပြီး အခွင့်ထူးခံလူတန်းစားများ၏ လွှမ်းမိုးမှုမှကင်းဝေးစေရန် လိုအပ်သည်။ ပူးပေါင်း ပါဝင်မှုအရေးကြီးကြောင်းကို ရေသယံဇာတ ဘက်စုံစီမံအုပ်ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ မူဘောင်တိုင်းတွင် ဖော်ပြ ထားသည်။ အထူးသဖြင့် UNESCO နှင့် Asian Development Bankတို့၏ ရေသယံဇာတဆိုင်ရာလမ်းညွှန်ချက် များနှင့် ဥရောပယူနီယံ၏ ရေသယံဇာတမူဘောင်လမ်းညွှန်ချက်များတွင် ဖော်ပြထားသည်။ သို့သော်လည်း မည်သည့် မူဘောင်တွင်မှ အကျိုးဆက်စပ်ပတ်သက်သူများက မည်သို့ပါဝင်ရမည်ကို အတိအကျ ဖော်ပြထားခြင်းမရှိပေ။ မြန်မာနိုင်ငံအနေဖြင့် မိမိနိုင်ငံ၏ သမိုင်းစဉ်လာနှင့် ဓလေ့ထုံးစံတို့အပေါ်တွင်မူတည်၍ အကျိုး ဆက်စပ်ပတ်သက်သူများ ပူးပေါင်းပါဝင်မှုဆိုင်ရာ မူဘောင်များကို ရေးဆွဲပြဌာန်းသင့်သည်။ အဆိုပါမူဘောင် တွင်သတင်းအချက်အလက်ဖြန့်ဝေခြင်း၊ ရယူခြင်းနှင့် အကျိုးဆက်စပ်ပတ်သက်သူများနှင့် မည်သည့်အချိန်တွင် မည်သို့ ဆွေးနွေးညှိနှိုင်းမည်ဆိုသည့် သတ်မှတ်ချက်များလည်း ထည့်သွင်းရန်လိုအပ်သည်။ ပူးပေါင်းပါဝင်မှု လုပ်ငန်းစဉ်ဆောင်ရွက်မှုအပေါ်တွင်မူတည်၍ အကျိုးဆက်စပ်ပတ်သက်သူများအကြား ရေသယံဇာတစီမံအုပ် ချုပ်လုပ်ကိုင်မှုဆိုင်ရာ အသိအမြင်နီးကြားမှုနှင့် ဆုံးဖြတ်ချက်များအပေါ် လက်သင့်ခံမှု အတိုင်းအတာကွာခြား နိုင်သည်။ သက်ဆိုင်ရာအကျိုးဆက်စပ်ပတ်သက်သူများက ရေသယံဇာတဆိုင်ရာ သတင်းအချက်အလက်များ အား ၎င်းတို့နားလည်နိုင်သည့် ဘာသာစကားဖြင့် ရှင်းလင်းလွယ်ကူသည့် တင်ပြချက်ပုံစံဖြင့် လက်ခံရရှိနိုင်ရေး ဆောင်ရွက်ပေးရန် လိုအပ်သည်။

အကျိုးဆက်စပ်ပတ်သက်သူများက မြစ်ပုန်းဒေသစီမံအုပ်ချုပ်လုပ်ကိုင်မှုလုပ်ငန်းများတွင် ပူးပေါင်းပါဝင် နိုင်သည့် ပုံစံ (၃) မျိုးရှိသည်။ ၎င်းတို့မှာ (၁) အစိုးရမဟုတ်သော အကျိုးဆက်စပ်ပတ်သက်သူများအဖွဲ့၊ (၂) မြစ်ပုန်းဒေသအဖွဲ့အစည်း၊ (၃)ရှင်းလင်းတင်ပြမှုကိုနားထောင်မည့်အဖွဲ့အစည်းတို့ ဖြစ်သည်။ ပုံစံ (၁)နှင့်(၂)တို့၏ အဓိကကွာခြားချက်မှာ အစိုးရမဟုတ်သောအကျိုးဆက်စပ်ပတ်သက်သူများက အစည်းအဝေးများတွင် ပါဝင် သည့်ပုံစံဖြစ်သည်။ ပုံစံ(၂) အဖွဲ့အစည်းတွင် အစိုးရဌာနကိုယ်စားလှယ်များနှင့် အစိုးရမဟုတ်သော ကိုယ်စား လှယ်များ ပူးပေါင်းပါဝင်ဆွေးနွေးကြမည်ဖြစ်ပြီး၊ ပုံစံ (၁)တွင်မူ အစိုးရမဟုတ်သောအကျိုးဆက်စပ် ပတ်သက် သူများအဖွဲ့က ဆုံးဖြတ်ချက်ချမှတ်ရမည့် ကိစ္စရပ်များအပေါ် အလေးထားဆွေးနွေးပြီးလျှင် မြစ်ပုန်းဒေသ ကော်မတီသို့ အကြံပြုခြင်း ပြုလုပ်မည်ဖြစ်သည်။ ဤစနစ်မှာ ဥရောပယူနီယံ၏ ရေသယံဇာတမူဘောင်နှင့် အညီဖြစ်သည်။ အစိုးရမဟုတ်သော အကျိုးဆက်စပ်ပတ်သက်သူများအဖွဲ့၏ အမြင်နှင့် အကြံပြုချက်များကို မြစ်ပုန်းဒေသကော်မတီသို့ တရားဝင်ရုံးစာဖြင့် ပေးပို့သင့်သည်။ မြစ်ပုန်းဒေသကော်မတီနှင့် မြစ်ပုန်းငယ် ကော်မတီ နှစ်ရပ်လုံးတွင် အစိုးရမဟုတ်သော အကျိုးဆက်စပ်ပတ်သက်သူများအဖွဲ့ကို ဖွဲ့စည်းသင့်သည်။

# 1 Introduction

An administrative approach based on river basin management implies that water management is coordinated within the river basin, including surface waters, ground waters, and the marine influence area across administrative borders like states, regions, towns, and municipalities. The approach of using basins to set management boundaries and the need to integrate the management of ground water with surface water are considered part of modern water legislation (Hendry, 2015). The rationale of the approach lays in the situation that all components within a catchment area are linked through the hydrological cycle and hence the component parts of a water system need to be understood in relationships with each other. The principle of the river basin management approach is emphasized as an important objective for Myanmar in both the National Water Framework Directive (NWFD) and the National Water Policy (NWP).

The NWFD, Objective 5, defines the approach by clarifying that,

*“River basin areas have to be designated, not according to administrative or political boundaries, but rather according to the river basin (the spatial catchment area of the river) as a natural geographical and hydrological unit”.*

The NWP, section 13.4 states that, IWRM taking river basin / sub basin as a unit should be the main principle for planning development and management of resources, and it further details,

*“Appropriate institutional arrangements for each river basin should be developed to collect and collate all data, inter alia to deal with and enable establishment of basin authorities with appropriate powers to plan, manage and regulate utilization of water resources in the basin”.*

This report is one of the deliverables<sup>1</sup> of the project *Integrated water resources management – Institutional building and training*, a collaboration between the Ministry of Natural Resources and Environmental Conservation (MONREC, previously MOECAP) and the Norwegian Institute for Water Research (NIVA) under the Norwegian – Myanmar Bilateral Environment Programme 2015 – 2017. *The purpose of this deliverable is to present a proposal for how an administration approach based on River Basin Management - in line with the objectives of the proposed National Water Framework Directive can be implemented in one case basin in Myanmar.* The project aims to make a significant contribution to the implementation of well-functioning Integrated Water Resources Management (IWRM) for inland waters at the national level for Myanmar. The Sittaung River Basin is used as an example area to investigate how the basin can be administered according to the IWRM principles that include cooperation between the different sectors and the administrative units and stakeholder involvement. The Sittaung River Basin has been selected because it is a relatively small river basin, there are few, if any, ethnic conflicts in the basin, and for the centralized geographic location of the basin.

The pilot implementation of the river basin administrative approach in Myanmar in this project is inspired by the European Union Water Framework Directive (EU-WFD), but it is acknowledged that there is need for a close consideration of the Myanmar context. Among others considerations, this refers to the current and historical practice of involvement, coordination and decision-making in the country when proposing arenas for coordination of practical work tasks and for decision-making processes<sup>2</sup>. This report makes references to a baseline report prepared as part of this project, Framework notes and recommendations for Integrated Water Resource Management in Myanmar (Nesheim and Platjouw, 2016).

Data and information for this report have been collected from interviews with Bago officers and Non-governmental Organizations (NGO) representatives, and a number of workshops for discussion on this issue in Bago Region undertaken during 2014-16 and also from secondary information).

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<sup>1</sup> The deliverable is compilation of the work related to activities 4.2-4.7.

<sup>2</sup> In Europe an administrative river basin unit has been entitled; River Basin District, while for Myanmar we propose to call this unit, River Basin Areas. The reason for this is that word district is in Myanmar also used in another context.

An introduction of the river basin administrative approach in Sittaung has to be based on several steps: (i) an administrative Sittaung River Basin Area needs to be delineated; it is recommended that the delineation consider hydrological boundaries; this delineation must be agreed by the sector and environmental authorities, (ii) representation of sector and environmental authorities in the River Basin Area Committee within the river basin, has to be decided, (iii) there is a need to decide on the type of decision-making process within the committee, (iv) it is recommended to specify and delineate Sub-basin Areas within the River Basin Area to ensure local involvement and for better coordination of practical water management tasks, (v) representation of sector and environmental authorities in the Sub-basin Area Committees need to be decided, and (vi) there is a need to describe processes for stakeholder involvement; this should include who to consult, when – during which steps of the water management cycle and how. This report presents recommendations on all six steps.

*Chapter 2* in this report briefly describes the current situation regarding the natural environment, the socio-economic situation and governance in Sittaung as background information. This overview is presented as we see knowledge on the regional context as an important basis for presenting recommendations on IWRM. *Chapter 3* presents the three alternative River Basins Areas which were proposed in workshops organized as part of this project, and *Chapter 4* presents a proposal for administrative coordinating units within a River Basin in Myanmar with reference to discussions in this project with Bago and other national authorities. In *Chapter 5*, Current participation of Non-governmental stakeholders and civil society in Myanmar is described and suggestions for involvement related to the River Basin Management Approach is discussed. *Chapter 6* presents some concluding remarks.

## 2 The Sittaung River Basin

### 2.1 Geographic and socio-economic characteristics of the Sittaung River Basin

The total length of the Sittaung River from the upstream part to the outlet is 420 km and the catchment area is 48100 km<sup>2</sup>. The estimated annual surface runoff is 81.15 km<sup>3</sup> (7.5 % per Myanmar's total annual surface water). The Sittaung River lies in east-central Myanmar, rising northeast of Yamethin district in Mandalay Region on the edge of the Shan Plateau and flowing south for 420 km before it runs out into the Gulf of Martaban of the Andaman Sea. There are 23 major tributaries to the Sittaung River (Table 1) (Figure 3). The Sittaung River which is linked to the Bago River by a 61 km long canal. The broad Sittaung River valley lies between the forested Bago Mountains on the west and the steep Shan Plateau on the east. It holds the main road and railway from Yangon to Mandalay as well as the major towns of Bago, Taungoo, Yamethin, and Pyinmana. The Sittaung River is navigable for 40 km year-round and for 90 km during three months of the year. There are two major natural lakes in the basin. The largest is Inlay Lake in Shan State that runs 24 km from north to south and 13 km from east to west, covering an area of 155 km<sup>2</sup>.

In the catchment, most of the annual rainfall, which often fall in short rainfall events with high precipitation, are distributed within six to seven months of the year. Average rainfall in the extreme north is 889 mm while in the south rainfall ranges from 2540 mm to 3810 mm. Average temperatures vary between 24-29 degrees, thus the difference between wet and dry season is low (Myat Maw, 2015) leading to low relative evaporation (van Veen, 2015).

**Table 1.** An overview of the 23 major tributaries of the Sittaung River including State/Region location

| Townships west side                 | Tributary west                   | Township East side   | Tributary East        |
|-------------------------------------|----------------------------------|----------------------|-----------------------|
| Yay Ta Shay Township                | Swa stream                       | Taungoo Township     | Thauk Yay Khat stream |
| Taungoo Township and Oak Twin town  | Kabaung stream and YaeTho stream | Taungoo Township     | Pathi stream          |
| Oak Twin Township and Phyu Township | Min Ye stream and Phyu stream    | Kyauk Kyi Township   | Baw Ga Hta stream     |
| Phyu Township<br>Kyauk Ta Ga town   | Kun stream                       | Kyauk Kyi Township   | Mon stream            |
| Kyauk Ta Ga Township                | Ye Nwe stream                    | Shwe Gyin Township   | Shwe Gying stream     |
| Daik U Township and Nyaung Lay Pin  | Baing Da stream                  | Tha Nat Pin Township | Bon Ma Di stream      |
| Daik U Township                     | Kaw Li Ya stream<br>Bawni stream |                      |                       |

The Sittaung River is used for transportation of agricultural products, for navigation among villages in rural area, construction of storage dams in the tributaries for agricultural developments, pumped irrigation from the river, and for generating hydro-electric power. In the northern part of the basin, gold and mineral mining activities pollute the river, and timber extraction and logging degrades the forests. The agricultural sector plays a major role in the basin, and the general practice of agriculture has been a single crop during the rainy season without irrigation. It is argued however, that the climate and soil conditions are favorable for growing a second and even third crop with irrigation (Irrigation Department, 2014).

The Sittaung River is linked to the Bago River by a 61 km long canal (Figure 4). The canal was built in 1878 to bypass the tidal bore that affected the mouth of the Sittaung and for transportation of timber,



once providing the only route from Yangon to Taungoo. The canal was renovated in 2014 and it has one interconnected reservoir and six sluices to regulate the in- and outflow of tributaries. The canal is important for regulating flooding in an area of 70,000 people in 28 villages and it is an important water supplier for local irrigation. Embankments in the Bago and Sittaung basins are common and the Sittaung River is known to have 80 kilometers of constructed dike (Myo Myint, 2007). Currently there are 13 reservoirs and 1 dam is situated in the Bago river basin and in the Sittaung River Basin there are 17 dams and 13 reservoirs (Irrigation Department, 2014), and there are several on-going water resources development projects. In the eastern part of the Bago Region in Yangon Division in the southern and lower reaches of the delta, lands are subjected to flood, formation of swamps and increased salinity problems. The Sittaung River Basin is one of the most developed areas in Myanmar. The total population in the river basin is about 5.8 million, which is about 10% of the population in Myanmar. The majority live in rural areas, but cities are expanding.

The hydrological Sittaung River Basin (Figure 3) covers most of the Bago Region and smaller parts of six other Regions and States<sup>3</sup>. We provide below a short description of the administrative units which can be found within the hydrological Sittaung River Basin.

**The Bago Region:** The Bago and the Taungoo districts, two of the four districts in this region<sup>4</sup> are included in the Sittaung river basin. The Bago district includes the townships, Bago, Kawa, Tha Nat Pin, Waw, Daik-U, Nyaung Le Bin, and Shwe Gyin Township. The Taungoo district includes the Taungoo, Oak Twin, Tha Nat Pin, Ye Da Shay, Pyu, Kyauk Ta Ga, and the Kyauk Kyi Township. The upper part of the basin is characterized by valley bottom plains, and the lower reach is dominated by a low-lying area affected by tidal changes. Several reservoirs have been constructed in the basin, including 13 large reservoirs which mainly have been constructed for irrigation purposes. Some dams are also expected to act as flood regulation dams. One dam, the Zaung Tu dam has been constructed for hydropower production. The Bago River irrigates more than 15,000 hectares of rice field in lowland areas during the summer. The industrial activity level is rather low, with a total of 124 factories (Yangon southern district, Department of labour, as referred to by JICA 2014). There is an on-going enhancement of the drainage capacity in the rainy season, to provide supplementing irrigation water at late rainy season. Physical protection measures have been implemented to reduce seawater intrusion and sediments caused by tidal change. The Bago City as an administration and economic centre and the city centre for the basin. The population density which is increasing in the basin varies from 195 to 559 people per km<sup>2</sup>.

**The Mon State:** only a small eastern part of Mon State is included in the Sittaung river basin. This refers to the townships of Kyaik Htoin and Bilin in Thaton District. The ethnic majority in Mon State are Mon. Main crop is paddy cultivation and second crop is rubber. Orchard gardens are found in mountainous area. Another sustaining business is betel nut production and growing cashew trees. Coastal fishing and related industries such as dried fish, fish sauce productions are well known economy of Mon State. Timber production is one of the major contributions to the economy. Minerals extracted from the area include salt, antimony, and granite. At the present time one of the biggest foreign investments into Myanmar is for the exploitation of natural gas reserves in Mon State. The conflict level in the State is low.

**Kayah State:** The Demawso Township is included in the Sittaung River Basin. The people in this state belong mainly to the Karen ethnic group. There have been ethnic conflicts in this area and conflicts with the military, but groups have attended peace negotiations and signed the peace treaty (the National Ceasefire Accord, October 15<sup>th</sup> 2015). Ngwe Daung and Moe Bye are important dams constructed in Kayah State. Kayah State has ecotourism potential and border trade has recently been initiated with Thailand. The hydroelectric power plant at Lawpita Falls outside of Loikaw is of strategic importance as it supplies over 20% of Myanmar's total electrical power. The main crop paddy is cultivated with irrigated water and other crops including millet, maize, sesame, groundnut, garlic, and vegetables are also grown in the state. Mineral products include alabaster, tin, and tungsten.

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<sup>3</sup>Myanmar covers seven Regions and seven States which are constitutionally equivalent (see more on this Section 2.2).

<sup>4</sup>The district of Bago includes: Bago Region; Bago, Pyay, Tharrawaddy and Taungoo

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**Kayin State** (Karen State): Than Daung Gyi and Kyauk Gyi Townships are included in the Sittaung River Basin. This area is characterized by forested hills of deciduous forests and hardwood trees, tea and coffee plantations. Ecotourism is also important. Border trade with Thailand is important for the economy in the State and also for the country. There are some conflicts between the Kayin ethnics and the military, but only in some parts of the Kayin State

**Shan State:** Pinlaung Township in Taunggyi District located in the western part of the State is embedded in the Sittaung River Basin. The State gets its name from the Shan people, one of several ethnic groups that inhabit the area. Shan State is largely rural, with only a few cities of significant size. The well-known tourist place and bird watching site, Inlay Lake is located partly within this township. The State takes in the Golden Triangle area. Silver, lead, and zinc are mined, notably at the Bawdwin mine, and there are smelters at Namtu. Rubies are extracted in large quantity in Mong Hsu Township, and peaking in the late 1990s and early 2000s. Teak is harvested, and rice and other crops are grown. Shan State is famous for its garden produce of all sorts of fresh fruit and vegetables. Itinerant markets that travel from place to place, setting up on every fifth day in each small town or village, are typical, although large towns have permanent markets. The construction project of Sino-Burma pipelines of oil and gas passing through northern part of Shan State started in September 2010 and the project was finished June 2013. There are some border trading centers along the Shan State border and neighbor countries. Muse, the biggest border trading center along the Myanmar China border and Tachileik, another important trading center between Myanmar and Thailand are in Shan State. Conflicts with the military occur in the northern part of the State.

**Nay Pyi Taw Union Territory:** The Nay Pyi Taw Union Territory includes the capital city of Nay Pyi Taw. It first became the capital of Myanmar in 2006, after the government decided to move the capital from Yangon to this area of low population density. Much of this planned city was completed in 2012. The area consists of the city proper (downtown) and eight surrounding townships. The townships of Tatkon, Pynmana, Lewe and Yemethin are included in the Sittaung River Basin. The Ngalaik dam and surrounding areas also provide recreation facilities for the public. Economic activities are commerce, hotels, and some agriculture.

## 2.2 Administrative governance in the Sittaung River Basin

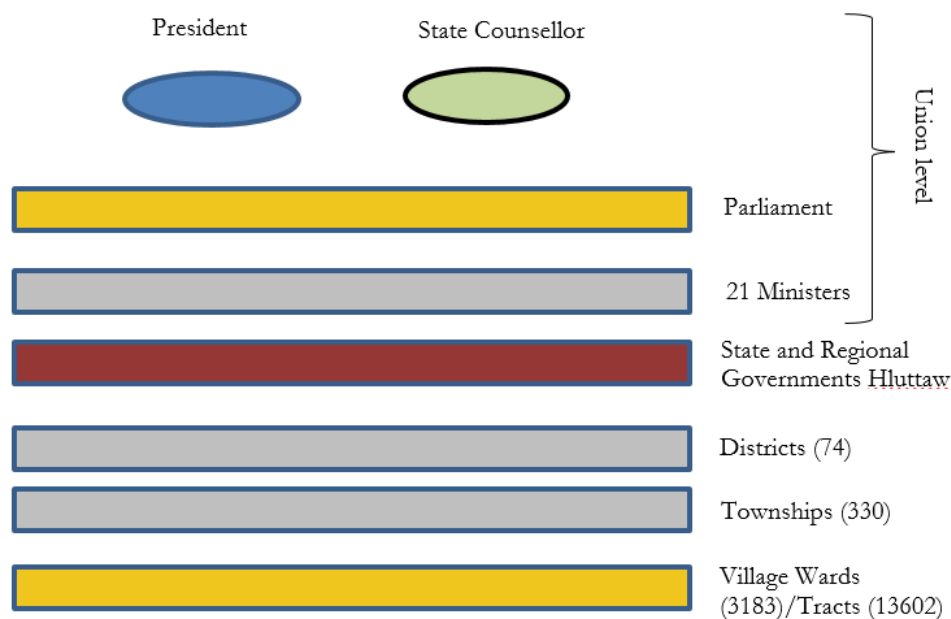
This section presents the general administrative set up for Myanmar. We contextualize and specify the governance situation using a representative example for the regional level, the district level, and the township level within the basin. We have selected as representative units for closer description of the governance situation, the Bago Region, the Bago District, and the Bago Township. There is currently no administrative unit on river basin level in the Sittaung River Basin.

Myanmar comprises seven States and seven Regions, and there are one Union Territory containing the capital Nay Pyi Taw and surrounding townships. These administrative units are named in the 2008 constitution where it is stated that States and Regions are constitutionally equivalent<sup>5</sup>. The States cover areas with large ethnic minority populations and are located along Myanmar's borders. Regions encompass areas where the majority is Myanmar. The next lower administrative level is the district, and each district consists of several townships. Within townships there are village tracts (urban areas)/village wards (rural areas) which refer to several villages grouped together. A village is the smallest formal administrative unit. The lowest level of government offices can be found on township level (see Figure 1).

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<sup>5</sup> The 2008 constitution created new state and regional structures involving sub-national governments. This reform initiated political and administrative decentralization, though restricted due to a top-down appointment process. Democratic transition has gained significant momentum since the 2010 elections and the last election in November 2015 has been regarded according to democratic rules by international observers. The National League for Democracy (NLD) won this election.

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**Figure 1.** Union Government and sub-national governance<sup>6</sup> (Source: Revised and adapted from UNDP).

### 2.3 Union government level and governance of Regions and States

In Myanmar, the President and State Counsellor are the top level of government. Next is the Cabinet of Myanmar, which includes all the Ministers, and is the country's executive body. The Cabinet is led by the President. There are currently 21 Ministries, each with a number of departments. The departments have different but also to some extent overlapping responsibilities related to water management. Nine of the 21 Ministries, including agriculture and irrigation, health, education and mining sectors, have departments on the Regional/State level, and also some on the District and Township level. The representation of the different Ministries on lower administrative levels varies to some extent among States and Regions. The decentralized offices report to the next higher administrative level from where it also receives instructions. The Union Ministries are responsible for drawing out the overall national policies, while the different State and Regional departments are responsible for contextualizing, operationalizing and specifying what the national policy means at the regional level.

The Pyidaungsu Hluttaw is the national-level bicameral legislature of Myanmar made up of two houses, the Amyotha Hluttaw (House of Nationalities), a 224-seat upper house as well as the Pyithu Hluttaw, a 440-seat lower house (House of Representatives).

The General Administrative Department (GAD) of the Ministry of Home Affairs supports coordination and communication among the Union government's 21 Ministries and also connects to the capital Nay Pyi Taw approximately 166 799 village wards and village tracts (Saw and Arnold, 2014). The GAD provides the basic administrative and coordinating functions for the Region and State governments, the Region and State Hluttaws as well as Union Ministries and State and Region departments<sup>7</sup>. The senior GAD administrator for each State and Region is the executive secretary of the State/Region government (Deputy Director General level).

<sup>6</sup> As part of the change of the government from USDP to NLD on March 31st 2016, the President's office of four Ministers were demolished, and a new ministry, the Ministry of the State Counsellor's office was established. The President is Htin Kyaw, and the State Counsellor is Aung San Suu Kyi. With the change of government, the number of ministries were reduced from 36 to 21.

<sup>7</sup> The GAD is part of the Ministry of Home Affairs (MoHA) and plays a wide range of roles – ranging from tax collection, to land management and assorted registration and certification processes. The GAD's primary responsibility is the management of the country's public administrative structures, which are hierarchical and geographically defined

All together there are 58 departments affiliated with the 18 Union Ministries represented at the Bago Region level (see Annex 8 for an overview).

**Table 2.** The main Union Ministries and Departments important for water management in Bago Region.

| Ministry   | Department   | Focus  |
|--|--|--|
| Ministry of Agriculture, Livestock and Irrigation, MOALI             | Irrigation and Water Utilization Management Department (IWUMD)         | The department maintains and operates major facilities such as main dams, headworks, main canals and secondary units.  |
|  | Department of Rural Development  | The department is responsible for provision of drinking water, electricity, enhancement of livelihoods in rural areas.   |
| Ministry of Transport and Communications, MOTC                       | Directorate of Water resources and Improvement of River systems (DWIR) | Hydrological research and planning, hydrographic mapping, river engineering including construction of river structures, and bank protections, dredging for improvement of waterways and new navigation channels. |
|  | Department of Meteorology and Hydrology (DMH)                          | Water assessment of major rivers, data collection and analysing measuring discharge, sediment flows, water quality and salt intrusions.  |
| Ministry of Natural Resources and Environmental Conservation, MONREC | Environmental Conservation Department (ECD)                            | Environmental conservation and management.   |
|  | Forest Department (FD)   | Reforestation and Conservation of Forest afforestation and watershed management  |
| Ministry of Health and Sports  | Public Health Department   | Responsible for environmental health –related to water quality and quantity – and water quality assessment and control.  |

## 2.4 Region and State Governments

There is in addition to the Union Government departments, offices on Region / State level, a State / Region government which consists of: 1) A partially elected Hluttaw (parliament), 2) A Chief Minister and a cabinet of State/Region ministers, and 3) State/Region judicial institutions. The 2008 constitution specifies responsibilities and powers between the central Union Government and the State /Region Governments, that is, which issues should be decentralized to State/Region level and which should remain on the Union Government level. The State/Region Hluttaw (the Pyithu Hluttaw) serves as the country's legislature on regional level. Only few laws have been passed on regional level. The Hluttaw is composed of two elected members per township, so called representatives for “national races”, and in addition appointed military representatives equal to one quarter of the total<sup>8</sup>. This means that the number of people in a Hluttaw varies among States/Regions as this number depends on the number of townships in the State/Region.

The head of the executive branch of the State/Region is the Chief Minister a position that is appointed by the Union President among the elected or unelected Hluttaw members. In addition to the Chief Minister, the regional government also comprises ten Ministers selected by the Chief Minister, and the advocate general, a GAD officer of the Bago Region. The Ministries are assigned portfolios by the Union President; portfolios correspond to the areas where the State/Region government has legislative powers, executive and administrative authority – as prescribed in the constitution. There are typically nine sectorial portfolios in State/Region Cabinets, though there are variations (Table 3). The Minister of Security and Border Affairs and the Minister of National Races are by constitution held by a representative of the military and a person elected for the ethnic constituency in the region. The GAD officer has an important position as he / she is responsible for coordination among government actors, and notably with the

<sup>8</sup>The 2008 Constitution provides the military commander-in-Chief the right to appoint military officials to 1/3 of parliament seats based on the number of elected MPs.

Union ministries. A recent change refers to the situation, that the GAD administrator on Union level now just has a role of approval; it is now the GAD administrator on regional level who choose the officers for his Region / State.

## 2.5 The Bago Region Government

In the Bago *Pyithu Hluttaw* there are altogether 57 members. This is based on the election of two representatives for each of the 28 townships in Bago and in addition to one constituency for the ethnic Karen community of the Region. The Bago Hluttaw has passed laws.

There are seven Ministries in Bago Region (Table 3). Each Ministry consists of a Minister and the Ministers office. There are no affiliated departments. Coordination is the responsibility of the GAD officer. The Bago Region Ministries are responsible for developing policies and politics for the Bago Region. The budget for implementing policies is financed by means of regional taxes and transfer of finances from the Union

The institutional framework for Bago Region follows that of other states and Regions and is prescribed in detail in the 2008 Constitution.

**Table 3.** Overview of Bago Region Ministries.

|  |
|--|
| <b>Name of Ministry</b>  |
| Chief Minister   |
| Ministry of Security and Border Affairs                              |
| Ministry of Planning and Finance                                     |
| Ministry of Agriculture and Livestock and Irrigation                 |
| Ministry of Natural Resources, Forest and Environmental Conservation |
| Ministry of Kayin Ethnic Affairs                                     |
| Ministry of Social Affairs   |
| Ministry of Industry, Electricity and Transport                      |

## 2.6 District level

Districts form a middle tier of administration connecting State/Region governments, and also the Union level departments to the townships. Typically, responsibilities of district offices involve more specified planning operations related activities occurring on district level, such as operation of dams, or collection of hydrological and weather information. The district administrator is a GAD officer who is the head of the district general administrative office. The district level supervises the respective townships which are critical building blocks of administration in Myanmar. Table 4. Presents the Union Ministries and departments present at Bago district level.

There are no Region / State government offices at the district level, only Union Government departments.

**Table 4.** Seventeen Union level Ministries with affiliated departments, institutions and agencies (total 44) are represented at Bago district level.

| <b>Ministries</b>                                     | <b>Department / Institution</b>                           |
|---|---|
| (1) Ministry of Agriculture, Livestock and Irrigation | Department of Agriculture                                 |
|   | Irrigation and Management of Water Utilization Department |
|   | Department of Fisheries                                   |
|   | Department of Rural Development                           |
|   | Department of Agriculture Land Management and Statistics  |
|   | Department of Agriculture Machinery Industries            |
|   | Cooperative Department                                    |



| Ministries   | Department / Institution  |
|--|---|
|  | Livestock Breeding and Veterinary Department                    |
|  | Bee Enterprise  |
|  | Myanmar Agricultural Development Bank                           |
| (2) Ministry of Construction                                     | Department of Highways  |
|  | Department of Urban and Housing Development                     |
| (3) Ministry of Electric Power and Energy                        | Electric Supply Enterprise                                      |
|  | Myanma Petroleum Products Enterprise                            |
| (4) Ministry of Natural Resources and Environmental Conservation | Forest Department   |
|  | Myanmar Timber Enterprise                                       |
| (5) Ministry of Home Affairs                                     | General Administrative Department                               |
|  | Police Force Office   |
|  | Immigration and National Registration Department                |
|  | Fire Services Department  |
|  | Bago Regional Law Office  |
|  | Prison Department   |
| (6) Ministry of Transport and Communications                     | Directorate of Water Resources and Improvement of River Systems |
|  | Operator License and coordination Supervision                   |
|  | Myanmar Posts and Telecommunications                            |
|  | Road Transport Administration Department                        |
| (7) Ministry of Information                                      | Information and Public Relations Department                     |
| (8) Ministry of Labor, Immigration and Population                | Department of Labor Relations                                   |
|  | Factories and General Labor Laws Inspection Department          |
|  | Department of Labor   |
| (9) Ministry of Industry   | Directorate of Industrial Supervision and Inspection            |
| (10) Ministry of Commerce  | Department of Consumer Affairs                                  |
| (11) Ministry of Planning and Finance                            | Department of Planning  |
|  | Internal Revenue Department                                     |
|  | Custom Department   |
|  | Financial Regulatory Department                                 |
|  | Myanmar Economic bank   |
| (12) Ministry of Social Welfare, Relief and Resettlement         | Relief and Resettlement Department                              |
| (13) Ministry of Education                                       | Department of Basic Education                                   |
| (14) Ministry of Health and Sport                                | Department of Public Health                                     |
|  | Department of Traditional Medicine                              |
|  | Department of Sport and Physical Education                      |
| (16) Ministry of Hotel and Tourism                               | Directorate of Hotel and Tourism                                |
|  | Development Committee   |

## 2.7 Township level

A number of *Union Ministry Departments* are represented with their own office at the township level for service delivery. Whether the Ministry is represented in a township depends on the size of the township, but also on the relevancy of the Ministry's area of responsibility within the particular township. All heads of departments at the township level are accountable to their supervisor at the district or region level, while all receive their budget from the Union level departments. The mandates and levels of authority of these departments differ by Ministry, but in general are limited to implementing tasks and plans that are handed down from the Ministry downwards.

The Township Administrator (TA), a senior officer of the General Administration Department (GAD) of the Ministry of Home Affairs, is responsible for coordination of Regional and State government functions and also Union Ministries field offices at the township level. The responsibilities of the Township Administrator (TA) office have expanded over the last few years, and now comprise the promotion of social and economic development through management of township affairs, oversight of implementation for development projects, and coordinating with other parts of government. This office issues licenses for particular activities, including the sale of alcohol and real estate, and provides the recommendations necessary for a range of licenses and permits, including land transfers, construction permits and operating licenses, and collects certain taxes on alcohol and land. The roles of the Township Administration are exceptionally varied ranging from birth registration, land registration and tax collection, to drinking water provision and local dispute resolution. An important activity of township administrators is coordinating Rural Development Funds, which are local grants intended to meet the needs of local communities.

There is also a Municipal office which is responsible for water, sewage, trash collection as well as urban road maintenance and urban electricity. As it also has an important role in collecting certain taxes and other fees, issuing business operating licenses and construction permits this office has an overlapping role with the TA office.

Several formal and informal committees have been established for coordination at the township level with the intention to assist the TA with township management. The Township Management Committee is made up of the Township Administrator and other heads of Union Ministry departments. This committee is important for coordination of development tasks. Development fund planning processes are made available either by the state or union level government to the townships that are managed by the GAD.

Despite the awareness that a coordinating role must be played by the TA and is inherent to the formation of various coordinating committees, horizontal co-ordination between departments remains a challenge (UNDP, 2015). Township departments continue to plan and deliver services in a vertical fashion, following the instructions from higher levels within their own Ministries. The resulting picture is therefore strongly hierarchical and compartmentalized, meaning that each department is focusing on its own mandate to achieve its national priorities. While there are some minor variations in the planning and budgeting process between the various sector ministries, actual planning is taking place at the Region/State or Union level.

There is currently no elected governance body of elected representatives at the township level. Consultation with civil society occurs as part of two committees where most of the members are selected by popular votes; The Township Development Affairs Committees (TDAC), and Township Development Committees (TDC). In these committees only the secretary and one other member are government staff.

The public can be consulted on township planning and budgeting processes such as with regard to identification of project financed by Development Funds, the sector planning process, and Township five year plans. They can be consulted either directly or indirectly at the village tract (VT)/ ward (VW) level during the identification of potential projects, with the village tract / ward development support committees potentially playing a role, and secondly they can participate indirectly through the participation of their VT /WA and the TDSC in the selection process at the township level (UNDP, 2014).

**Table 5.** Eleven Union level Ministries and 31 departments and institutions in Bago Township.

| <b>Ministry</b>                                       | <b>Department</b>  |
|---|--|
| (1) Ministry of Agriculture, Livestock and Irrigation | Department of Agriculture                                    |
|   | Department of Irrigation and Management of Water Utilization |
|   | Department of Rural Development                              |
|   | Department of Agriculture Land Management and Statistics     |
|   | Department of Agriculture Machinery Industries               |

| Ministry   | Department                                       |
|--|--|
|  | Cooperative Department                           |
|  | Livestock Breeding and Veterinary Department     |
|  | Bee Enterprise                                   |
|  | Myanmar Agricultural Development Bank            |
| (2) Ministry of Construction                                     | Department of Highways                           |
|  | Department of Urban and Housing Development      |
| (3) Ministry of Electric Power and Energy                        | Electric Supply Enterprise                       |
| (4) Ministry of Natural Resources and Environmental Conservation | Forest Department                                |
| (5) Ministry of Home Affairs                                     | General Administrative Department                |
|  | Police Force Office                              |
|  | Bago Regional Law Office                         |
|  | Immigration and National Registration Department |
|  | Fire Services Department                         |
| (6) Ministry of Information                                      | Information and Public Relations Department      |
| (7) Ministry of Labor, Immigration and Population                | Social Security Board                            |
| (8) Ministry of Commerce   | Department of Consumer Affairs                   |
| (9) Ministry of Planning and Finance                             | Department of Planning                           |
|  | Internal Revenue Department                      |
|  | Custom Department                                |
|  | Financial Regulatory Department                  |
| (10) Ministry of Education                                       | Department of Basic Education                    |
| (11) Ministry of Health and Sport                                | Department of Health                             |
|  | Department of Traditional Medicine               |
|  | Department of Sport and Physical Education       |
| (12) Township Development Committee                              |  |
| (13) Office of the Auditor General                               |  |

### 2.7.1 Village wards and village tracts

Below the township level is the village tract (rural)/ward (urban) administration system,<sup>11</sup> the lowest tier of the official government administrative structure in Myanmar. The village tracts /wards refer a number of villages which combine for administrative purposes. The village tract/ward administration consists of a Village Tract/Ward Administrator a GAD employee (VTA/WWA)<sup>9</sup>, a clerk, and ten elected household heads. The VTA/WWA communicates directly to the Township Administrator (TA). Since 2012 the VTA /WTA have been elected by household leaders thus forming the link between the township administration and the people in the wards and tracts<sup>10</sup>.

The duties of the VTAs/WTAs are maintaining law and order and to act as the intermediary between the village tract/ward and the township – informing community members on the one hand and bringing relevant village tract/ward problems or needs to the attention of the township administrator.

<sup>9</sup>Ward of Village Tract Administrators (VTA /WAI is elected from and by the group of 10 household heads (since 2012), since they are elected. The village tract administrator now receives a small personal subsidy from the GAD rather than a salary, and is not technically a government employee

<sup>10</sup> Previously the VTA/WTAs were appointed and as such under the direct command of the Township Administrator.

### **2.7.2 Village**

Governance on village level is performed by the elected village tract administrator/village ward administrator (VTA/WTA)<sup>11</sup>. Within villages, there is a further level of coordination known as the household heads' system whereby groups of 10 households select representatives to participate in village tract forums.

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<sup>11</sup> Wards and village tracts are equivalent in terms of administration; wards exist in urban areas, tracts in rural areas.

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### 3 The River Basin Management Approach

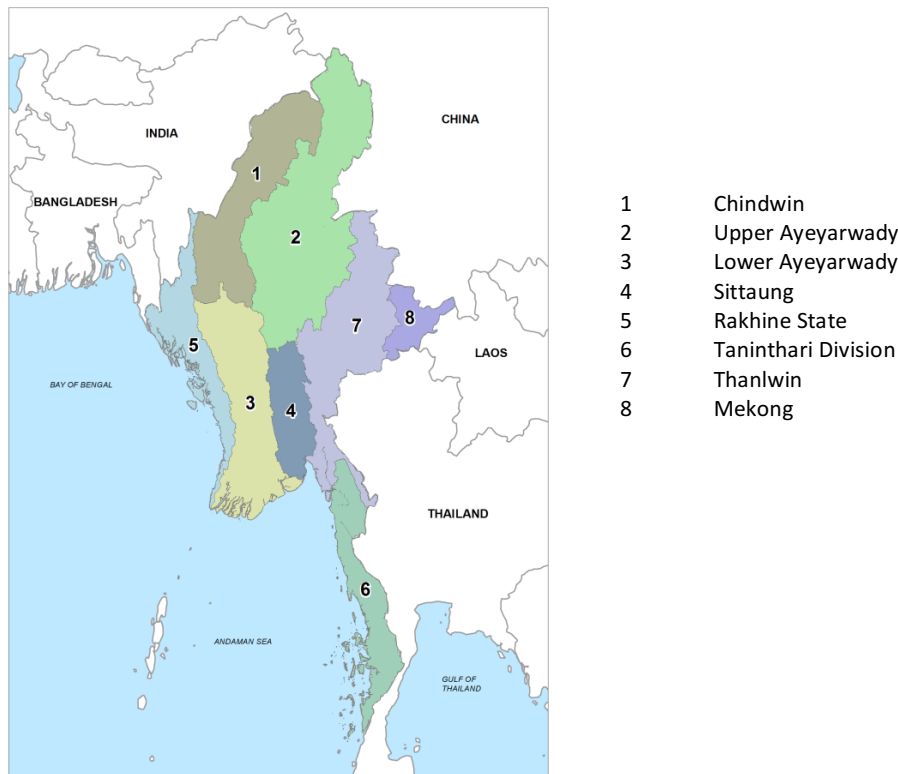
The **River Basin Management (RBM)** approach involves managing different water uses in an integrated way within the boundaries of the catchment. The argument for this approach is that water is best managed along hydrological boundaries. The tool to enable RBM is river basin management steps for the development of a coordinated River Basin Management Plan (RBMP) (Figure 5). Management of river basins should be systematic and undertaken on a specific cyclic interval<sup>12</sup>. Prior to the development of a RBMP, as a step zero, the boundaries of river basins need to be identified and determined. Considering these boundaries, the administrative unit for each river basin, the so called “River Basin Area” must be agreed upon.<sup>13</sup> According to this approach, a River Basin Area (RBA) should comprise the whole catchment. This means that the catchment should not be split in two or more RBAs, but be kept as a complete unit. It should comprise all areas that can affect the main stem of the river, i.e. all the areas that drain to the river. As a river basin enters the sea as “a tip” at the outlet, there will be small triangles between the river basins that are not covered. These areas have to be split and shared with neighbouring RBAs in the most suitable and appropriate way. All terrestrial, limnic and coastal areas will then be assigned to RBAs and hence be included in the water management system.

Determining a RBA involves identifying the main rivers within the RBA together with a precise description of the boundaries of the river basin. It is recommended that the geographic coverage of river basins should be introduced into a government appointed geographic information system (GIS). International river basins must be discussed bilaterally and decided in appropriate international forums. The information regarding demarcation of river basin areas should be easily accessible for all, preferably on the internet. The number of River Basin Areas in a country should be within what is considered to be manageable geographical units. The normal number of RBAs (RBDs) in a country is 4-10 with reference to Europe. These RBAs are split into many sub-basins, which are often single river basins of smaller rivers, or an important large, lake (the range of such sub-basins within a country vary from 30-100). The practical water management tasks are mostly performed within such sub-basins. Figure 2. shows a rough illustration of the eight River Basin areas commonly depicted in Myanmar.

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<sup>12</sup>The National Water Framework Directive (Myanmar) specifies that the River Basin Management Plan should have a ten year cycle.

<sup>13</sup> In the EU WFD, the river basin administrative unit, is called River Basin District. The authors of this report suggests that the river basin administrative unit in Myanmar may be named, River Basin Area. According to the EU WFD a River Basin Area consists of one or more river basins plus the marine influence area.



**Figure 2.** Myanmar with river basins and neighboring countries (Source: adapted from U Win Kyaw, WWD 2014)

It is recommended to consider a step wise approach for implementing the River Basin Management Approach and according to what is feasible. A step wise approach may refer to implementation of the RBM approach in certain river basins, or also only in selected sub-basins where: conflict levels are low, where important departments for water management are interested in the approach, and where participation of civil society, NGOs, CBOs can be part of the plan. Several authors argue that the delineation of hydrological river basins are not as simple as first anticipated (Griffen, 1999; Warner et al., 2008). In several basins water is transferred through a canal from one basin to another interrupting the idea of a “one-unit hydrological basin”. Then there is the scale of basins; “even a puddle can be considered as a small basin”, hence the appropriate scale of an administrative river basin is not necessarily obvious. Such issues mean that delineating river basins considering hydrological boundaries are also a political decision. Some also argue that the approach presents false boundaries for decision-making, as neither politicians nor individuals necessarily relate to or identify with the boundary of the river basin (Norman et al., 2013). Yet, River Basins are purposeful units for coordination across sector and environmental authorities, but certain a level of pragmatism is important, alongside the focus on the overall objective of improved and coordinated water management for the welfare of people, society and the environment (see also chapter 4).

An important aim of projects which pilot implement the RBM approach is to contribute with local experience. This experience should be used to improve implementation in the next water management cycle, and to gain experience for other basins. It is recommended to define criteria for “successful” implementation; criteria such as increased awareness and involvement of actors and civil society, improved coordination of activities by departments, increased transparency of management, and improved ecological status of water bodies. Such criteria can be useful for the evaluation of the approach.

We present in this chapter three different proposals for delineating an administrative Sittaung River Basin Area. These proposals result from discussions in two workshops, one in February 2015 and one in September 2015 and from several interviews with sector authorities, in Bago and on Myanmar Union level



during the same period. For practical purposes, there is a need to identify sub-basins for coordination of practical water management tasks; in Section 3.2 we propose delineation of Sub-basin Areas within the River Basin Area.

### **3.1 Delineation of an administrative Sittaung River Basin Area**

Two workshops to allow for an iterated discussion of delineating an administrative Sittaung River Basin Area were organized. The workshops each lasted one day and were organized at the Irrigation Technology Center (ITC) in Bago Region, in March and September, 2015. Around 50-60 people attended the workshops. The attendants were mainly representatives from three focal ministry departments in the Bago Region; Forest Department (FD), Irrigation and Water Utilization Management Department (IWUMD), Directorate of Water Resources and Improvement of River Systems (DWIR), but also from other departments such as Health Department, Environmental Conservation Department, Department of Meteorology and Hydrology, Department of Geography. The workshop program included the introduction of the River Basin Management approach, and an overview of water quality monitoring in the Bago River by different institutions in Myanmar. After presentations, attendants formed five groups to discuss delineation. The discussion groups also discussed representation of sector and environmental authorities in coordinating committees, the so called, Sittaung River Basin Area Committee (see Chapter 4). After discussing for about an hour, each group presented “their” delineation of the Sittaung River Basin Area and also argued for their alternative. As an outcome of these workshops, four different versions of River Basin Areas were identified; two alternatives based on the hydrological alternative (A1, A2), an intermediate alternative (B), and a reductionist alternative (C). There were no majority in favor for any of the three alternatives.

The four alternative River Basin Areas are presented below:

#### **Sittaung River Basin Area – delineation based on hydrological boundaries, version AI**

A Sittaung River Basin Area based on hydrological boundaries includes; in *Bago Region* the districts of Bago and Taungoo; in *Mon State*, the Kyaikto and Bilin townships (Thaton District); in *Kayah State*, Demawso township (Loikaw District); in *Kayin State*, Than Daung Gyi township (Hpa-an District); in *Shan State*, Pinlaung township (Taunggyi district); and in *Nay Pyi Taw Union Territory* the townships of Tatkon and Pynmana. Figure 3. shows the the Sittaung River Basin Area considering hydrological boundaries. The map is prepared by the Forest Department (MONREC). Judgments needs to be made with regard to the area where the river enters the seas, around the outlet/ the delta area.

A number of attendants at the workshops, and specifically attendants from MONREC, but also others favored this alternative arguing for the ideology of the IWRM concept, that all main water use sectors within the same hydrological unit have the right to take part in decision making processes. However, several were skeptical of the hydrological alternative. The sceptics argued that areas with high conflict level would be difficult to integrate.

#### **Sittaung River Basin Area – delineation based on hydrological boundaries, version AII**

This alternative considers the Bago-Sittaung canal combining the Sittaung River with the Bago River (Figure 4). Due to this situation, the two rivers are not strictly of different hydrological river basins; the Bago River can be seen as a tributary of the Sittaung River as water from the Sittaung runs into the Bago River. Activities upstream in the Sittaung may therefore have impact on the situation in the downstream in the Bago River. This alternative also considers the political unity within the Bago District with reference to overall decision making and coordination it can be seen as beneficial to avoid splitting the District in two RBAs.

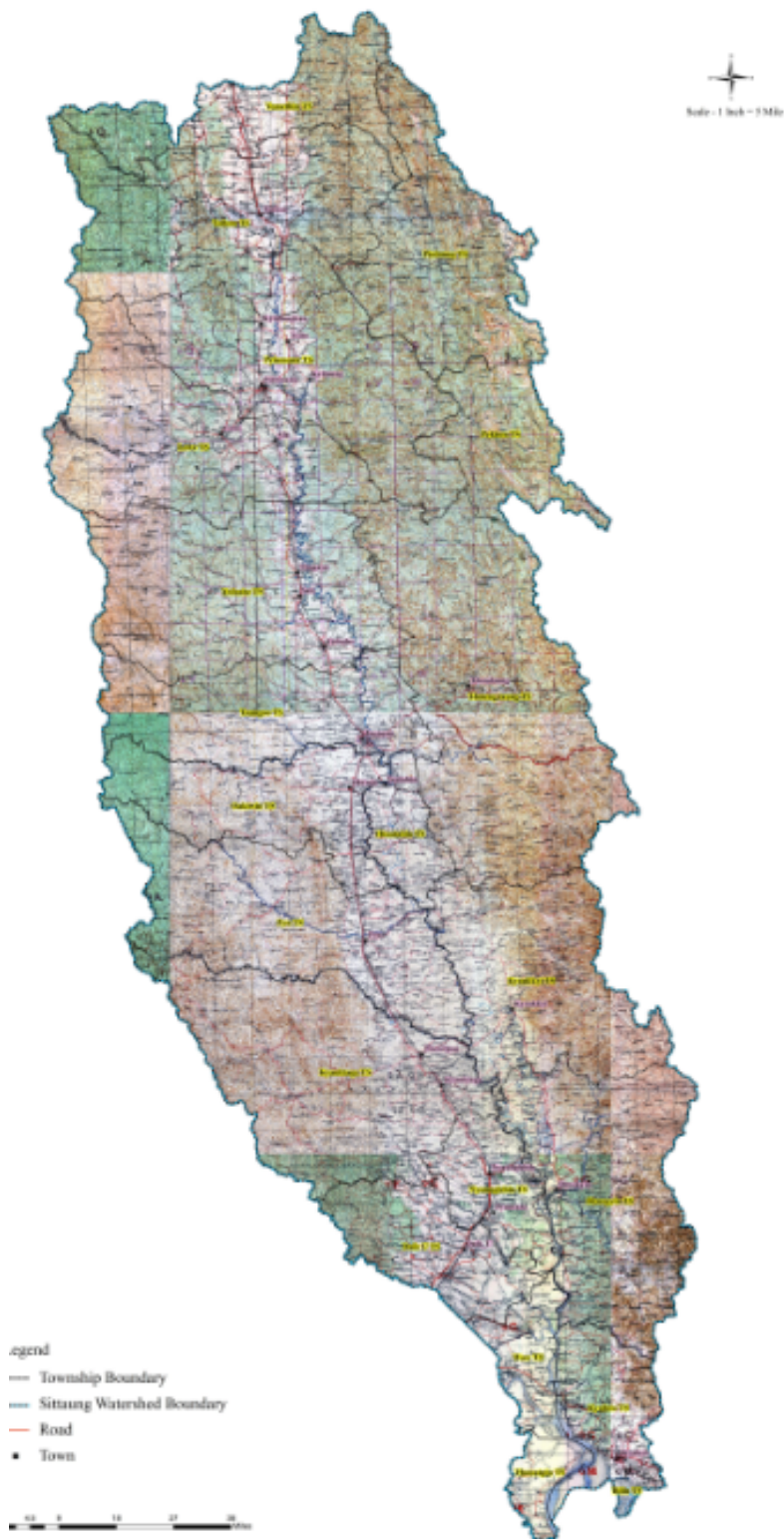
**Sittaung River Basin Area – a version to exclude areas with high conflict levels, version B**

This proposed alternative River Basin Area includes the districts of Bago and Taungoo in the Bago Region, the townships of Mon State, the township of Kayin State and the townships of Nay Pyi This proposed alternative River Basin Area includes the districts of Bago and Taungoo in the Bago Region, the townships of Mon State, the township of Kayin State and the townships of Nay Pyi Taw. The argument for excluding States with territories within the hydrological river basin was consideration of conflict levels within certain States. However, as these States have territory upstream in the basin, land and water use in these areas will have an impact downstream on aspects like, sedimentation rates, water quality and water flow. It may be important to try to include authorities in these areas in discussions of environmental aims and overall development of the basin.

**Sittaung River Basin Area – a version which emphasizes similar issues within the river basin, version C**

This alternative River Basin Area proposed in the workshop includes only the Bago Region and the two districts Bago and Taungoo (Figure 4). The argument for including only these two districts is based on the perception that authorities in areas of similar land and water use more easily discuss and agree; their development objectives are similar. Concerns regarding this approach match concerns of alternative B; if a territory within the hydrological unit is excluded from the respective River Basin Area, the potential for a coordinated approach towards improved ecological status of waters is lower.

### Sittaung Watershed Area



**Figure 3.** The Hydrological Sittaung River Basin Area (Source: Ministry of Natural Resources and Environmental Conservation MONREC).



**Figure 4.** The map shows the suggested Sub-basin Areas within the Sittoung River Basin, the Nay Pyi Taw Sub-basin Area, the Taungoo Sub-basin Area and the Bago Sub-basin Area. This Sittoung River Basin Area alternative AII, is considered due to the Sittoung canal combining Sittoung River with Bago River.

### 3.2 Delineation of Sub-Basins within the Sittoung River Basin Area

It is stated in the National Water Policy chapter 4.5 that, “*Community based water management should be institutionalized and strengthened not only for water utilization but also for technology transfer*”.

It is for practical reasons relevant to specify a sub-basin unit to ensure that local perspectives are considered and to facilitate for coordination of practical work tasks. The *sub-basin unit* commonly includes the main river and its tributaries, but it often also considers relevant administrative borders. The whole River Basin Area needs to be covered by Sub-basin units. Within Sub-basin Areas a Sub-basin Area Committee can be formed for the coordination of practical water management tasks, and for preparation

of local level information regarding environmental and development objectives, and measurements for reaching environmental objectives (See chapter 4 on administrative coordination units).

Based on various interviews with Bago water sector and environmental authorities, the proposed Sub-basins within the Sittaung River Basin Area are: Nay Pyi Taw Sub-Basin Area, Taungoo Sub-Basin Area, and Bago Sub-Basin Area (See Figure 4). This proposal largely reflects current political administrative borders, and less hydrological issues. Regarding delineation of the Sub-basin Areas political administrative borders may to a greater extent be considered (EU WFD), as the overall River Basin Management Plan is decided on River Basin Area level. The work on Sub-basin Area is more preparatory in its character though important for local anchoring and for coordination issue.

We specify the townships with significant area within the three identified Sub-basin Areas in the Sittaung River Basin Area – below (see also Figures 4 and 5):

**Nay Pyi Taw Sub-basin Area**

The townships of Tatkon, Pyinmana, Lewe in the Nay Pyi Taw Union Territory; in Shan State, Pinlaung Township (Taunggyi district); and in Kayah State, Pekhon-township.

**Taungoo Sub-Basin Area**

The Taungoo district and the townships of Taungoo, Oak Twin, Tantabin, Yay Da Shay, Phyu, Kyauk Ta Ga, and the Kyauk Kyi, and in Kayah State, Than Daung Gyi township.

**Bago Sub-Basin Area I (not including the Bago River and hence not the townships of Bago and Kawa)**

The Bago Sub-basin Area includes the townships of Thanatpin, Waw, DaikU, Nyaung Lay Bin, and Shwe Gyin Township in Bago District, and in Mon State the Kyaik Hto and Bilin townships within the Thaton District.

**Bago Sub-Basin Area II (this alternative includes the Bago River)**

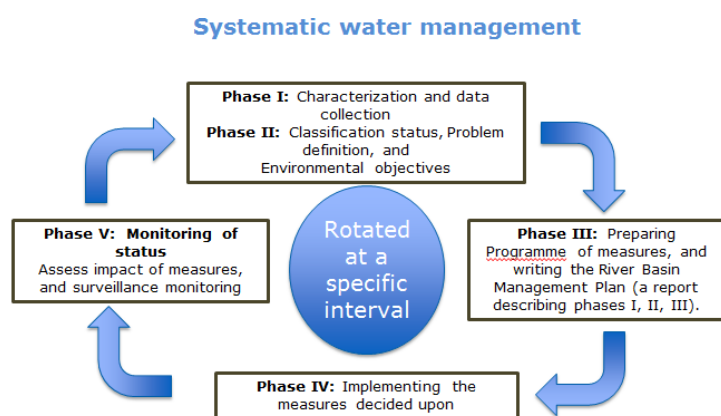
This alternative is considered due to the Sittaung canal combining the Sittaung River with the Bago River. Though these two rivers are not strictly within the same hydrological river basin, the Sittaung River can be seen, based on this perspective, as a tributary of the Bago River as water from the Sittaung runs into the Bago River. Activities upstream in the Sittaung may therefore have impact on the situation in the downstream in the Bago River. This alternative is also considered due to the political unity of this area.

The Bago Sub-basin Area (II), includes the townships of, Bago, Kawa, Thanatpin, Waw, DaikU, Nyaung Lay Bin, and Shwe Gyin Township in Bago District, and in Mon State the Kyaik Hto and Bilin townships within the Thaton District.

## 4 Coordinating units within the River Basin Area

For each River Basin Area there is a need for a coordinating arena, a forum where management decisions, such as environmental and development aims, and programme of measures are discussed and where the River Basin Management Plan (RBMP) is decided upon. The development of River Basin Management Plans have not previously been practiced in Myanmar, but such plans are now declared a specific objective in the NTFD (Principle 5) (Annex 8). Coordinated activities are essential for effective water governance. The River Basin Management Plan can be seen as a report describing the work of developing the plan, and points to be covered in this report should be specified in national guidelines (see Section 4.1; Nesheim and Platjouw, 2016). Stakeholder involvement during the preparation of the RBMP ought to be included as a separate section in the RBMP (Chapter 5, this report). It is recommended that for every River Basin Area the RBMP is approved by national authorities and shared with relevant national level committees<sup>14</sup>. The plan should be made easily available to the public.

The RBA Committee members should meet a certain number of times during the year to discuss and to reach an agreement on specified issues. These issues can be exemplified by the following: 1. The overall work plan for development of the RBMP, 2. Prioritizing water management issues/the main environmental problems in the basin, 3. Specification of environmental aims, 4. Prioritize a Programme of Measures, 5. Draft RBMP and final RBMP. Input to these discussion issues is better provided by the Committee in the Sub-basin Areas (Section 4.2). The issues are linked to steps within the water management cycle (Figure 5).



**Figure 5.** Systematic and cyclic water management tasks.

Members of a River Basin Area Committee should embrace all relevant sector and environmental authorities within the (political) administrative units of the River Basin Area. These are authorities that in various ways use water or affect water through their usage, and who will have to pay for most of the measures that are necessary to achieve good water quality. All authorities which may affect the water situation with their decision, or whom could be affected by the decision in the committee, should have the possibility to take part in the discussion. This means that all relevant sector and environmental authorities should receive an invitation to meetings including background information and agenda. Actual attendance by the specific authorities, however, depends on the relevancy of the meeting agenda for their area of responsibility. If the topics on the Committee meeting agenda does not have relevancy for the authorities in a (political)-administrative area, attendance at the meeting is not required. It needs to be emphasized

<sup>14</sup>There is, in particular, a need for a clear direction in cases where national sector policies (and laws?) may be contradictory.



that the right to information, about the meeting agenda, background information, and the minutes, is an important prerequisite for all members of the RBA Committee. For efficiency reasons, it is important to consider the hierarchical landscape, i.e. what is the level of administration relevant for attendance in Committee meetings. The respective sector authority is best to decide the level of administration, as this is related to the nature and importance of the agenda discussion points.

There is a need to define a clear mandate for decision-making in the committees; there is a need to consider for which issues the river basin scale is the most appropriate, and when might other scales, i.e. townships or the national level, be of better fit (Norman and Cook, 2016; Warner et al., 2008). For example, ecological water quality standards, or the drinking water standard should be decided upon on the national level, while actions/measures for erosion control is typically an issue for the river basin level. Another essential point is the need for strong support by a broad spectre of national authorities, such as the National Water Resources Committee, both in terms of necessary financial resources and guidelines in the form of written text.

#### **4.1 The Sittaung River Basin Area Committee**

It is proposed to call the arena for coordinating the development of the River Basin Management Plan in Sittaung, the “*Sittaung River Basin Area Committee*”. As described above, the Sittaung River Basin Area covers a large part of Bago Region, but other States and Regions have territory in this basin. The purpose is for these “owners” of the basin to cooperate to develop the Basin Management Plan. The owners that are the sector authorities within the different districts of States and Regions have their own policy objectives and planning frames. These actors and also environmental authorities have to meet at River Basin Area Committee meetings and Sub-Basin Area Committee meetings and decide if environmental aims are parallel with other initiatives, such as the development of regional industrial zones, extension of infrastructure, and building houses etc.

Workshops have been organized as part of this project for the purpose of discussing membership in a Sittaung River Basin Area Committee, secretariat functions, and its decision-making (September 2015). Within the committee, it can be recommended to organize working groups that are responsible for preparing information on various topics to be discussed and decided upon. Table 6. lists the departments and institutions which were proposed in the workshop to be members the Sittaung RBA Committee. With reference to the Bago Region, attendants at the workshop listed these departments.

The Sittaung RBA Committee also needs to include environmental and sector authorities from other States and Regions that have territory within the RBA, as members. As indicated above, these authorities have to receive information about the agenda for the meeting, and also background material. Important institutions are GAD, ECD, IWUMD, DWIR and DMH and FD.

**Table 6.** Departments and other institutions listed as relevant in the workshops.

| Vertical level representation       | Ministry                              | Department   | Secretary               | Chairperson               |
|-------------------------------------|---------------------------------------|--|-------------------------|---------------------------|
| Ministries                          | MOHA                                  | General Administrative Department (GAD)                          |                         | GAD (chair or vice chair) |
|                                     | MOALI                                 | Irrigation and Water Utilization Management Department           | IWUMD (first secretary) |                           |
|                                     |                                       | Department of Agriculture  |                         |                           |
|                                     | MOTC                                  | Department of Meteorology and Hydrology                          |                         |                           |
|                                     |                                       | Directorate for Water Resources and Improvement of River Systems | DWIR (second secretary) |                           |
|                                     | MONREC                                | Forest Department  |                         |                           |
|                                     |                                       | Environmental Conservation Department                            |                         |                           |
|                                     |                                       | Department of Fishery  |                         |                           |
|                                     |                                       | Rural Development Department                                     |                         |                           |
|                                     |                                       | Public Health Department   |                         |                           |
|                                     |                                       | Information and Public Relation Department                       |                         |                           |
|                                     |                                       | Relief and Resettlement Department                               |                         |                           |
|                                     |                                       | Hydropower generation enterprise                                 |                         |                           |
|                                     |                                       | Inland Water Transport   |                         |                           |
|                                     |                                       | Education Department   |                         |                           |
|                                     | Settlement and Land Record Department |  |                         |                           |
| Chief Minister of Bago Region       |                                       |  |                         | Chairperson               |
| Bago Township Development Committee |                                       |  |                         |                           |

#### 4.1.1 River Basin authority and secretary functions of the River Basin Area Committee and decision making functions

There is a need to appoint one institution to have secretary functions; that is taking on the role of invitations for meetings, preparing agendas, and ensuring that the timeline is followed. According to the EU WFD, this should be an existing institution; the institution taking on this role is in Europe called “Competent authority”<sup>15</sup>. In Europe, the “Competent authority” takes part in the committee, but has specific responsibilities and work tasks. The legal status of this institution, as well as its mandate, need to be described. This authority is also responsible for coordinating discussions; in some areas this actor has a responsibility for reaching decisions, while in others it is the principle of consensus among members. If consensus cannot be reached, then the issue is taken to a higher administrative level. *It is important to allocate additional financial and work force resources to these institutions to enable them to do the required tasks.*

Common practice in managing committees in Myanmar is to have one institution serving as *Secretary*, and then to have a different institution to be *Chairperson*. The “Secretary” in Myanmar is responsible for inviting to meetings, preparing agendas, and ensuring that the timeline is followed, as specified for the “Coordinating Authority” in Europe. Coordinating decision-making in Myanmar is however typically specified to that of a Chairperson. Whether it is decided to select a chairperson, or to provide authority to a few selected departments as is the situation with regard to, Inlay Lake Conservation Authority, it is important to decide, if decision-making shall occur by consensus, by majority voting, or by a different alternative.

<sup>15</sup>In Norway this institution is called Coordinating Authority.

When selecting institutions to be chairperson or secretary; certain criteria should be considered. The coordinating authority should not be inclined to favour a particular sector; meaning it should not be biased. This often refers to selecting an environmental authority, such as a regional level Environmental Conservation Department in Myanmar. It is often also considered to give this role to an authority downstream in the river basin. This is because downstream areas may be affected by the actions of upstream management.

#### **Secretary at the River Basin Area Committee**

At the workshops in 2015, including the following departments, (i) the IWUMD (MOALI), (ii) the DWIR (MOTC), and (iii) the ECD (MONREC), three different proposals were presented to take the role as secretary in the River Basin Area Committee.

During the iterated discussions however, it was generally agreed that the ECD was yet to have sufficient resources for this task, hence the proposal was dropped. The argument accepted by the majority of the attendants was that the IWUMD was the best institution to take on this responsibility as this department has offices at local administrative levels. Some attendants argued that IWUMD could be the first secretary and DWIR the second secretary. The role of a first versus a second secretary was not specified.

#### **Chairperson**

Two different institutions were suggested to take this role. The Chief Minister of Bago Region, and the senior General Administrative Department (GAD) officer. The senior GAD officer was suggested due to the officer's role of as a coordinator. The majority argued that the Chief Minister of the Region should take this position because it is the upper authority. It was subsequently suggested that the senior GAD officer could be vice chairperson. This River Basin Management Committee will compile all the water management matters from all different departments, in all levels and put up to the Regional Chief Minister for final decision.

#### **Coordinating Authority**

It was also suggested to replace the chairperson and secretary, with an institutional named, Coordinating Authority consisting of a small group of important departments: the General Administration Department, Forest department, Settlement and Land Record Department, Agriculture Department, Irrigation and Water Utilization Management Department, Directorate of Water Resources and Improvement of River System, and Environmental Conservation Department. This would then be a parallel to the Inle Lake Conservation Authority (MONREC, 2015).

## **4.2 Coordination on Sub-basin Area level**

A number of different practical water management tasks are better coordinated at Sub-basin Area level by a *Sub-basin Area Committee* (SBA Committee). It is hence recommended that the Sub-basin Area Committee ensures collection of the necessary data in each water body within the Sub-basin Area<sup>16</sup>. A water body *can be described as* coherent ecological unit to which environmental objectives apply (NIVA, 2016).

Similar to the River Basin Area Committees, there is a need to specify criteria for membership as well as responsibilities of this committee. Typically, members are district and township authorities. The townships have a particular responsibility for ensuring local participation and also collecting local knowledge and information about the water environment. It is recommended for each Sub-basin Area Committee to select a secretary to be responsible for inviting people to meetings and setting agendas. Certain members of this committee ought to be represented in the River Basin Area Committee to ensure transparency and

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<sup>16</sup>Typically, data collection of chemical, hydro-morphological and biological quality elements is the responsibility of the respective (regional) sector departments

sharing of information. *It is important to allocate additional financial and work force resources to these institutions to enable them to do the required tasks; this particularly refers to the institution taking the role as secretary*<sup>17</sup>.

Coordination of *data collection* the Sub-basin Area Committee typically refers to the characterization and classification of water bodies based on analysis of water samples and description of pressures (NIVA, 2016; European Commission, 2000). Characterization can in general be seen as a first step for water management and for preparing the River Basin Management Plan. The *NWFD* lists the following three categories of quality elements to be described: *chemical and physio-chemical, hydro-morphological, and biological elements*. These quality elements are consistent with the elements described in the EU WFD, but while the EU WFD provides a quite detailed description of the different aspects that have to be described, this is yet to be described in the *NWFD*. Collection of environmental quality data ought to be performed by the (local) sector authorities, but to ensure a coordinated approach, consistency, transparency and availability of data, this responsibility may be coordinated by the *Sub-basin Area Committee*. Both scientific information and expert based information should be collected. It is often relevant to seek information from civil society on local conditions to complement scientific information, or to have some information in cases where scientific information is lacking.

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<sup>17</sup>In Europe, the Sub-basin Area committees often hire a person to work as the secretary.

## 5 Non-Governmental Stakeholder Group

### 5.1 Introduction

*Participation of stakeholders is central to governance, as participation is important for a legitimate approach. Participation can be defined as: A process by which individuals and groups of people come together in some way to communicate, interact or exchange information and provide input around a particular set of issues, problems or decisions and share in decision making to one degree or another (Leigh 2004).*

Related to water governance, participation means taking responsibility for and acknowledging the impact of water use on other water users and ecosystems as well as committing to increasingly effective use and sustainable development of water resources. The importance of participation is acknowledged and stressed in all IWRM frameworks, such as the UNESCO guidelines (UNESCO, 2009), the ADB Water Policy (ADB 2001) and the EU WFD (European Commission, 2003). None of the frameworks however, presents a description for how exactly to involve stakeholders and the public in water management. According to the legal framework of the EU WFD, information sharing and consultation should be ensured, while active involvement should be encouraged<sup>18,19</sup> (European Commission, 2000); but the idea is that more specific public participation processes should be organized and adapted to, national, regional and local circumstances<sup>20</sup>. Studies on participation as part of implementing the EU WFD in Europe show that participation has mainly occurred in the form of consultation and information sharing (Jager et al., 2016).

It is the responsibility of governments to ensure participation of all stakeholders. This also refers to involving vulnerable groups of the population and avoiding skewed influence of certain actors. As resource-rich individuals commonly are more influential within collaborative structures, marginalized groups need active support (Huiteima et al. 2009). Of particular importance is participation and involvement of women, as they often play central roles in the provision, management and safeguarding of water. Indeed, women often play important roles in the collection and safeguarding of water for domestic and - in many cases - agricultural use. At the same time however, women are generally minimally involved in decision-making processes related to water resources (See also, UNDP 2015).

The anticipated outcomes of participation such as increased awareness and acceptance of decision making are dependent on the process leading to participation. It is important to aim for decision-making processes that are transparent, that ensure accountability and legitimacy, processes that give local communities access to environmental information and increase foresight in decisions that can affect them. It cannot be understated however, that enabling effective and meaningful participation is challenging. *Active involvement* has been put forward as the only way to ensure a legitimate approach, yet this is not always feasible, and it needs to be acknowledged that there is a trade-off between active involvement and the objective of an efficient decision-making process. Some authors even argue that participatory processes tend to experience “a set of pathologies that range from paralysis by endless deliberations, to reaching only trivial results when trying to accomplish a consensus amongst stakeholders with conflicting values and interests” (Sunstein, 2006). Furthermore, participation and involvement that does not offer participants real influence may serve to alienate stakeholders, further damage public trust in authorities, and undermine the legitimacy of resultant plans and measures (Jager et al., 2016). It can be argued that successful participation is a situation that is dependent on trust and good experience of meaningful former interaction. Achieving successful participation thus has to be seen as a process in countries where this has

<sup>18</sup>Then the term participation covers different degrees of involvement; the lowest level of participation refers to information sharing, then there is consultation, and a high level of participation refers to active involvement.

<sup>19</sup>(Leigh 2004)

<sup>20</sup>For reference there exists A EU WFD a guide including user experiences and different forms of participation (ref x:x)  
[https://circabc.europa.eu/sd/a/0fc804ff-5fe6-4874-8e0d-de3e47637a63/Guidance%20No%208%20-%20Public%20participation%20\(WG%202.9\).pdf%20b](https://circabc.europa.eu/sd/a/0fc804ff-5fe6-4874-8e0d-de3e47637a63/Guidance%20No%208%20-%20Public%20participation%20(WG%202.9).pdf%20b)

not been a strong tradition. Participation needs to be organized and facilitated and requires a clear mandate, long-term support and allocation of financial and human resources (Beveridge and Monsees 2012; Hophmayer-Tokich, 2008).

This chapter focuses on some important principles of participation. Section 5.2 first describes current means of participation in Myanmar as exemplified by the situation in the Sittaung River Basin. Section 5.3 briefly presents three different models of river basin participation. A few recommendations are presented based on experience and literature but also from interviews and a stakeholder workshop organized in February 2016 in the Bago Region. The project which this report is based on aims to introduce a pilot water management cycle, inspired by the EU WFD and adapted to the Myanmar conditions; as part of this, stakeholder participation will be facilitated. More thorough recommendations will follow in later reports based on experiences gained in this pilot project introducing the River Basin Management approach in Sittaung River Basin.

## **5.2 Current means of participation in the Sittaung River Basin**

NWP, in Chapter 10.6: *“Local governing bodies like WRAs, municipalities, corporations etc. and WUAs wherever applicable should be involved planning of the projects.”*

Traditionally, village participation in Myanmar could be described as the “household heads system”, whereby groups of ten households from nearby villages select a representative. This representative participates in a village tract/ward administration, which is responsible for organizing public meetings for consultation. These public meetings are the only option for participation available to people, hence the character and the frequency of such meetings may serve as an indication of the extent to which different sectors consult citizens on planning and decision-making (UNDP 2014). The extent that people are engaged in public meetings or are given the opportunity to participate in public meetings varies depending on the individual Ward Administrator /Tract Administrator (UNDP, 2014).

On a township level, the Ward/Village Tract Administration Law of 2012, the first legal framework prescribing a set up for involvement, states that representation in Township and Village Tract Development Supportive Committees (TDSC) must be elected among the representatives in the village tract /ward administration. The TDSCs are actively involved in the decision-making process regarding the selection of projects for development funds. Though these funds are limited, they stimulate increased interaction between government and citizens.

It is becoming a norm that Non-governmental Organizations (NGOs) and Civil Society Organizations (CSOs) are to be consulted regarding important development plans and strategies. But no formal procedures for when and how such organizations have to be consulted exist with regard to general strategies and plans. With the enactment of the 2016 EIA procedures their involvement in the decision-making processes related to certain projects and activities has been formalized.

## **5.3 Two alternative models of participation for preparing a River Basin Management Plan**

Three models of participation are described below; (i) the Non-governmental Stakeholder (NGS) Group, (ii) the River Basin Organization, and (iii) Public Hearing partners. River Basin Organizations and the Public Hearing partner model have been formed in Europe alongside the Non-governmental Stakeholder Group model.

*(i) The Non-governmental Stakeholder (NGS) Group* model refers to stakeholders and civil society representatives discussing to prepare input to the River Basin Area (RBA) Committee; this model is a parallel to the EU WFD. The NGS Group meets independently of the RBA Committee a certain number

of times throughout the year to discuss their views on important decision making issues needed to prepare the RBA Management Plan. The views of the NGS Group should be presented as a formal written text to the RBA Committee. This model is pilot tested in the Bago Sub-basin as part of this project on IWRM which this report refers to (Nesheim et al, 2016).

The Non-governmental Stakeholder Group should be invited for dialog and asked for input prior to all important processes/steps of preparing the RBA Management Plan referring to at the minimum consultation of:

- (i) The agenda and the timeline for preparing the RBA Management Plan
- (ii) Prioritization of water management issues/problems,
- (iii) Deciding on environmental targets,
- (iv) Consultation of Programme of Measures, and
- (v) On the draft River Basin Management Plan.

A “Non-governmental Stakeholder Group” should be organized on both, River Basin Area and Sub-basin Area levels. Input from stakeholders on a regional level, typically ensures input to trade-offs between development aims and environmental objectives, while the Sub-basin Area Non-governmental stakeholder Group is important to facilitate for local knowledge of characteristics and pressures; both groups are important for anchoring of decisions.<sup>21</sup> Members of a NGS Group are typically, NGOs, CBOs, Water Users Associations, industrial or private actors, political parties, people’s representatives, and members of civil society. With reference to the EU WFD, both the involvement of the general public as well as interested parties as stakeholders are required<sup>22</sup>. An invitation to be part of a NGS group should be quite broad; however, if the NGS Group becomes too big it may not serve its purpose. A solution may be to create more than one Group, or create sub-groups related to specific topics. Such sub-groups could arise only temporarily due to some particular current issue.

It is recommended to stipulate the specific steps in the water management cycle where stakeholder involvement should be facilitated and where written input have to be provided in national guidelines. Local communities should be given access to environmental information and foresight in decisions that can affect them, with an opportunity to participate in the process and express their concerns. Interested parties should have access to all information material. It should be noted that participation does not necessarily result in consensus, therefore, arbitrage and other conflict resolution mechanisms should be ensured.

(ii) *River Basin Organization*, this model refers to an arena, a meeting place for a number of organizations for basin-wide water resources management, including basin directorates, authorities, basin associations or councils, and also other stakeholders (GWP 2009). River basin organisations (RBOs) are specialised organisations set up by political authorities, or in response to stakeholder demands. Within trans-boundary watercourses, River Basin Organizations are established to promote cooperation and resolve conflict.

River Basin Organizations are generally tasked with (GWP 2009):

- i. Monitoring, investigating, co-ordination and regulating basin activities;
- ii. Planning and financial management; and
- iii. Developing and managing infrastructure.

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<sup>21</sup>In the *NWFD*, participation is addressed in Principle 7, Restructuring Process (NWFD), which emphasizes the role of citizens and civil society groups: “holding a number of public consultations at the regional and community levels, and in Principle 4 which requires local governments (Governments on State / Region level) to “encourage the active involvement of interested parties”.

<sup>22</sup>The ‘general public’ means one or more persons, their associations, organizations or groups, the term ‘stakeholders’ refers to any person, group or organization with an interest or “stake” in an issue, either because they will be directly affected or because they may have some influence on its outcome.



An International Network of Basin Organizations and also several regional networks, such as the Network of Asian River Basin Organization (NARBO) have been established. NARBO was officially established at the 3rd World Water Forum in March 2003 February 2004 to promote integrated water resources management (IWRM) in monsoon areas of Asia. The goal of NARBO is to help achieve IWRM in river basins throughout Asia. The objective of NARBO is to strengthen the capacity and effectiveness of RBOs in promoting IWRM and improving water governance, through training and exchange of information and experiences among RBOs and their associated water sector agencies and knowledge partner organizations. The Myanmar institutions, ARBRO, DWIR, IWUMD and MmWP are members of NARBO <http://www.narbo.jp/whats.html>

(iii) *Public Hearing partners*; the participation by means of allowing actors to comment on documents before the final version is approved is a common model in many countries. This model however, is recommended only as an addition to either the River Basin Organization, or the Non-governmental Stakeholder Group models. In principle, anyone (an actor, a person, an organization) can be a hearing partner. Information on how to become a Hearing partner should be easily available. At least six months should be allowed for commenting on documents (European Commission 2000).

## 5.4 Preliminary recommendations on participation

There is a need to describe relevant and feasible arenas for participation, arenas which should build on already existing forms of participation on local level. Myanmar needs to develop a framework of participation based on its own traditions, and history. This framework needs to specify: access to information and ways of distributing information to stakeholders and the public, and when stakeholders should be consulted and how. We present in this sub-section, steps to establish Reference Groups as the model for participation, and we list some standards for participation. Stakeholder participation as part of the planning processes for preparing the River Basin Management Plan will enhance the quality of local governance by creating processes that are more democratic and equitable.

### *The establishment of Non-governmental Stakeholder Groups*

With forming of committees on the River Basin Area and the Sub-basin Area levels, also parallel Non-Governmental Stakeholder Groups on same levels should be formed. It may be recommended that the secretary of each Committee should take the responsibility for informing on the River Basin Management Approach to relevant Non-governmental stakeholder Group members. There is a need to consider how to ensure participation on river basin level (regional level) and on sub-basin level (local level) and it can be specified in guidelines which interest groups should be consulted and in related to which processes (see above Sub-section 5.3). To facilitate the formation of a Non-governmental Stakeholder Group, a first meeting can be organized by the secretary to inform of the RBA approach, the mandate of the NGS Group and resources available for the Group. A secretary within the NGS Group should be elected. This position may be established as a cyclic-year position.

- On the *River Basin Area* level, relevant Non-Governmental Stakeholder Group members may be regional Hluttaw members, and also NGOs, civil society organizations and human rights activists on national and regional level.
- On *Sub-basin Area* level the NGS Group should include membership of township level elected people's representative and township Development Supporting Committee. Village tracts /wards representatives may have meeting rights and should be invited if the topic is relevant, that is if the decision in any way may impact the specific village.
- *Public Hearing partner*: In principle, anyone (an actor, a person, an organization) can be a hearing partner. A hearing partner will be asked to comment written outputs from the different steps of preparing the

River Basin Management Plan, in writing within a particular time period to be specified. Information on how to become a hearing partner should be easily available.

Some general standards of participation:

- *Availability of information:* Information needs to be accessible to all stakeholders, both by means of text in familiar languages, and text that presents the issue in an easy manner. In addition, information should be provided through radio or megaphones as this will also facilitate distribution of information for those who are illiterate, or for those who does not read newspapers or bulletins. It may be considered to issue material to the organisation and/or its stakeholders; bulletins, newsletters and brochures.
- *Timely information and opportunities for dialogue:* Stakeholders should be allowed six months to comment on issues for decision-making. A deadline for responding, and also how the response can be provided must be specified. The owners of the engagement should consider using a range of means to invite participation, including: social networks, relevant media, mailing lists, telephone calls and personal visits. Invitation letters should be sent in sufficient time before the meeting to enable participation.
- *Transparency in decision-making:* It is important that there is an agreed timeline of the different decision making issues and that scope of duty of the engagement of stakeholders is clarified and agreed upon in the guidelines. It is recommended that the the Non-governmental Stakeholder Group should be invited for dialog and asked for input prior to all important processes/steps of preparing the RBA Management Plan. This refers to a minimum of consultation, but active involvement is encouraged.

It is advised to prepare different types of background information, newsletters or guides on the approach. That is, an awareness campaign can be launched at the village level, in schools for example, and should inform of IWRM and river basin approach, and the benefit of healthy rivers. Newsletters for actions and guides for ecological value of rivers are part of the background information policy folders. For raising awareness about water quality and water management issues, schools should also receive such news briefs. Direct involvement of civil society occurs at the local level.

## 6 Concluding remarks

The **River Basin Management (RBM) approach** involves managing water uses in an integrated way within boundaries of the catchment. Arguments for this approach are embedded in the ideology of the IWRM concept, that all main water use sectors within the same hydrological unit have the right to take part in decision-making processes of water resource use, as all water use sectors will either impact water resources, or themselves be impacted by water use of others.

Determining the River Basin Area (RBA) for coordination and development of a RBA Management Plan involves a precise description of the boundaries of the river basin based primarily on hydrological criteria. Sub-basin Area units within the RBA to ensure consideration of local perspectives and to facilitate coordination of practical work tasks, is recommended. The sub-basin unit commonly includes the main river and its tributaries, but it often also considers relevant administrative borders. The whole River Basin Area needs to be covered by Sub-basin units. It is recommended that the geographic coverage of river basins should be introduced into a government appointed geographic information system (GIS).

The development of River Basin Management Plans has not previously been practiced in Myanmar, but such plans are now declared a specific objective in the NWFDP. Members of a River Basin Area Committee, the arena for discussing and agreeing upon the RBA Management plan should embrace all relevant sector and environmental authorities within the (political) administrative units of the River Basin Area. All authorities which may affect the water situation by their decision, or whom could be affected by the decision in the committee should have the possibility to take part in the discussion. Actual attendance by the specific authorities, however, depends on the relevancy of the meeting agenda for their area of responsibility.

Decision-making procedures need to be established. If consensus cannot be reached, then the issue is taken to a higher administrative level. It is important to allocate additional financial and work force resources to these institutions to enable them to do the required tasks.

It is the responsibility of governments to ensure participation of all stakeholders. This also involves involving vulnerable groups of the population and avoiding skewed influence of certain actors. The anticipated outcomes of participation such as increased awareness and acceptance of decision-making are dependent on the process leading to participation. Participation can also be seen as a means of increasing local awareness and responsibility of environmental issues.

It is recommended to consider a step wise approach for implementing the River Basin Management Approach and according to what is feasible in the country. A step wise approach may refer to the implementation of the RBM approach in certain river basins, or also only in selected sub-basins where: the conflict levels are low, where important departments for water management are interested in the approach, and where participation of civil society, NGOs, CBOs can be part of the plan.

An important aim of the pilot project implementing the RBM approach is to create local experience on what works. This experience should be used to improve implementation in the next water management cycle, and to gain experience for implementing in other basins. It is recommended to define criteria for “successful” implementation, criteria such as increased awareness of actors and civil society, improved coordination of activities by departments, increased transparency of management, and improved ecological status. Such criteria can be useful for the evaluation of the approach. It is important to keep the overall objective; that integrated water management is for the welfare of people, society and the environment.

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## 8 Annex

### Bago Region Union Government level departments

| <b>Ministry</b>  | <b>Department / Institution</b>                                 |
|--|---|
| (1) Ministry of Agriculture, Livestock and Irrigation            | Department of Agriculture                                       |
|  | Department of Irrigation and Management of Water Utilization    |
|  | Department of Fisheries   |
|  | Department of Rural Development                                 |
|  | Department of Agriculture Land Management and Statistics        |
|  | Department of Agriculture Machinery Industries                  |
|  | Cooperative Department  |
|  | Water Resources Utilization Department                          |
|  | Livestock Breeding and Veterinary Department                    |
|  | Bee Enterprise  |
|  | Agriculture and Livestock Farm (10 miles)                       |
|  | Myanmar Agricultural Development Bank                           |
|  | (2) Ministry of Construction                                    |
| Department of Urban and Housing Development                      |   |
| (3) Ministry of Electric Power and Energy                        | Electric Supply Enterprise                                      |
|  | Myanma Petroleum Products Enterprise                            |
| (4) Ministry of Natural Resources and Environmental Conservation | Forest Department   |
|  | Environmental Conservation Department                           |
| (5) Ministry of Home Affairs                                     | General Administrative Department                               |
|  | Police Force Office   |
|  | Bago Regional Law Office  |
|  | Immigration and National Registration Department                |
|  | Fire Services Department  |
|  | Special Branch  |
|  | Criminal Investigation Department (Platoon 4)                   |
|  | Anti-Trafficking in Person Division                             |
|  | Bureau of Special Investigation                                 |
| Central Committee for Drug Abuse Control                         |   |
| (6) Ministry of Transport and Communications                     | Directorate of Water Resources and Improvement of River Systems |
|  | Department of Meteorology and Hydrology                         |
|  | Road Transport Administration Department                        |
|  | Myanma Railways Division (6)                                    |
|  | Department of Civil Aviation                                    |
| (7) Ministry of Information                                      | Information and Public Relations Department                     |
| (8) Ministry of Religious Affairs and Culture                    | Department of Religious Affairs                                 |
|  | Archaeological and National Museum Department                   |
| (9) Ministry of Labor, Immigration and Population                | Department of Labor Relations                                   |
|  | Factories and General Labor Laws Inspection Department          |
|  | Social Security Board   |
|  | Small Scale Industries Department                               |
| (11) Ministry of Commerce  | Department of Consumer Affairs                                  |
| (12) Ministry of Planning and Finance                            | Department of Planning  |
|  | Budget Department   |

| Ministry   | Department / Institution                   |
|--|--|
|  | Internal Revenue Department                |
|  | Custom Department                          |
|  | Financial Regulatory Department            |
|  | Central Statistical Organization           |
|  | Pension Department                         |
|  | Myanmar Economic bank                      |
|  | Myanma Insurance                           |
| (13) Ministry of Social Welfare, Relief and Resettlement | Relief and Resettlement Department         |
| (14) Ministry of Education                               | Bago University                            |
| 15) Ministry of Health and Sport                         | Department of Basic Education              |
|  | Department of Health                       |
|  | Department of Medical Service              |
|  | Department of Traditional Medicine         |
|  | Department of Sport and Physical Education |
|  | Development Committee                      |
|  | Office of the Auditor General              |
|  | Regional High Court                        |



## **National Water Framework Directive**

Proposed Myanmar National Water Framework Directive by the Expert Group of the National Water Resources Committee (NWRC)

### **Proposed Myanmar Water Framework Directive**

(Zero Draft, April 2013) (First Draft, May 2014) (Final Document, Dec 2014)

#### **History**

The Sustainable Water Resources Development Standing Committee (SWRDSC) was established by the Presidential order on 29 Feb 2013. It is chaired by the Vice President Two U Nyan Tun and has 17 members in total at the start. Later on few selected internationally and locally outstanding, water experts in their respective fields of expertise were invited to join the SWRDSC. Since then SWRDSC has consulted the wider audience of Myanmar professionals, international and local experts, fellow citizens, civil society organizations and government officials as well as global water leaders occasionally and informally. All of them expressed their concerns and stressed the need for a single piece of water framework legislation to resolve current and potential water problems, which includes water shortage, water-related disasters and water pollution in Myanmar. In response to this, SWRDSC presented a concept proposal for a Myanmar National Water Framework Directive (MNWFD) drafted in April 2013.

Consequently, the SWRDSC has been bestowed upon with larger responsibilities and wider scope of work, with more members that encompass all water related Ministries, to become the National Water Resources Committee (NWRC), as an APEX body of the Myanmar Water Sector. Presidential decree to establish the NWRC was officially issued on 25 July 2013 followed by the formation of the Expert Group (EG). The concept proposal for MNWFD has been circulated to all EG members and relevant government departments and Ministries for their comments and input in 2013. The process took one year with rounds of edits. Based on the inputs from government departments and Ministries, the first draft was edited in May 2014. In June 2014, it was presented to the WASH Thematic Group meeting and received feedback and comments. At present we are using the first draft as background material for the public consultation meetings. 14 Aug 2014 Yangon consultation meeting is the first of the five consultation meetings scheduled in this process. We will go to Mandalay, Taung Gyi, Dawei and Patheingyi to make more public consultation meetings between August and October 2014.

The input, comments and advice from all five consultation meetings will be incorporated into the final version of the MNWFD. It is aimed to finalize the document by Dec 2014.

#### **Purpose**

The intention of this consultation is to share the draft with you and seek comments, input and advice from the Civil Society and non-state actors to further improve the draft Framework Directive. We would also like to offer opportunities for different stakeholders to work more closely together with us when drafting the Myanmar National Water Law.

The National Water Resources Committee (NWRC) is a national APEX body in the water sector of Myanmar. The members of the Expert Group are contributing their talent, time and energy to make sure that our most important and precious water resources are properly developed, managed and shared among all citizens of Myanmar. In this regard, we also would like to request your active participation in this meeting.

**The proposed Myanmar National Water Framework Directive (MNWFD) has the following key purposes:**

- to ensure water security, water-related disaster risks reduction, good water governance, sustainable development and acceleration of the promotion of Green Economy and Green Growth through Integrated Water Resources Management practices;
- consequently expanding the scope of SWRDSC from ‘water resources development for Special Economic Zones focus’ to ‘protection, management and economic use of all waters, i.e. surface waters and groundwater’ in Myanmar
- achieving the status of clean and sufficient water for all purposes by a set deadline
- water management based on proper spatial unit called basin-wide approach
- combined approach of green practices and quality standards
- getting the pro-poor prices to respect the human rights as well as economically viable prices for commercial uses
- getting right perspective and priorities in relation to water-energy-food nexus and Climate Change
- getting the citizens involved more closely and hands-on projects to achieve dire need for Peace and Prosperity
- formulating a continuum of water legislation in Myanmar to ensure the direct and indirect revenues from water resources

The below concept explains what elements should be stated in the Directive and need to begin the process as soon as possible.

### **The Water Framework Directive**

The proposed “**Water Framework Directive**” of the Republic of the Union of Myanmar (Zero Draft) aims to establish “**a framework for all walks of life in the field of water policy**”, which commits all local governments (States and Divisional Governments) to achieve good qualitative and quantitative status of all Water Bodies within Myanmar (including marine waters up to one nautical mile from shore) by 2015. It is a framework in the sense that it prescribes steps to reach the common goals rather than adopting the pretext by top down approach.

### **Goals**

Three main goals of this proposed Water Framework Directive are:-

1. getting Myanmar rivers healthier, waters cleaner and more beneficial for all purposes;
2. getting the citizens involved in a peaceful way; and
3. getting Green Economy momentum quickly and achieve Green Growth shortly.

### **Objectives of the Directive**

There are seven objectives as listed below.

#### *Objective (1): Good status for all ground water and surface water*

The Directive aims for 'good status, i.e. clean and sufficiently stored' for all ground water and surface water (rivers, lakes, transitional waters, and coastal waters) in Myanmar. *Proposed Myanmar National Water Framework Directive by the Expert Group of the National Water Resources Committee (NWRC)*

#### *Objective (2): National Water Budget*

The Water Framework Directive stipulates that National Water Budget must be estimated under the current hydrological and meteorological conditions taking into consideration of the Climate Change impacts already visible. The groundwater must achieve “good quantitative status” and “good chemical status” (i.e. not polluted) by 2020. Classification of groundwater bodies, "good" or "poor" according to the current status, should be examined.

#### *Objective (3): The ecological and chemical status*

The ecological and chemical status of surface waters should be assessed according to the following criteria:

- Biological quality (fish, benthic invertebrates, aquatic flora);
- Hydro-morphological quality such as status of river banks, river bank structures, river training works, river continuity or substrate of the river bed;
- Physical-chemical quality such as temperature, oxygenation and nutrient conditions;
- Chemical quality that refers to environmental quality standards for river basin specific pollutants. These standards specify maximum concentrations for specific water pollutants. If even one such concentration is exceeded, the water body will not be classed as having a “good ecological status”.

*Objective (4): Cooperation between the Union Government and the States and Divisional Governments*

The proposed Directive requires local governments (States and Divisional Governments) "to encourage the active involvement of interested parties" in the implementation of the Directive. This is generally acknowledged the requirement of frequent consultative and coordinating meetings yielded by capacity building workshops across the country. It also emphasizes the need to have clear mandate sharing between the Union and Local Governments.

*Objective (5): Spatial management of river basins*

One important aspect of the Water Framework Directive is the introduction of River Basin Management approach. These basin areas have to be designated, not according to administrative or political boundaries, but rather according to the river basin (the spatial catchment area of the river) as a natural geographical and hydrological unit. As our main rivers cross many administrative boundaries, i.e. States and Divisional Administrative Boundaries, the Local Governments have to cooperate and work together for the management of the river basin (so-called national basins) such as Ayeyarwady, Sittaung, Chindwin, etc. and international basin such as Thanlwin River. All major basins in Myanmar need River Basin Development Plans, which provide a clear indication of the way the objectives set for those river basins, are to be reached within the required timescale. They should be updated every ten years.

*Objective (6): Transgressions*

The River Water Transfer projects are very popular due to water scarcity around the world and heavily criticized as being contrary to the principles of Sustainable Water Resources Management of River Basins. Therefore, this topic should be addressed in a proper manner. Thus it needs a section in the proposed Water Framework Directive.

*Objective (7) Restructuring Process*

Citizens of Myanmar expressed their concerns over water scarcity, safety and water pollution issues through media and various workshops as well as direct communication to the President's office. This is one of the main reasons to draft this Water Framework Directive. New Water Policies will be formulated and proposed along the line after holding a number of public consultations at the regional and community levels. In achieving three goals and seven objectives, the changing role of the Government and that of citizens and civil society groups will be crucial. This is why a new Myanmar Water Policy has to get citizens more involved in order to achieve Peace and Prosperity. That means a serious restructuring process is necessary!

**Key issues to be addressed in the Directive**

1. Water Pollution
2. Environmental Flow
3. Water Allocation
4. Water Pricing
5. Mandate Sharing between authorities

6. Effective use of Integrated Water Resources Management
7. Water use Efficiency for economic development towards Green Economy and Green Growth
8. Phase by phase tackling of “water legislation” – water law, policies and procedures, regulations and Acts, etc.
9. Efficient communication mechanism by the SWRDSC to up and down channels; the Union Government, States and Divisional Governments, Ministries, Line Agencies and Citizens of Myanmar – setting up an open process
10. Coordination of objectives to achieve a good status for all waters by a set deadline
11. Coordination of measures
12. The river basin management plans
13. Public Private Participation (PPP) for secure investments
14. Water-related Data Bank (i.e., not only limited to hydrological, meteorological, geotechnical, environmental and climate change data but also including economy, market, trade, product, innovative technologies, societal, cultural, research and investment opportunities as well as financial aid data)
15. Water-related disaster risk reduction and early warning systems
16. Water for peoples, water for food, water for energy and water for industries
17. Water projects for social inclusion and good governance
18. Water, sanitation and hygiene programmes
19. Water and Peace – meaning Good Water Governance
20. Streamlining legislation to abolish the outdated ones and to enact the new ones which are suitable for the present time. This is extremely important for the revenue creation.
21. Getting the appropriate prices for the business and for the peoples
22. More topics can be added...

**Conclusion**

*In reality, it is a political process!*

Let us share the momentum from the President led national reform process.

## Way Forward

We can begin by:-

- Water protection in each and every state and division and also tackling significant problems at the Union level. For example Food Security and Energy Security issues, water for Industries and Special Economic Zones SEZs);
- To keep our waters clean, we need water legislation. What we meant by 'water legislation' is a complete set of legal instruments that includes water law, regulations, Acts, standards and procedures, and water policies enforced by law enforcement bodies, neighbor watch system, citizen's active participation and properly budgeted by both internal and external financing mechanisms as a continuum of water legislation. Parliament has approved the motion on drafting of the water law since Sept 2011, however, it is just the very beginning;
- Scientific community and other experts need to join forces with water professionals in capacity building; and
- We should take up the challenge of water protection as one of the most important tasks in achieving Green Economy and Green Growth.

## Please get involved!

Please send your input, feedback and advice to

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