MINERAL ASSESSMENTS IN PROTECTED AREA PLANNING

JULY 1993

Province of British Columbia
Ministry of Energy, Mines
and Petroleum Resources

Mineral Assessments in Protected Area Planning

British Columbia is in the process of developing a comprehensive provincial land use plan that will be a major contributor towards the goal of a sustainable environment and economy. The Protected Areas Strategy (PAS) is a key initiative within this plan, as it will raise the amount of land in B.C. protected for conservation, recreation or heritage values to 12 percent from the present approximate 7 percent.

The PAS will have impacts on the management and development of the province's mineral resources because "protected areas" will be off-limits to exploration or mining. Development of a fair and rational PAS designation process that fully accounts for mineral resource values will:

- reduce uncertainty for the mineral sector;
- allow for input from mining sectors and therefore facilitate balanced options on protected area designations; and,
- provide a focus on positive impacts of securing a defined land base where responsible exploration and mining can proceed in confidence.

The Ministry of Energy, Mines and Petroleum Resources (MEMPR) will be taking a proactive role in the planning for protected areas, as outlined in *A Mineral Strategy for British Columbia*[1].

This paper will describe:

1. MEMPR's objectives in protected areas planning;
2. How a new list of Study Areas is being developed for Cabinet approval;
3. MEMPR's mineral assessment procedures and approaches to making recommendations on Study Areas and Protected Areas;
4. Transitional Issues: Integrating mineral values into PAS planning; Forest Wilderness Areas and Recreation Areas and options for dealing with existing tenures; and,
5. MEMPR's plans to monitor and assess the cumulative impacts of PAS.

Accounting for mineral resource values requires an assessment of known and potential mineral resources in each PAS study area. Socioeconomic values of these resources must be stated or estimated so that impacts on the regional and provincial economies can be tallied and presented to Cabinet along with recommendations on which areas to designate as protected. In addition, mineral assessments must also inventory all mineral tenures affected by protected area recommendations for implications regarding compensation.

Communication of mineral data is also a key element of B.C.'s Mineral Strategy. Information must be summarized and communicated in an understandable fashion in order to meet MEMPR's objective in fulfilling its mandate as the stewards of the province's mineral resources.

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[1] *A Mineral Strategy for British Columbia* is a discussion paper released by the Ministry of Energy, Mines and Petroleum Resources in March 1993.

1. MEMPR's Objectives in Protected Areas Planning

MEMPR's broadest objective will be to optimize development opportunities of B.C.'s mineral resources for the benefit of the province. To achieve this, more specific objectives will guide MEMPR in developing decision options for PAS Study Areas.

Accurate Mineral Resource Assessments

- To assess the known or potential value of present or future mineral resources in any given study area and express these values in both geological and socioeconomic terms where possible;
- To determine the degree of confidence for the mineral potential assessment and to tabulate variables that could significantly alter it in the future; and,
- To document the exploration history of, and expenditures on, existing mineral tenures.

Balanced PAS Planning and Decision Making

- To clearly and effectively communicate the mineral resource assessment and tenure concerns to stakeholders and decision makers in the appropriate land planning process;
- To minimize the amount of high and moderate mineral potential lands included in protected area recommendations;
- To minimize government's costs for compensation of acquiring valid mineral tenures, by recommending alternatives to including existing tenures in protected areas;
- To make clear recommendations on 1) which areas should become PAS Study Areas and 2) which PAS Study Areas should be designated as protected. This includes recommendations for boundary adjustments that would offer reasonable compromise;
- To ensure that key access routes to higher mineral potential lands are not unreasonably obstructed by the location of Study Areas or protected areas; and,
- To monitor and report on the cumulative impacts of PAS designations on the mineral land base and the mining industry in B.C., on a regional and provincial basis.

2. Planning for Protected Areas

There are two stages in PAS planning that will require input from MEMPR:

2.1. Determining the List of Study Areas

Making decisions on which areas become Study Areas is the responsibility of the provincial government. The objective of this exercise is to ensure that the areas that best meet the PAS goals for conservation, recreation and cultural heritage while minimizing social and economic impacts, are recommended to Cabinet as Study Areas. Cabinet makes the final decisions on the list of Study Areas.

There is a limit to the amount of land that can be under combined "protected" and "Study Area" status at any one time:

- the combined total for areas presently under Study Area status (roughly 11 percent of land base) and under protected status (roughly 7 percent) is 18 percent (this is the maximum allowed under these two categories); and,
- As new Protected Areas are designated and that total rises towards 12 percent, the amount of land under Study Area status will decrease, ultimately to 0 percent.

A framework of government committees has been created across the province to implement PAS. Regional interagency committees (see Map 1 – PAS Regions, page 5) will be responsible for making recommendations on Study Areas to an Interagency Assistant Deputy Minister's Committee who then make recommendations to Cabinet. The regional process for identifying and evaluating Study Areas is illustrated in Figure 1.

The Commission on Resources and Environment (CORE) is overseeing regional level land use planning with full public involvement in three regions (Kootenay-Boundary, Cariboo-Chilcotin, Vancouver Island). Government's regional interagency committees in these three CORE regions will make their Study Area recommendations by the end of 1993; staff in the remainder of the province will present their recommendations in 1994.

Through MEMPR's participation in all regional and provincial PAS Committees, mineral resource data will be fully considered in developing recommendations to Cabinet for Study Areas.

Study Areas are subject to Interim Management Guidelines (IMGs) so that the PAS values being studied are not compromised prior to a decision being made on protected status. IMGs are being applied to all Cabinet-approved Study Areas. IMGs for mineral exploration and development can be summarized as follows:

- No Staking Reserves are in place for Level A Study Areas (these are mostly small areas considered to be a priority for protection). Work on existing claims can continue with some restrictions on road building.
- Level B Study Areas (the majority of areas) are open for staking. Enhanced referral of Notice of Work applications has been instituted at the regional PAS committees.
- IMGs are flexible to recognize that some activities have greater or lesser impacts on the PAS values under study.

2.2 Determining Which Study Areas to Recommend for Protection

Making recommendations to Cabinet on which areas to designate as protected will be the responsibility of land use planning processes. These planning processes can take a number of forms:

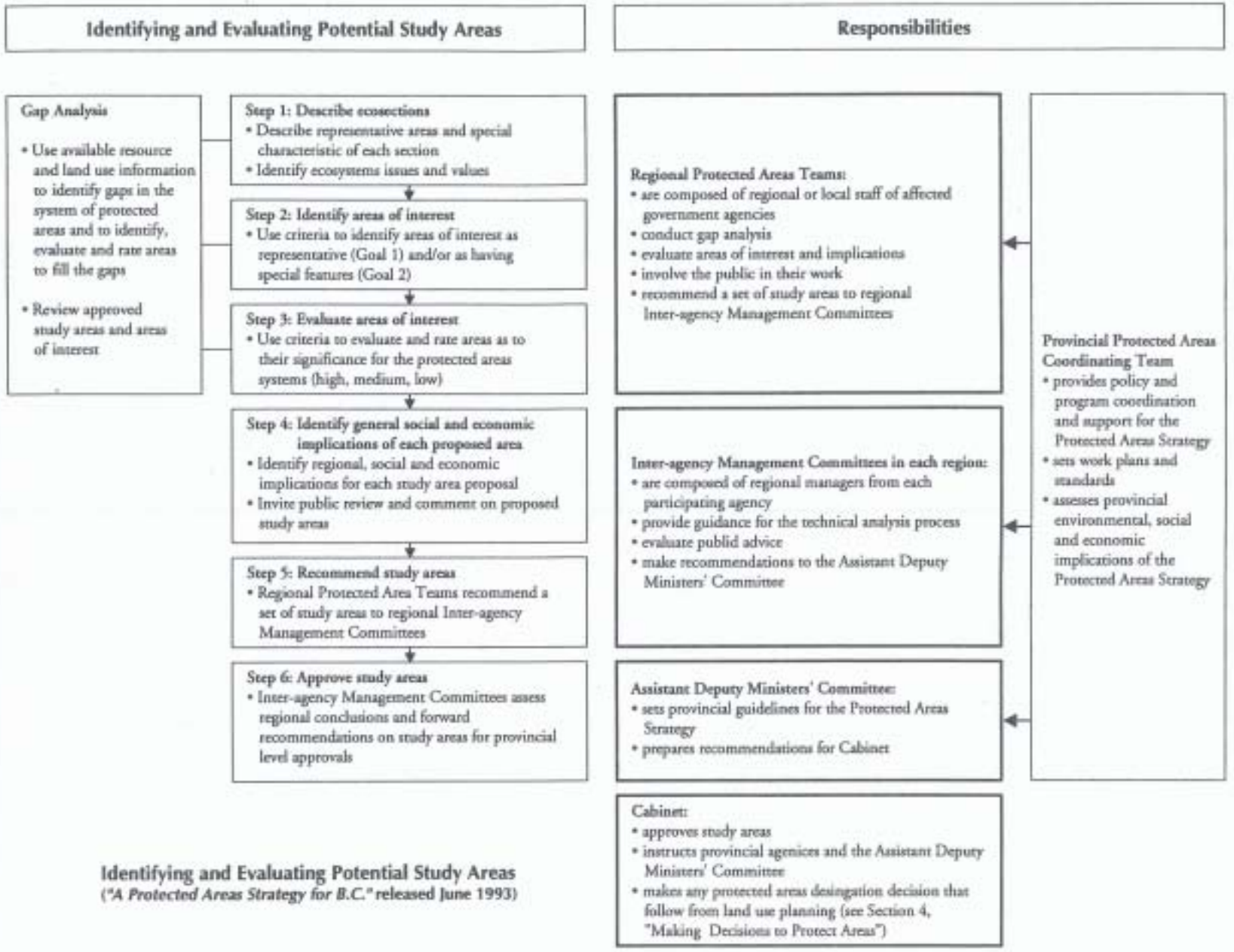
- Regional level plans, facilitated by CORE (Kootenay-Boundary, Cariboo-Chilcotin and Vancouver Island);
- Sub-regional level plans, led by government, conducted within the Land and Resource Management Plans (e.g. Kamloops LRMP); and,
- Special studies, led by government (e.g. Chilko and Khutzeymateen).

Options developed at these multi-stakeholder, shared decision-making tables will form the basis for recommendations to Cabinet on which areas to designate as protected.

When Study Areas are being considered for protected status through the above planning processes, a more detailed evaluation of mineral resource data will be completed.

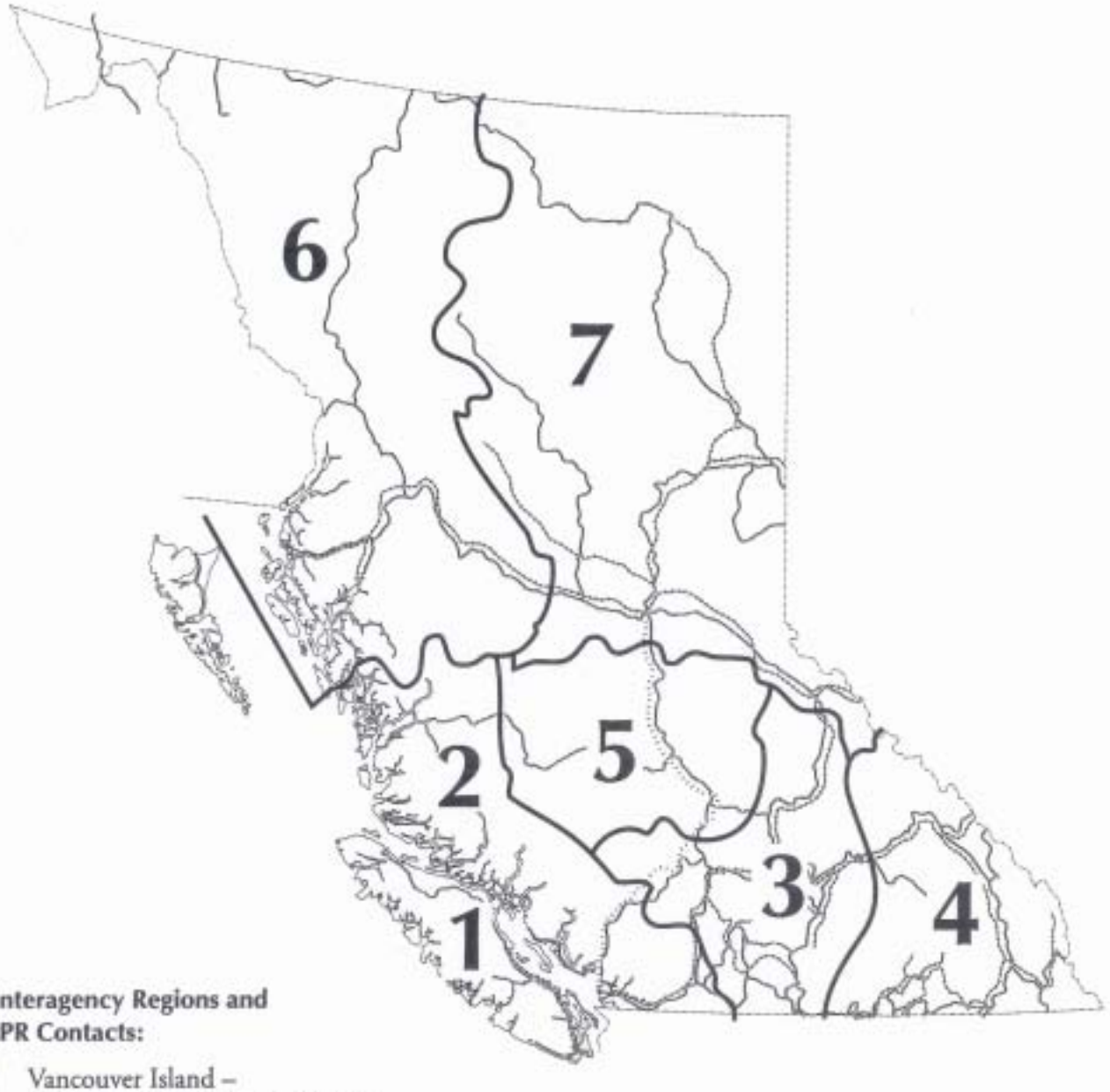
Whether assessing areas for study or for protection, MEMPR will strive to optimize the development opportunities of B.C.'s mineral resources for the benefit of the province.

FIGURE 1



Identifying and Evaluating Potential Study Areas
(*"A Protected Areas Strategy for B.C."* released June 1993)

Map 1 – PAS Regions



PAS Interagency Regions and MEMPR Contacts:

1. Vancouver Island – Gregg Stewart, Graeme McLaren
2. Mainland (includes Queen Charlotte Island) – Robert Pinsent, Janet Fontaine
3. Kamloops – Rick Meyers
4. Kootenays – Andrew Whale, Mike Cathro
5. Cariboo – Ted Faulkner
6. Prince Rupert – Mary Lou Malott, Paul Wojdak
7. Prince George – Ted Faulkner

CORE Regional Planning Processes

1. Vancouver Island
4. Kootenay-Boundary
5. Cariboo-Chilcotin

3. Mineral Resource Assessments for Protected Areas Planning

A multiple-phased mineral resource assessment will be employed to supply preliminary and detailed analyses of mineral data, as required, in each step of the PAS decision process. Mineral resource assessment data will be compiled and presented to stakeholders involved in protected area discussions in a consistent, succinct and informative manner. Information presented will address both mineral resource potential and existing mineral tenures; these are discussed separately below.

3.1 Mineral Resource Potential

An assessment of mineral potential involves:

- evaluating baseline geological information for possible mineral deposits;
- identifying known mineral occurrences;
- assessing regional geochemical or geophysical survey data (if available); and,
- reviewing any additional information from industry reports.

This information will form the basis of any assessment, however due to the effort required to compile this information, a phased approach reflecting different levels of detail in each phase, will be used.

Phase 1 (containing two levels) is an office based review of existing information. The data required in some final PAS decisions will necessitate a Phase 2 field based study.

Phase 1 – Office Based Assessments (Preliminary and Detailed)

a) Preliminary

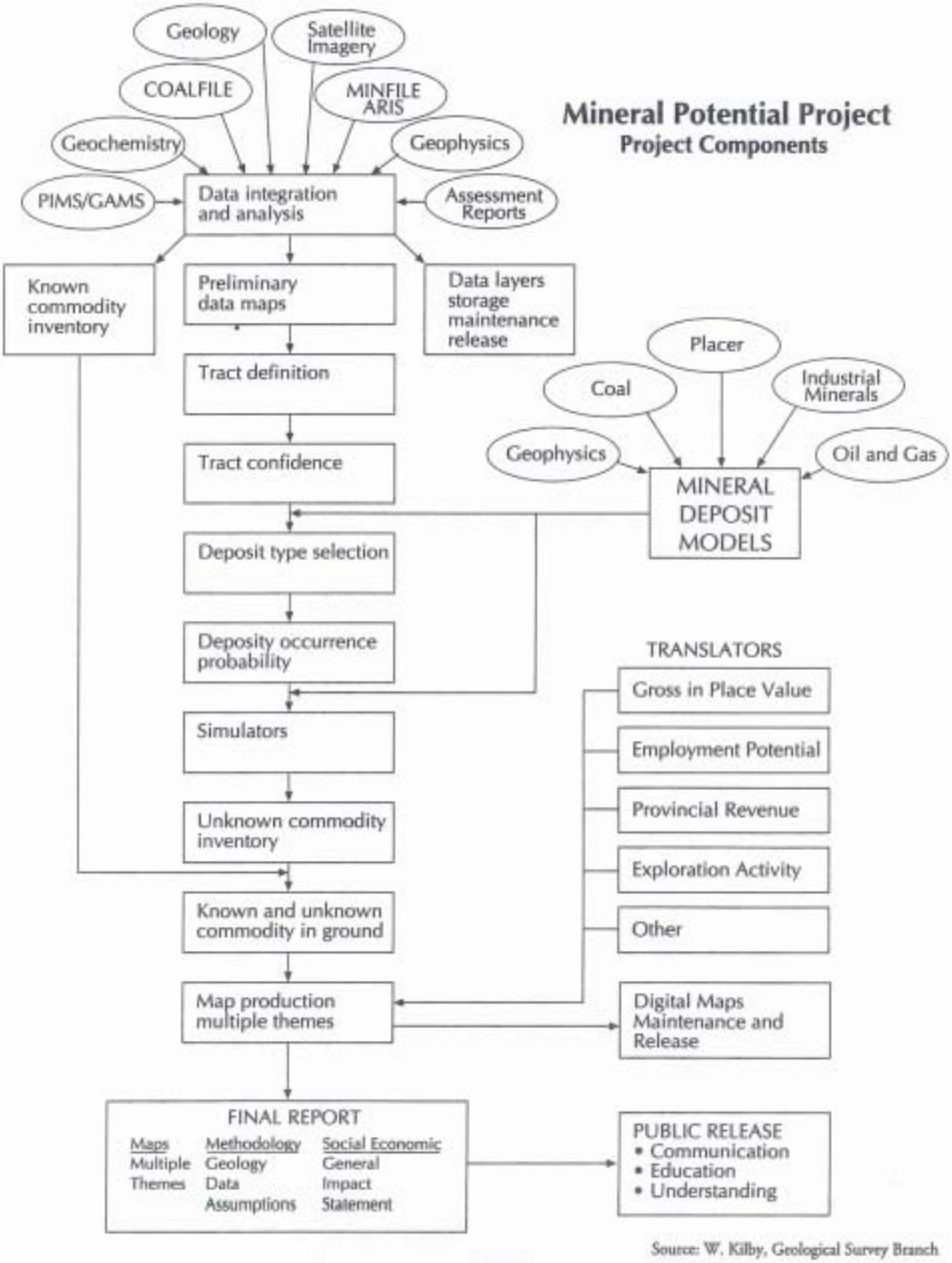
An office assessment to update all available information will initially be conducted for all areas of interest evaluated for Study Areas status (referred to earlier in Section 2.1). Since many areas of interest will likely be assessed in a short time frame, this assessment will be preliminary in nature.

The intent will be to identify those areas of interest where significant mineral resource values can be anticipated, and if possible, to focus recommendations for Study Areas to other areas. Data that is readily available will form the basis of this preliminary assessment; the amount of interpretation may be limited.

MEMPR is significantly improving the regional mineral potential database for B.C. (1:250 000 scale). Initial products from this project will provide data for the three regional planning processes being sponsored by CORE. Mineral potential data for much of the remainder of the province is expected to be covered by 1994.

This assessment will quantify known mineral values and estimate inferred mineral potential based on geoscientific information and a wide range of both public and private sector expertise. Where sufficient information exists, a socioeconomic analysis of these regional assessments will be conducted to translate the geological values into economic terms. Figure 2 provides an overview of the methodology used and the outputs that will be made available to planning processes, PAS interagency committees and the public.

FIGURE 2



Source: W. Kilby, Geological Survey Branch

The emphasis for all mineral potential statements will be to educate and communicate mineral values to all those involved in PAS planning processes (including public, stakeholders and government agencies).

Where this preliminary information demonstrates that the mineral potential is significant in a particular area of interest, MEMPR will propose alternate areas for Study Area status. Where Cabinet approves a higher mineral potential area as a Study Area, a more detailed Phase 1 assessment will be undertaken during the subsequent land use planning process to support or refine the preliminary proposal.

b) Detailed

During land use planning processes, where recommendations are made on designating protected areas (referred to earlier in Section 2.2), the approved Study Areas will be assessed by MEMPR in greater detail using procedures similar to the above regional assessment. The detailed data compilation will usually be at 1:50 000 scale and will be presented at a scale being employed at the land use planning process. The products of both a geological and socioeconomic analysis will again focus on communicating mineral data to all stakeholders; these data will provide MEMPR with a basis for proposing a land use recommendation for each specific Study Area.

MEMPR's proposals will likely follow one of the following scenarios:

- Where mineral values are believed to be low, a recommendation for protected area status will be supported;
- Where mineral values are known to be high, maintaining the area in integrated resource management (IRM) lands will be MEMPR's primary interest. Specific boundary adjustments that avoid zones of moderate to high mineral potential will be pursued; and,
- Where an area is indicated to have moderate to high mineral values based on limited or out-of-date information, and it is anticipated that further detailed assessment will facilitate final land use decisions, MEMPR will recommend detailed field study for those portions of the Study Area requiring land use resolution. This second, field-oriented phase of the mineral assessment process will only be proposed for those areas where enough information has not yet been gathered to make an informed decision.

Phase 2 – Field Based Assessment

MEMPR has developed field mineral potential assessment methodologies during the past decade. Similar types of data to those assessed in Phase 1 will be gathered in a focussed and more detailed fashion (1:50 000 scale). Such studies can be limited to specific zones and therefore can be conducted expediently, or where necessary, will assess an entire Study Area and could therefore, be more time consuming. Targeted geological studies of higher potential areas where data is needed for land use planning initiatives is another key element of the Mineral Strategy.

The information gained in the field assessment will form the basis of MEMPR's interests for the Study Area. In general, these interests will convey:

- support for protected area status in zones shown to have lower mineral potential; and,
- the need to maintain zones of moderate to high mineral potential in the IRM lands.

Mineral assessment procedures have little or no impact on protected area values, hence existing or proven management guidelines can be readily applied to any field activities. The field assessment may delay a PAS designation and will require specific identification of funding.

3.2 Mineral Tenures

During all stages in PAS planning, an assessment of mineral tenures will be undertaken in order to predict, and avoid where possible, unnecessary impacts on the mineral sector and unnecessary costs of tenure acquisition to government.

This data will be provided as early in the decision process as possible, but as for mineral data, somewhat greater detail in information, particularly regarding the history of work and expenditures on the tenures, may be provided to later stages of the process.

During the process to recommend areas for Study Area status, mineral tenures will be identified in a preliminary assessment. Where mineral tenures are extensive or where it is clear that past expenditures have been significant, MEMPR will recommend alternative areas for Study Area status. Where MEMPR's recommendations on Study Areas are not accepted, mineral tenures will be inventoried to estimate the number and size of tenures impacted, leading to a tabulation of the amount of assessment work recorded by tenure holders to maintain the title.

The recorded assessment work provides an estimate of the minimum amount of money spent on the claims. Specific comments can be made where the realistic expenditures are expected to be significantly different than those revealed by the recorded assessment work. The acquisition cost of these tenures can also be estimated using the average price paid to compensate tenure holders in the past. These data can be used in the valuation of the tenures to compile a range of estimated costs to government should there be a recommendation to acquire the tenures; such estimates will also be guided by any future legislation relating to resource compensation.

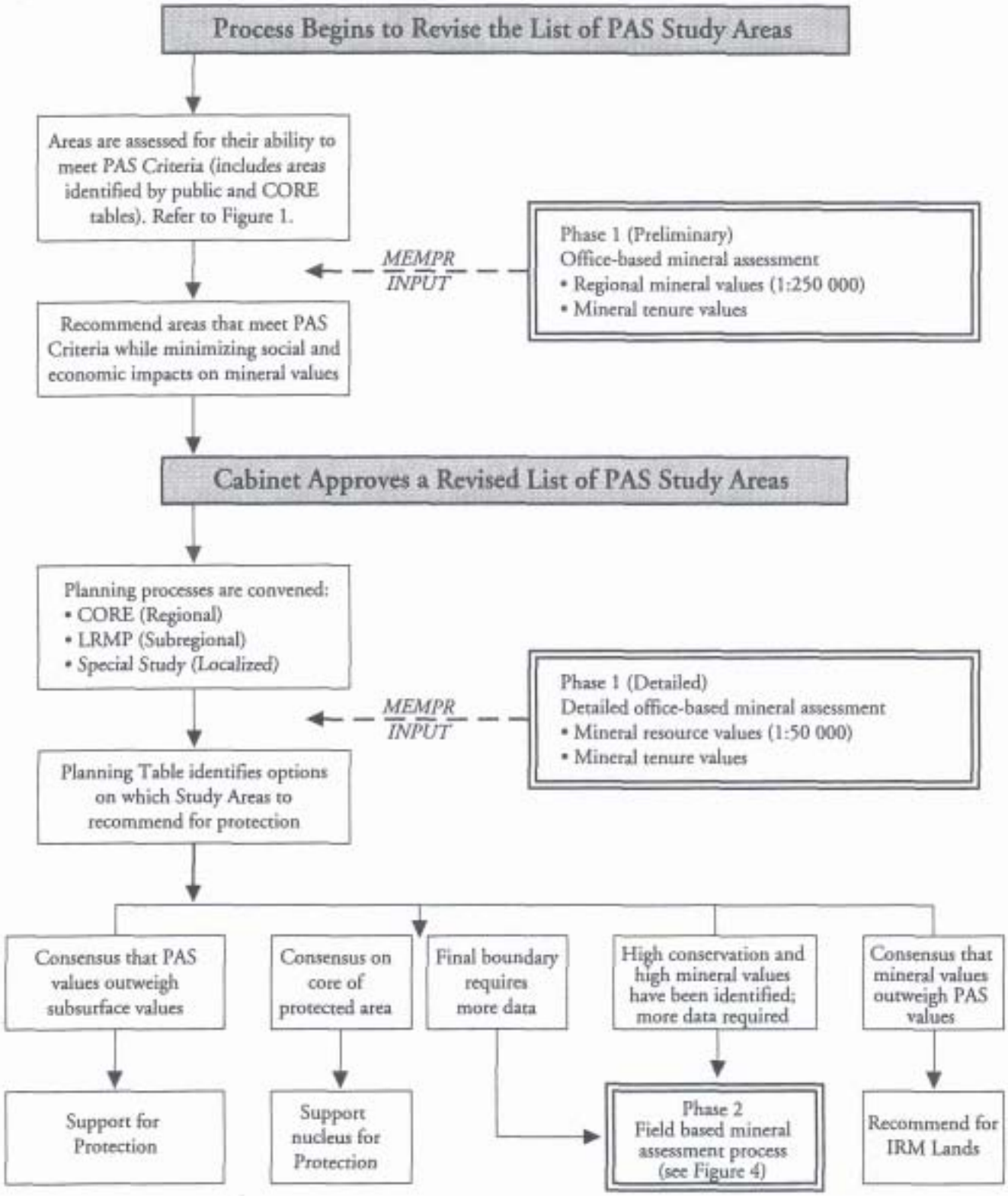
An estimate of the value of the tenures will guide policies and decisions on whether to adjust the land use recommendation to accommodate the tenure rights, even if only temporarily, or for government to acquire those tenure rights as part of creating a new protected area. MEMPR recognizes that expropriation of mineral tenures, particularly those with significant mineral potential and a significant history of past work and expenditures, will have strong negative impacts on investment in mining in B.C., and for this reason should be avoided.

4. Transitional Issues

4.1 Integrating Mineral Values into Protected Area Recommendations

Figures 3 and 4 identify how the mineral resource assessment process can be integrated within the PAS designation process (with CORE regional planning processes, sub-regional planning processes or otherwise). This integrated process provides the flexibility to develop options for the transition from lands currently open to exploration to lands being recommended for protected area status in the future. The process also provides for options on the maintenance of certain areas within integrated resource management lands and therefore open to continued mineral exploration.

FIGURE 3

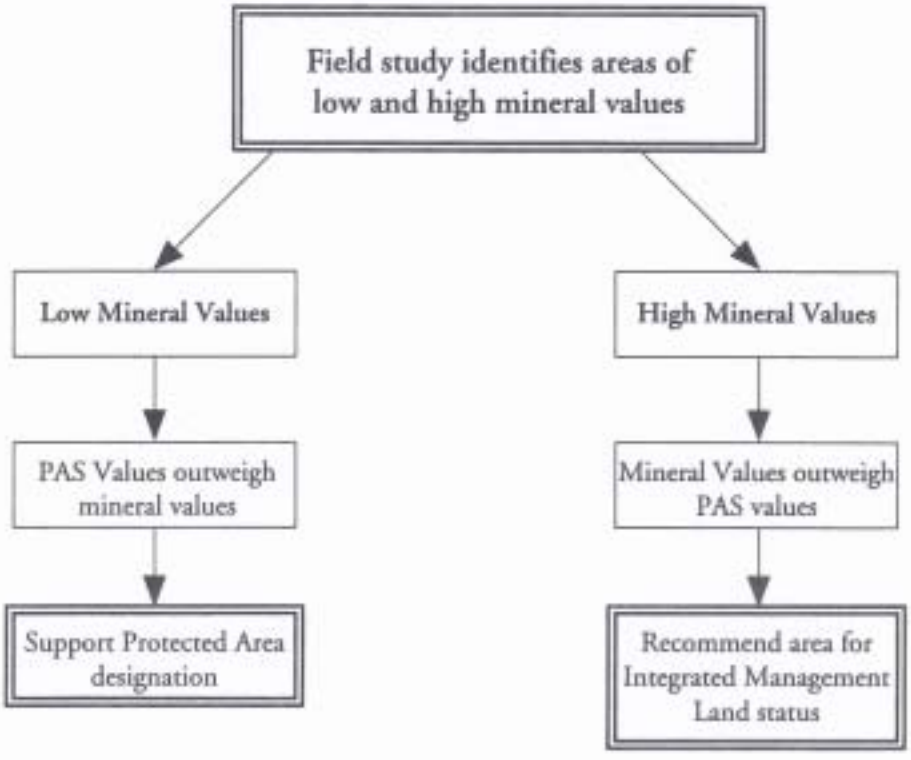


NOTE: This figure presents a mineral resource persepective of PAS only; numerous other resource values will be factored into the planning process.

FIGURE 4

Mineral Resource Assessment Process
Field Based Assessments

(For Study Areas or portions thereof, being considered for Protected Area Status)



Such options include:

- an informed choice of alternates for areas to be recommended as Study Areas;
- an option to proceed straight to protected area status for all or part of a Study Area;
- an option to maintain all or part of the Study Area within IRM lands; and,
- an option to defer a designation decision for protection on all or part of a Study Area while further information is being gathered.

4.2 Existing Recreation Areas and Forest Wilderness Areas

In 1988, twenty-eight existing recreation areas were opened to mineral exploration under special conditions of the Mineral Tenure Act in recognition of the higher mineral potential and the need for a mineral resource assessment in these areas. The four existing Forest Wilderness Areas were designated with the expressed intent of allowing mineral exploration and mining to proceed, hence they have not undergone a mineral resource assessment.

With the release of the PAS, the Ministry of Energy, Mines and Petroleum Resources is now charged with assessing the mineral potential of all existing Recreation Areas and Forest Wilderness Areas. There is a general recognition that most of these areas meet PAS criteria for conservation, recreation and cultural resource values, however there is also a recognition that the subsurface resource potential has not been properly assessed. Therefore the Ministry will apply the resource assessment methodologies described above to these areas to determine the following (see Figure 5):

- areas determined to have low mineral potential will be recommended for upgrade to full protected status; and,
- where subsurface potential is demonstrated to be significant, the areas will be referred to the appropriate regional or sub-regional planning process for a recommendation on status.

Assessments will be conducted to meet the time frames of existing land use processes. The Ministry will ensure the mineral potential information is fully considered. In all cases, special considerations may be required to deal with any existing tenures within these areas.

4.3 Existing Mineral Tenures

Outright acquisition of all mineral tenures in proposed new protected areas is not recommended as an effective blanket policy, as it is too rigid, does not address individual site-specific situations and will likely be more costly than necessary. To the greatest extent possible, all mineral tenures, but specifically those with a documented higher value, should be avoided when recommending protected area boundaries. This will limit the costs of creating new protected areas and will minimize socioeconomic impacts of these decisions.

However, it is recognized that, in some areas, proposals will be made to create protected areas over existing mineral tenures. A variety of options exist to deal with these tenures during the transition to protected status. Two scenarios of mineral tenure within candidate protected areas are considered below. These scenarios are:

"C" tenures – those claims located central to the protected area values, where ground disturbances due to exploration, including access development, would negatively impact the integrity of the protected area; the presumption is that the area is too sensitive to allow any disturbance from mining activities.

"P" tenures – those claims peripheral to the core protected area values, where greater management flexibility with respect to environmental sensitivities and exploration activity is available.

Options for dealing with these tenures include:

Option 1 – Do not include tenures in the protected area.

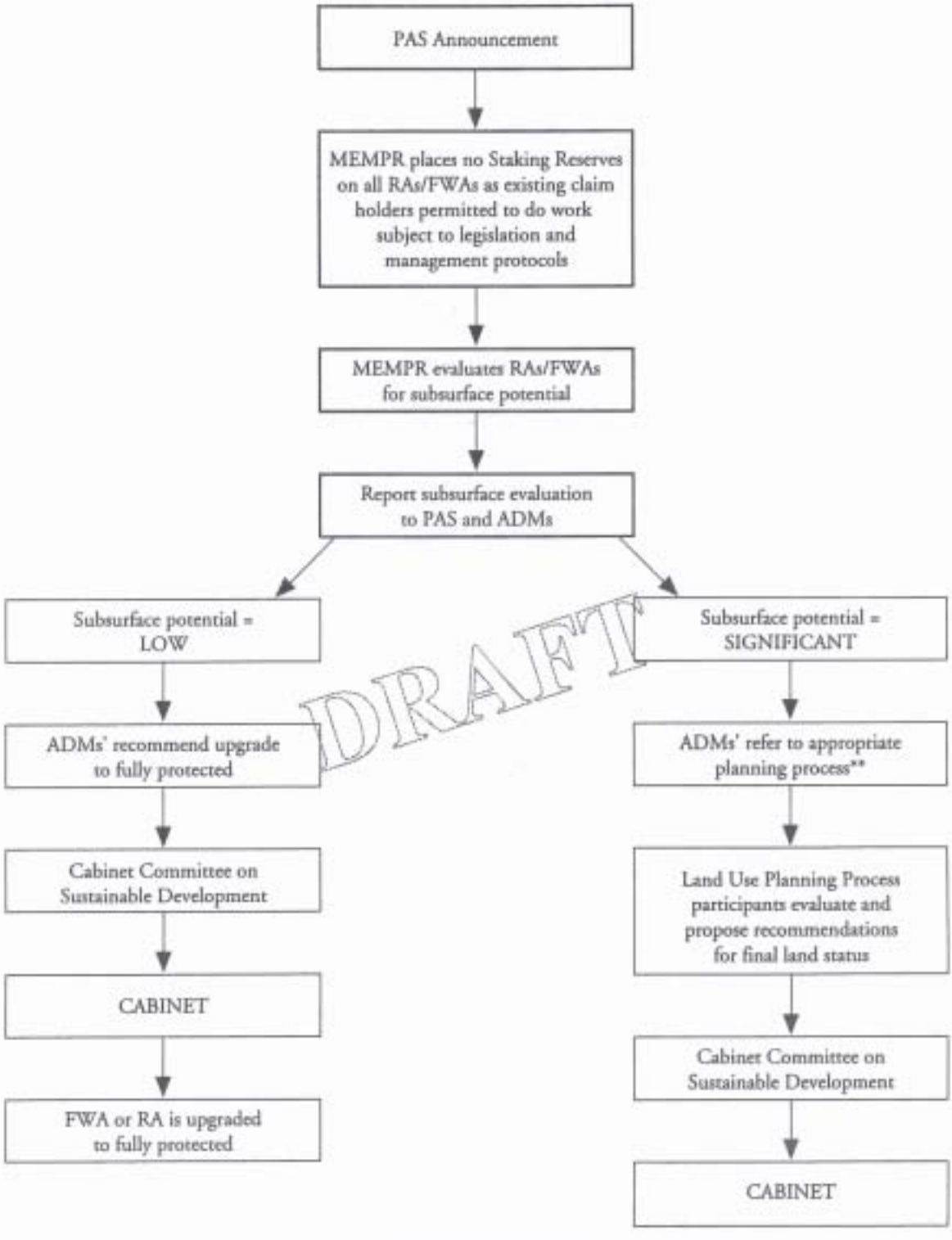
C: ♦ standard solution where mineral values are proven and clearly outweigh protected area values;

♦ this option would be negotiated during the land use planning process along with the mineral resource values.

P: ♦ boundary alignments that would avoid the tenures will be negotiated during protected area study;

♦ such boundary alignments could be limited to the life of the existing claims, after which the boundaries would be readjusted to conform with the original protected area proposal (e.g. a height of land); or the boundary alignment could be permanent where mineral potential values are significant.

Figure 5 – Process for Evaluating Recreation Areas and Forest Wilderness Areas



*** RAs/FWAs designation continues until final designation is made.*

Option 2 – Terminate Mining and Extinguish Tenures

Currently the Mineral Tenure Act and Park Act have no provisions to expropriate a mineral claim. A Crown Granted mineral claim and a mining lease do qualify for expropriation under the Park Act. Until such time as a mineral claim expropriation provision is legislated, claims will be extinguished either by quit claim settlement agreements or by litigation if the parties cannot agree.

C: ♦ standard solution where protected area values are so significant that no disturbance is acceptable;

♦ this will be a very difficult decision where mineral tenure values are also high.

P: ♦ this option should be avoided wherever possible in favour of other options in order to reduce compensation costs to government and minimize impacts on the private sector.

Option 3 – Continuance of Tenure with no Compensation

This option should be exercised as part of the land use planning process. A direct discussion would be undertaken with the claim holder to fully disclose all sensitivities and values in the proposed protected area. The claim holder could then be given the option to:

- surrender the claim and receive no compensation; or
- conduct further work under special permits for a specified period (possibly 10 years) aimed at proving the mineral values; tenure security to develop any minerals proven up would be ensured, however if no minerals are proven, then the tenure could be withdrawn without compensation. (This may require a special designation as government has said that there will be no mining in "protected areas.")

No staking mineral reserves would be established to prohibit any new tenures within the proposed protected area.

This option places the decision on the future of the tenures directly with the affected party.

C: ♦ not likely a solution for these claims;

P: ♦ a workable solution to resolve complex tenure situations or those with strong indications of, but unproven, high mineral values. For this to work, confidence must be given that development will indeed be allowed to proceed where exploration is successful.

5. Monitoring PAS Impacts on Mineral Values

MEMPR will monitor the ongoing implementation of PAS and assess the impacts on the availability of mineral lands in the province, the costs of any mineral tenure expropriation and the impact on the health of B.C.'s exploration and mining industry. This will be conducted on a regional basis and accumulated across the province. The intent of this exercise is to ensure that the establishment of protected areas does not unnecessarily "over-protect" zones of moderate to high mineral potential or areas of mineral tenures.

The distribution of low, moderate and high mineral potential lands will be tracked within each study area as it is recommended for protection. This distribution will then be assessed to determine if higher value mineral lands are being over represented in protected area decisions. Similarly, the areas covered by mineral tenures in new protected areas will be compared to regional and provincial trends in tenure

coverage. Where these impacts are deemed excessive, MEMPR will highlight this to Cabinet and the PAS decision making processes in an effort to modify the trend.

6. Summary

The ministry's approach to ensuring mineral resource assessment data are fully accounted for in protected areas planning directly reflects a number of initiatives in the Mineral Strategy:

- response to proactive approaches to minerals management;
- focussing geological studies in areas where up-to-date information is needed; and,
- communicating the present and future values of mineral resources and the exploration and mining sector to the province.

In summary, MEMPR will:

- Generate accurate mineral resource, mineral tenure and related socioeconomic data for protected area candidates and will ensure this information is effectively communicated and considered in protected area decisions;
- Implement a phased mineral assessment process that responds to PAS information needs;
- Work to ensure that, to the greatest extent possible, areas of higher mineral potential and areas of mineral tenures are not included in areas recommended to be Study Areas and/or recommended to be designated as protected; and
- Monitor and report on impacts of PAS designations on the mineral land base of the province.