



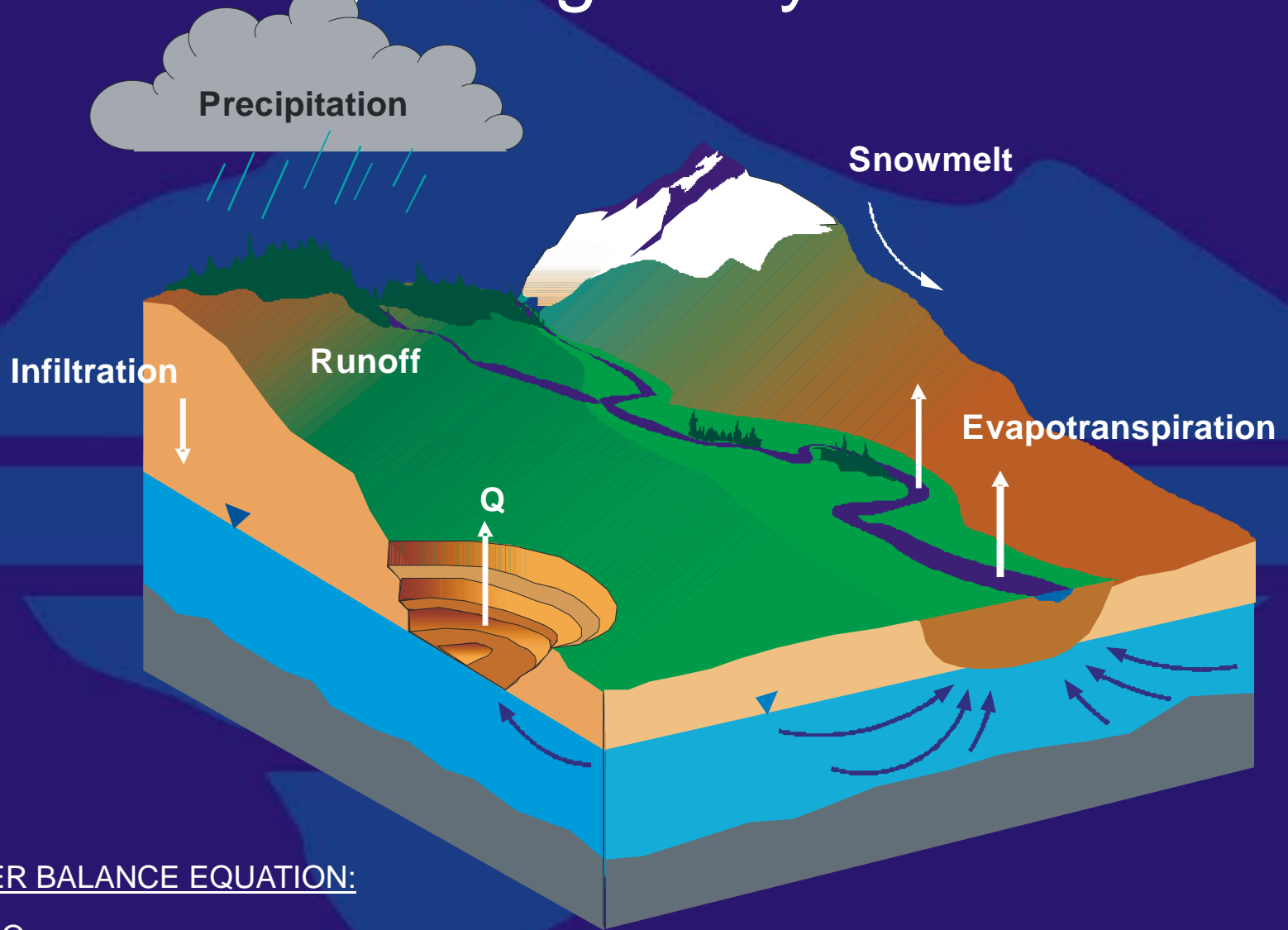
STRP task 2.3B
Extractive industries
Guide to guidance

1st December 2010

**Assessing, avoiding, minimizing and mitigating
the direct and indirect impacts of extractive
industries on wetlands**

Task leads: Heather MacKay, Kym Morton

Hydrological cycle



WATER BALANCE EQUATION:

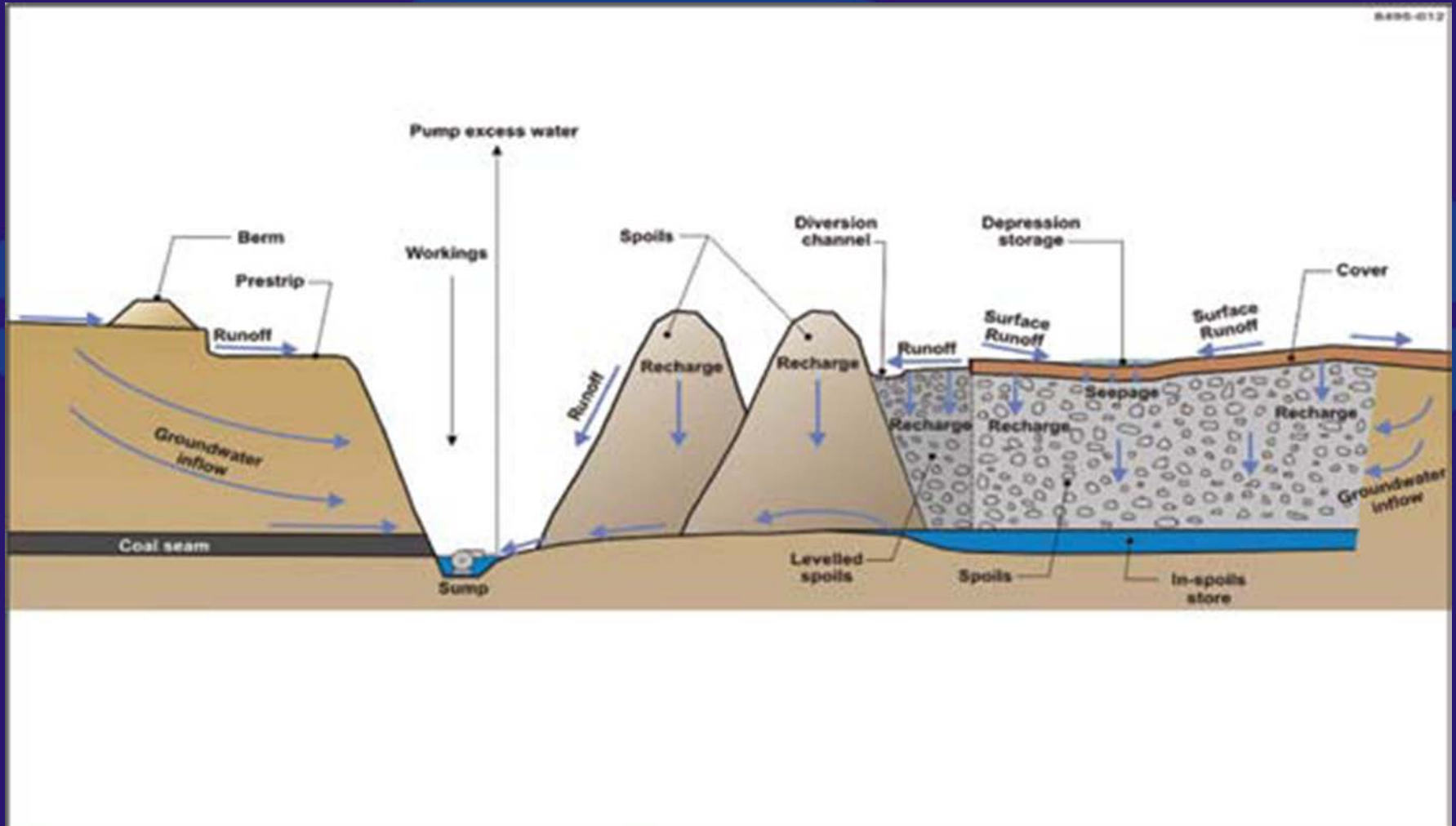
$$Q_{IN} = Q_{OUT}$$

$$SW_{IN} + RECHARGE + GW_{IN} = SW_{OUT} + ET + PUMPING + GW_{OUT}$$

Quarrying



Flow paths in drag line



Dry open pit, one seepage point



Open pit copper mine Ruashi - DRC



Deep open pit - DRC



Rest water level 80mbgl

Diamond mine Aerial Photograph



Storm water diversion canal Lumwana Zambia



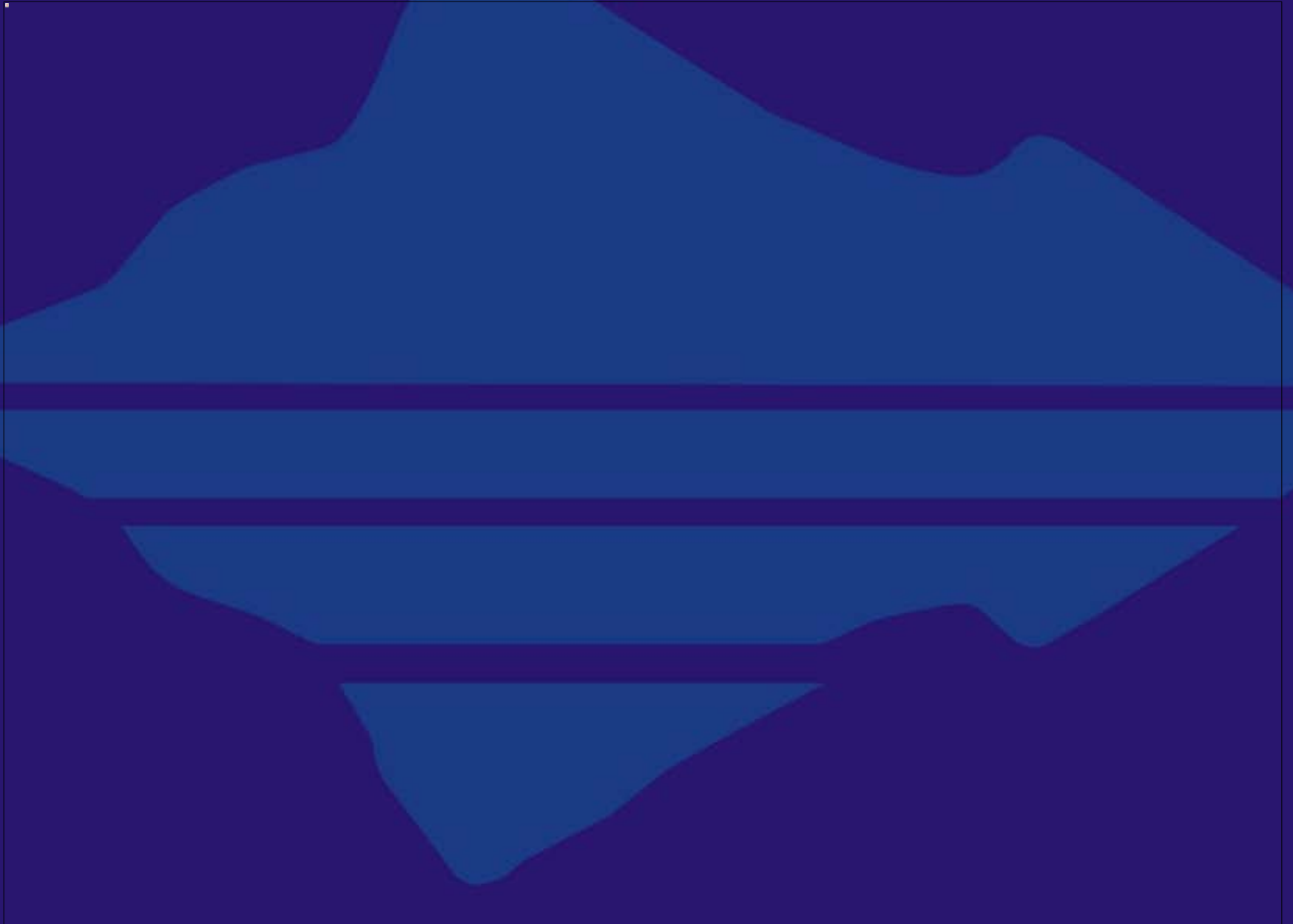
Clean water cut-off channel



Strip mining



Collapse over bord and pillar



Subsidence from ug mining



Agenda

- Introductions
- Overview presentation:
 - Objectives and ToR for this task
 - Scope of work
 - Progress to date in collating available guidance
 - “Guide” part of the guide to guidance
- Target audience – needs and priorities.
- Priorities for attention within scope of work
- Reference group membership
- Questionnaires and break away groups
- Feedback and Discussion.

Objectives of the work session:

- Review progress and information collated to date.
- Define target audience needs and priorities.
- Develop and agree on framework for organizing the material into a guide to guidance.
- Agree on priorities for attention within scope of work.
- Agree on outline & general contents of final products.
- Identify additional material to be provided or forwarded by reference group members.
- Deliverables and timelines for the 2009-2012 cycle:
 - a) Guide to guidance
 - b) Recommendations on gaps, possible courses & further work needed
 - c) Potential draft resolution and/or Ramsar Technical Report ?

Overview: Terms of reference for this task

STRP requested to:

1. Review available technical guidance on
 - assessing, avoiding, minimizing and mitigating the direct and indirect impacts of extractive industries on wetlands
 - in the exploration, development, operation, closure and post-closure phases,
 - [*taking into account the potential for adoption of new or emerging extraction technologies*] and paying particular attention to restoration options, and
2. on the basis of this review, to make recommendations regarding the suitability of available technical guidance and the need, if any, for development of new technical guidance.

Overview: Objectives of this task

- *Principal end users*
 - AEWA and Ramsar AAs.
 - Wetland managers who review applications and permit conditions for extractive activities (Benin example – no more automatic rubber stamps!)

Overview- objectives of this task cont.

- *Outputs:*

AEWA and Ramsar AAs have:

- *[sufficient information to allow them to identify sites likely to be vulnerable to or impacted by mining activities];*
- access to technical guidance to allow them to determine scope of EIA water section for mining applications, review permit applications, and if appropriate recommend permit conditions for all phases of the mining cycle.

Overview: Objectives of this task cont.

- *Outcomes:*

AEWA and Ramsar AAs know :

- what questions to ask in scoping & reviewing EIA and permit conditions, and
- what kinds of wetland-related activities/assessments should be undertaken for EIA, mitigation and restoration.

Overview: full scope of work

NB that we will need to prioritize focus areas as we go forward.

- **Commodities –**
 - **Fuel resources:** oil and gas, coal, (uranium), peat?
 - **Metallic minerals:** precious metals (Au, Ag etc.), industrial metals (Cu, Zn, Pt etc.), (uranium), rare/special metals
 - **Industrial minerals:** rocks (e.g. limestone), sediments (sand, gravel, clay), other (diamonds, bentonite etc.)
- **Scale –**
 - Large scale, medium/junior, artisanal

Overview: full scope of work cont

- Phases of the mining cycle –
 - Exploration (pre-feasibility and feasibility studies)
 - Development
 - Operation
 - Closure/ mothballing
 - Post-closure

Overview: full scope of work cont

- Aspects –
 - Principal focus is technical. What about social, economic impact assessment?
Concentrate on water and all follows
 - Focus is on extraction process itself. Processing and distribution are beyond the scope of what we can do in this task.
Finding - Integral and can be included
 - Focus on current technologies. Review of emerging technologies for extraction requires additional funding. **Same principals**

Methodology used for identifying guidelines

1. Definition of guidelines: management and statutory
2. Ramsar call for documents
3. Table headings chosen and countries /organisations listed
4. Email request to practitioners world wide
5. Web search for Gov, non Gov, Stock exchanges, mining houses, International organisations eg IUCN, WB, IFC

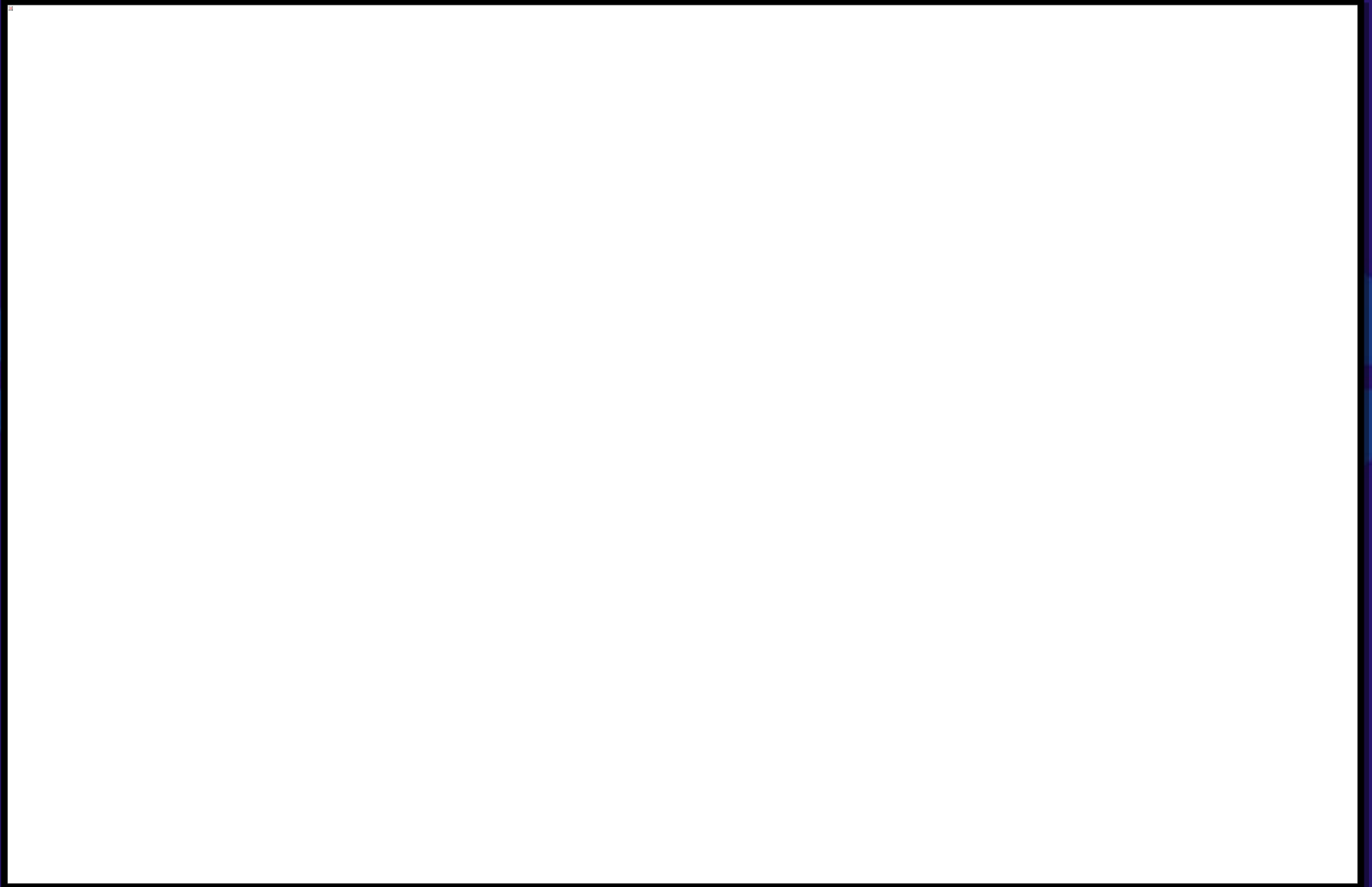
Table headings

1. Continent
2. Country
3. Organisation
4. Name of Guide
5. Guide reference address
6. Operation/regulation/assessment/monitoring or feasibility

Table headings cont.

7. Where guide is useful or phase of mining eg
Exploration, development, commissioning,
operation, closure, post handover,
decommissioning, mothball, expansion
8. Language
9. Rating – 1 to 5*

TABLE (hand out)



Rating criteria

Stars were awarded to the documents for:

- Guideline covers most types of wetlands - 2*
- Guideline covers wetlands fauna, flora and water - 1*
- Guideline covers mining and extraction impacts - 2*
- Guideline includes different stages of mining/extraction - 1*
- Guidelines addresses impact amelioration - 1*
- Guidelines can be used by Ramsar practitioners - 1*

The stars were summed to give a total star rating.

Summary of work done

- 240 man hours of guidelines collation
- Table of 168 guides and references
- CD of 131 downloaded guides
- Table circulated for comment
- Data checked in USA

Reviewing for suitability.

- Documents accepted
- Star rated for usefulness and application



- Table in excel can now be expanded for interactive interrogation eg climate type, wetland type, mine type, date etc.

Major gaps in relation to the scope of work

- China, Russia and mainland Asia
- French language guidelines needed
- Oil/gas producers – internal guidelines
- Nuclear
- Can add more water quality guidelines
- References not rigorous enough and need to audit scientific value

General comments about the material gathered so far.

- Very varied standard of guidelines
- Australian, Canadian and South Africa guidelines most useful
- Rio Tinto (mining house guidelines well researched)
- Need to determine a method of choosing which guideline to adopt for site specific cases.
- Need to include Russian and Chinese guidelines

Overview: possible framework for guide to guidance

Phase of extractive cycle	Commodity/resource type		
	Fuels	Metallic minerals	Industrial minerals
Exploration feasibility and pre-feasibility			
Development & operation Expansion			
Closure or mothball			
Post-closure			
Post-handover			

Example of good guidelines

Canadian – developed country- specific goals

Australian- developed- specific receiving water quality

South African- developing country – clear, lots of pictures and an explanation of process

International – Overall strategy and governance

Example of good guideline for daily use (man in Benin)

South Africa Dept of Water affairs and Environment

Protection of water resources from mining

Three sets of Best Practice Guidelines

- ❖ Hierarchy
- ❖ Activities
- ❖ General

12 years , based on constituion, v practical

Hierarchy BPG's RSA

- H1. Integrated Mine Water Management
- H2. Pollution Prevention and Minimisation of Impacts
- H3. Water Reuse and Reclamation
- H4. Water Treatment

ACTIVITIES BPG's RSA

- A1: Small-Scale Mining
- A2: Water Management for Mine Residue Deposits
- A3: Water Management in Hydrometallurgical Plants
- A4: Pollution Control Dams
- A5: Water Management for Surface Mines
- A6: Water Management for Underground Mines

BPG's RSA General

- G1. Storm Water Management
- G2. Water and Salt Balances
- G3. Water Monitoring Systems
- G4. Impact Prediction
- G5: Water Management Aspects for Mine Closure

Underground mining



Other level of guides

- Overall strategy and philosophy – covered by IFC and World bank as well as CMMC
- Water quality guidelines (categorised and receiving water) –
 - Canada
 - WHO
 - IFC
 - South Africa
 - Aus /New Zealand

Closure

- Key is integrating guidelines (Best practice, legal and financial)
- Emphasise under-developed regions
- Emphasise English not first language
- Emphasise Illustrations and flow chart guide
- 3 levels – Best practice
 - Overall strategy
 - Regulatory and water quality

Recommendations

- Add missing countries eg Russia and China
- Add french language guides
- Circulate to members
- Summarise (like avian flu guide to guidelines) into
 - A) Best practice guidelines
 - B) Overall strategy guidelines (IFC etc)
 - C) Water quality guidelines

Reference group members

Role is to provide technical advice, identify suitable information, data & references, review draft documents.

- **Ramsar STRP** –Stanley Liphadzi, Randy Milton, Dave Pritchard, Roy Gardner, Rob McInnes, Max Finlayson.
- **AEWA TC** - David Stroud, Sergey Dereliev
- **IUCN** - Andrea Athanas
- **USGS** - *Mineral Resources Program* (still waiting for response)
- **IAIA** – *Susie Brownlie* ?

- **Ramsar Secretariat** regional advisers - *Abou Bamba, Maria Rivera, Tobias Salathe?*

- **Birdlife** - Vicky Jones / Lincoln Fishpool

- **Wetlands International** - Jaime Garcia Moreno, Tatiana Minaeva

- **Industry** –

Jan van Hoydonck (South America)

Alexander Shestakov (ex BP)

Julie Gelfand (Mining Association of Canada, NA Bird Conservation Initiative (Canada) Council)

Martin Ginster (SASOL in South Africa).

Jonathan Stacey. (Rio Tinto – BirdLife International Programme)

Christine Copley (ICMM)

NB Names in red italics are not confirmed yet.

Break out groups

- Objective:
- Discuss and provide recommendations on:
 - 1 Training and information needs related to managing the impacts on wetlands of extractive industries, aimed at wetland site managers, wetland policy makers, EIA and licensing decision-makers

Recommendations cont

2. Suitability of available technical guidance and the need, if any, for the development of new technical guidance, whether :

- For specific sub sectors of the extractive industries sector overall, such as oil and gas, precious and industrial metals, industrial minerals or
- For specific phases of the extractive cycle (exploration, development, operation, closure and post closure)

Recommendations cont

Or

- -for certain sizes of operations (including artisinal, small to medium scale commercial, or large scale commercial

Select person to record outcomes and report back.

Ten minute report back.

Additional information for the flyway- scale vulnerability assessment methodology



Additional information for the review of technical guidance





Note the Ramsar definition of wetlands is “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres”.

- Extractives task B (KLM)
- Presentation of review of guidance, results, implications for training needs and possible new guidance needs.

20mins

- Worksheet to gather information on:

5 mins

- What guidance is currently in use in-country (if not already captured in our table)
- What training courses are available / recommended

Thank You