

**TECHNICAL REVIEW
OF
THE NUNAVUT LAND USE PLAN**

Prepared By:



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1.0 INTRODUCTION

The Draft 2014 Nunavut Land Use Plan (NLUP) was developed by the Nunavut Planning Commission (NPC) as mandated for the Nunavut Settlement Area under Article 11 of the Nunavut Land Claims Agreement (NLCA). The Kivalliq Inuit Association (KIA) has completed a technical review of the NLUP in order to provide general comments on the overall approach of the NLUP and to assess the following:

1. the NLUP's freshwater environment interactions, to ensure they are both sufficiently protective of Inuit freshwater resources, in particular, if they provide a focus on drinking water supply.
2. that the NLUP has not reach beyond what is scientifically defensible at the cost of potential resource development and subsequent economic benefits.
3. That the NLUP has adequately considered coverage of marine areas and migratory birds.
4. That the NLUP has adequately considered the mineral, oil and gas potential of the under explored areas of Nunavut versus areas of currently known mineral, oil and gas potential; and the impacts on the development and subsequent economic benefits of developing this mineral, oil and gas potential.
5. That the NLUP has adequately considered the impacts on current and potential infrastructure developments and subsequent economic benefits.

The KIA, represents the Inuit beneficiaries of the Kivalliq Region, at the territorial and regional levels, and supports sustainable economic development opportunities for Inuit beneficiaries. The review team consisted of consultants from GeoVector Management Inc. (GeoVector) of Ottawa, Ontario and Hutchinson Environmental Sciences Ltd. (HESL) of Bracebridge, Ontario.

2.0 NLUP REVIEW SUMMARY

The following outlines the technical comments on the 2014 Draft NLUP, relating to overall approach, mineral potential, oil and gas potential, infrastructure development, freshwater resources, marine areas, and migratory birds.

2.1 General Comments on Overall Approach of the NLUP

2.1.1 Basis for NLUP Decision Making and Future Adaptation

Accurate and relevant data have not been properly incorporated into developing the NLUP. A significant concern is founded in statements including “...a lack of available data, information and expert advice limits the analysis of land use options” (Section 1.4.1 p. 16) and “Land use planning... will rely on the best available Inuit Qaujimajatuqangit and scientific information as a basis for decisions. The absence of information does not preclude the necessity to make land use planning decisions and to conclude the plan development process in a timely manner” (Section 1.4.5 p. 18).

Two examples of this are:

Geoscience Data - There is a wealth of geoscience information in the public domain that was not used by the NPC. There is no clear plan in place that would allow the NLUP to “evolve” whether the information is new or existing. If the current information has not been thoroughly reviewed what chance is there that new information will be reviewed and used to “evolve” the NLUP. Incorporation of the existing geoscience and historic data from the public domain would better enable a more accurate evaluation of the areas of undeveloped mineral potential prior to having restrictive land use regulations put in place.

Freshwater Resources, Terrestrial and Marine Wildlife and Habitat Features - Justification for how particular Land Use Designations were applied to freshwater resources, and terrestrial and marine wildlife and habitat features, is lacking in the Plan. For example, Table 6 states that the Community Drinking Water Supplies were “Created at the NPC on 29/09/2009 by delineating from 1:250,000 Nunamap II data”. This does not provide appropriate spatial resolution for consideration of required protection of drinking water intake protection zones, inputs within the subwatershed or from the broader watershed. Similarly, no explanation is given for designating marine features such as caribou sea ice crossings, EBSAs and polynyas as mixed use.

Finalizing the NLUP cannot be drawn out over a lengthy and unstructured process. The Draft NLUP, however, allows for decisions to be made in the absence of sufficient data. This could potentially lead to the NLUP, for example:

- being overly or under protective;,,
- unnecessarily limiting resource development or permitting it in inadequately assessed sensitive areas (areas not identified as sensitive under the current Draft NLUP); or
- restricting Inuit traditional land uses.

The Draft NLUP does not propose a timeline for the Periodic Review and Monitoring of the Plan, nor a consistent process for updating information. The NLUP simply states that *“the Commission may review the Plan periodically to verify whether, and the extent to which, it continues to:*

- ❖ *achieve the purpose of land use plans set out in the NLCA;*
- ❖ *support the implementation of the Commission’s Broad Planning Policies, Objectives and Goals, and*
- ❖ *provide for the conservation and use of land and guide and direct resource use and development.” (Section 7.11, p. 50)*

A mandated timeline for update and incorporation of new information should be included in the NLUP to ensure it is up to date and adequately protective and to provide stability to the planning process through a clear and documented process for review and update. In addition, methodology should be established to ensure that new information is collected and incorporated into the Plan in a consistent manner. Throughout the Plan it is acknowledged that more information is needed (e.g., Sections 1.4.5, 2.1.5, 4.4 etc.). It would be helpful to provide a summary of data/knowledge gaps identified in the process of developing the NLUP, as well as a strategy for addressing them in future.

Proponents cannot be expected to invest in mineral exploration and subsequent development if these mineral resources in a territory that has a land use plan not built on sound science or having an undefined process for review and update. While science is based on updating our understanding to align with more recent findings and the weight of evidence associated with new discoveries, it is also based on acknowledging when insufficient information exists to make a decision.

The Draft NLUP has not provided rationale nor the relevant background information used to establish the various Land Use Designations throughout the territory.

The NPC should provide a more transparent discussion on the nature of the data used to establish the Land Use Designations and the rationale / decision making rules for each. Decision rules should include discussion for the size/shape of each management area and the rationale for categorizing each Land Use Designation as a Special Management Area (SMA), Mixed Use, etc. Furthermore, it is not clear whether the Precautionary Principle is used when making decisions in the absence of data in the Plan. The Nunavut Impact Review Board (NIRB) requires that a precautionary approach be applied to all project undertakings under its jurisdiction. It is recommended that this approach be adopted in all NLUP decision-making as well.

The NLUP should also include mandated periodic updates to ensure it reflects the most recent information and current needs of the territory. Water licenses issued by the Nunavut Water Board are issued for specific durations at which point they must be renewed; renewal often occurs every 5 to 10 years. It is recommended that the NLUP include a requirement for review and update by the NPC at least every 5 or 10 years.

Updates and objective decision rules based on sound data will ensure that the NLUP governs appropriate management decisions for the protection of Nunavut's natural resources ensuring long-term benefit to all Nunavummiut.

2.1.2 Missing Definition of Terms

A number of terms are used throughout the NLUP without defining them. For example:

- 1) 'environmental integrity',
- 2) 'environmental quality',
- 3) 'Ecologically and Biologically Significant Areas'.

Including definitions of these terms would provide greater clarity on their role in contributing to the Plan's objectives and goals, and would strengthen its scientific defensibility. In addition, the term 'Accessory Use' is defined as "*a use of land that is temporary or seasonal and is both incidental to and customarily found in connection with a principal land use*" (NLUP, p.8), however, no example is provided.

It is recommended that NPC provide definitions to the terms listed above, as well as an example(s) of what constitutes an 'Accessory Use'.

2.1.3 Identification of Research Priorities

A number of research priorities are identified, including caribou, cumulative impacts and oil exploration, development and transportation. Invasive alien species (IAS) are a major environmental and socio-economic threat globally, and pose an emerging risk to Arctic regions such as Nunavut, given climate change and increasing human activity. Yet, biological invasions are not mentioned in the NLUP.

It is recommended that IAS should be one of the research priorities identified in the NLUP. In particular, the following aspects of IAS should be considered in future research:

- the impacts of climate change on the threat of the introduction and spread of IAS;
- the impacts of increased shipping activity to the region on the risk of biological invasions (and pollution);
- the identification of major pathways and vectors for the introduction and spread of IAS into and within Nunavut (e.g., proposed transportation corridors such as the Kivalliq to Manitoba connection);
- evaluation of best management strategies to prevent and manage IAS in Nunavut.

2.1.4 Balancing Land Use Designations

It is not clear whether Land Use Designations can change with new information, or how overlapping designations are managed. For example, if future information is collected indicating that an area with a less protective Land Use Designation should be assigned a greater protective designation, will the area's designation be modified? A possible scenario, might be that an Area of High Mineral Potential (in which one of the prohibited uses is the establishment of conservation areas and parks) turns out to also be a biodiversity hotspot that might require designation as a Protected Area. How would this be managed? Conversely, a Protected Area might be identified in the future as an Area of High Mineral Potential.

Where different land use designations currently overlap (e.g., High Mineral Potential and Community Area of Interest), how are the two potentially conflicting designations addressed?

It is recommended that NPC include discussions in the NLUP explaining:

- 1) whether new information can change land use designations,
- 2) the process for changing a land use designation
- 3) the need for defined periods for review and update of the NLUP,
- 4) how overlapping land use designations are currently managed, and
- 5) identify/propose a process for resolving conflicts.

2.1.5 Use of Discretionary Language

Although Land Use Designations and their respective terms are legally binding under the NLUP the use of discretionary language throughout the Plan weakens its impact. For example:

“The NPC *may* refer a project proposal...to NIRB for screening” (Table 1)

“Regulatory Authorities, *where appropriate*, must incorporate the setbacks in Table 2 for all migratory birds...” (Table 1).

The discretionary wording appears to give proponents the option of taking environmentally protective measures, but not requiring it.

It is recommended that the NPC clarify in the NLUP under what circumstances the enabling language must be followed, and under what circumstances it is optional, with justification, to ensure the NLUP's goal of protecting and sustaining the environment is achieved.

2.1.6 Conflicting Direction in NLUP for Alternative Energy Generation

Section 3.1.2.5 identifies the Thelon, Kazan and Soper Rivers as Heritage Rivers including a protection “*corridor extending 1 km from the river bank*” for the two former, and through the entire watershed in the latter. Under site number 87, the Soper River is specifically protected from several potentially detrimental land uses by prohibiting them outright. Under site numbers 88 and 89, the Kazan and Thelon Heritage rivers are designated SMAs and are provided with some degree of protection from hydro-electric projects (among other developments) by referring the project proposal to a NIRB screening for potential environmental impacts.

This protection is counter to the direction in Section 4.3 which states “*High potential sites have been identified for hydro-electric generation opportunities for the Kivalliq Region along the Thelon and Quoiiche Rivers...These sites are unique locations that would benefit from management to ensure that the potential of the sites is maintained*”. Site numbers 100-102 prohibit “*all uses within 100m of high potential alternative energy sites, except activities associated with hydro-electric generation*”. Several issues are raised by this inconsistency, which include:

- ❖ The 100m perimeter around high potential hydro-electric sites may represent an a-priori assessment of the extent over which environmental impacts may occur (for instance, as the Local Study Area) from project areas. There is a need to provide a rationale for prescriptive protection measures or identify a process to do so;
- ❖ The specific locations for the “*high potential alternative energy sites*” designated as SMAs are not identified in the map provided as Schedule A, precluding an assessment of the implications associated with conflicting guidance from the two sections of the NLUP;
- ❖ Hydro-electric projects may hinder passage of the 15-16 freshwater species in the Thelon River in addition to an anadromous subset of the approximately 35 marine species found in Hudson Bay (Coad and Reist, 2004);
- ❖ The NLUP seems to provide conflicting guidance. This weakens the NLUP’s capacity to encourage developers to pursue hydro-electric projects in the territory as well as to ensure environmental protection of a Heritage River (Thelon) which also serves as a significant wildlife corridor in the River Valley.

The Draft NLUP cites the Government of Nunavut (Table 6) as the source for information on Heritage Rivers used in the NLUP. This citation does not expressly reference the Canadian Heritage River Management Plans which aggregate a wealth of pertinent data directly applicable to the management of these water courses and their contributing watersheds (GNWT, 1990; Parks Canada, 2007). While the NLUP indicates it will be updated to reflect new information when it is generated through research programs and studies, it fails to incorporate applicable existing data.

The Draft NLUP should provide consistent direction for potential projects and review agencies (e.g., NIRB and NWB) between Land Use Designations outlined in Schedule A

and the narrative within the body of the Draft Plan. This will prevent confusion when assessing proposed projects for conformity and better ensure the protection of environmentally sensitive areas outlined in the NLUP and by other key data sources.

It is recommended that the NLUP incorporate existing information contained in the Heritage River Management Plans where relevant. This should be used to provide projects and regulatory bodies with direction and ensure a level of protection consistent with the goals of the Canadian Heritage Rivers System conservation program.

2.2 Mineral Potential

In section 5.1.1 of the NLUP, Mineral Potential, it states “*Areas of high mineral potential have been identified based on locations of selected mineral occurrences, an examination of historical mineral tenure held in the territory, the extent of favorable geological units based on limited mapping, locations of current and past producing mines, locations of advanced exploration projects and those projects currently in review and permitting stages.*”

This approach by the NPC is very limiting given that it has used more geographic data and less so geoscience data. Although existing mineral occurrences and projects do define areas of mineral potential they do not always point to areas of currently unknown mineral potential. In order to better determine these areas it is necessary to use regional to territory scale geophysical (ie. magnetic, electromagnetic, radiometric and gravity) and geochemical (ie. lake sediment and glacial till) surveys. There is also a wealth of historic geoscience information in the public domain from previous mining company exploration and government surveys. This information would allow for a more completed assessment of Nunavut’s mineral potential. This approach would also allow for more focus in future mineral exploration initiatives, the development of new technologies for exploration and outline areas where updating the geoscience information with modern methods would allow for a better assessment of the mineral potential.

Examples of how the existing geoscience and historic information has been used to define areas of mineral potential are:

- 1) Kivalliq Region – Several geologic structures that parallel the Meladine Lake gold trend from the shore of Hudson Bay to the west and southwest have not been fully evaluated by mineral exploration. Recent work on the Pistol Bay Trend near Whale Cove has had significant success outlining new gold occurrences. This work was initially based on review of historic records in the public database.

- 2) Qikiqtani Region - The Hall Peninsula of Baffin Island was deemed to have very limited mineral potential until 2008 when diamond bearing kimberlites were discovered. To date approximately 67 kimberlites have been discovered.

It is recommended that the NPC use existing geoscience information as well as utilizing the local territorial (ie. Canada Nunavut Geoscience Office and GN Minerals Division) and federal (ie. AANDC and GSC) to develop a more accurate representation of the mineral potential of Nunavut. It is also recommended that by expanding the focus of how the geoscience information is used from a geographic like location of the currently known mineral potential to a target driven use where new areas of mineral potential can be identified and used to attract mineral exploration and mining investment.

The ESED-1 (Encouraging Sustainable Economic Development) designation should be significantly expanded to reflect current and historic mineral projects. All areas beyond the current ESED-1 regions that, once evaluated properly, have mineral potential should be clearly illustrated as multi-use in anticipation of possible mineral discoveries. In addition, more clarity on the sources of information and the decision making process that the NPC used to select the lands designated as ESED-1 is required.

2.3 Infrastructure

The NLUP should expand the transportation and infrastructure corridors in order to add certainty to future plans for road, rail, power line, telecommunications, hydro developments and shipping links. This would greatly assist with the feasibility of mining projects and local community infrastructure developments. In particular, designated transportation corridors should be included in the NLUP for the:

- 1) Kitikmeot Region - BIPR, Izok Lake, Hope Bay and the northern portion of the Slave Geological Province transportation corridors.
- 2) Kivalliq Region – The Nunavut to Manitoba powerline corridor should also include a road option.

It is also recommended that infrastructure related to existing, planned and potential development projects should be included on the land use base of the NLUP. The collation and use of Environmental Impact Statements for projects that have gone through the NIRB and NWB processes would be very useful for documenting the locations of this infrastructure.

2.4 Sustaining Freshwater Quality and Quantity

The NLUP states in Chapter 2 (Protecting and Sustaining the Environment) that “*The following areas and issues have been identified to support the NPC Goal of protecting and sustaining the environment:*

- ❖ *Key migratory bird habitat sites;*
- ❖ *Caribou habitat;*
- ❖ *Polar bear denning areas;*
- ❖ *Walrus haul-outs;*
- ❖ *Marine areas of importance;*
- ❖ *Transboundary considerations; and*
- ❖ *Climate change.” (p. 23)*

The list does not consider freshwater quality and quantity, ecosystem components which are specifically protected under Article 20 of the NLCA, although some Land Use Designations provide direction to the Nunavut Water Board pursuant to Article 13 of the NLCA. Article 20.3.1 of the NLCA provides protection for water “*quality, quantity or flow*” from substantial alteration by projects or activities within the Nunavut Settlement Area.

The Draft NLUP provides specific protection for terrestrial and marine areas for wildlife and acknowledges transboundary considerations and climate change, but provides no specific protection for water beyond heritage rivers and drinking water supply for the communities. This shortcoming is carried forward into Section 7.12 which includes recognition that studies and research are required to “*further the policies and objectives of the Plan*”. There is no requirement for additional research to ensure the protection of freshwater quality, quantity or flow.

The NLUP should include freshwater quality, quantity and flow in its list of goals for protecting and sustaining the environment and this should include a discussion in Chapter 2 regarding how this goal is being addressed and direction for Land Use Designations that may result in alteration to these ecosystem components. This direction should go beyond simply referring projects to the Nunavut Water Board. The NLUP should take its own position with respect to protecting water quality, quantity and flow and expand its mandate to require “*initiation and completion*” of additional research and studies into this important ecosystem component in support of Article 20 of the NLCA .

2.5 Adequate Long-term Supply for Community Source Water

The NLUP seeks to protect drinking water supplies both within and outside municipal boundaries. The NLUP states that “*municipal land use plans are able to provide direction on how land should be used to maintain the quality and quantity of drinking*

water” for “drinking water [sources] from small lakes and catchment areas where the entire watershed is within the municipal boundary”. (Section 4.4.1.1, p. 35)

It was noted in this review that the municipal boundaries in Nunavut do not encompass the entire watershed supplying or indirectly contributing to community drinking water supply. The Draft NLUP has therefore established several land use designations intended to protect the community drinking water supply. However, some communities, like Kugluktuk and Baker Lake, have been afforded greater protection under the Draft NLUP the Community Water Source Watershed SMA encompasses major watersheds. While they do overlap with land use designations denoting High Mineral Potential (e.g., SMA 48 and 167), the NLUP includes guidance to the NWB that impacts to community water drinking supply should be mitigated.

The drinking water supply of communities like Arviat have geographically smaller Community Water Source Watersheds adjacent to Areas of High Mineral Potential within their broader sub-watershed and in adjacent sub-watersheds. Exploration of adjacent areas of high mineral potential do not include direction to mitigate impacts to community drinking water supplies under the proposed NLUP.

Several communities are not afforded a SMA land use designation to protect the Community Water Source Watershed. These communities include Gjoa Haven, Iqaluit, Igloolik and Clyde River. Although there are currently no regions of high mineral or petroleum potential within the immediate sub-watershed supplying these communities with drinking water, exploration and development has not been prohibited nor has guidance been provided within these sub-watersheds when no protection is provided for the drinking water supply. While these communities may not currently be at risk of having their drinking water supply compromised, the Draft NLUP includes no scheduled mechanism for update to incorporate new data.

It is recommended that the NPC provide a mechanism(s) with regard to updating and incorporating new data into the NLUP that will protect the drinking water supply of all Nunavut communities.

The NLUP does not consider all inputs into watersheds providing the communities with freshwater. No scientific basis is provided in the NLUP to indicate if the community source water watershed land use designations are sufficient to ensure community drinking water supplies are adequately protected. The NLUP should consider and include discussion on:

- appropriate intake protection zones for each community,
- minimum water quality standards for water entering Community Source Water Watersheds
 - This should include guidance to the NWB similar to that used for Land Use Designations 88 and 89. This could read: The NWB, where appropriate, needs to mitigate the impacts of the following project proposals on waters flowing into the *Community Source Water*

Watersheds to ensure the integrity of the *drinking water supply* is maintained:

- Mineral exploration and production;
- Oil and gas exploration and production;
- Quarries;
- Hydro development;
- All-weather roads; and
- Related research.

- rationale for why some communities have Community Source Water Watershed Special Management Areas while others do not,

If this recommendation does not alleviate concern for communities currently not specifically protected under the Draft NLUP, Community Source Water Watershed Special Management Areas should be established to ensure long term protection of the drinking water supply from resource related exploration activities and development activities within the sub-watersheds of all Nunavut communities.

2.6 Overlap between Oil and Gas Development and Key Marine Features

The Draft NLUP states in 2.1 that its objectives include to “*protect, enhance and restore environmental quality*”, “*identify and provide protection for the natural environment, [and] areas of biological importance*”, “*address the requirements for conservation, management and protection of aquatic resources, their habitats and ecosystems*”, and “*protect the integrity of ecosystem...and wildlife habitats*” (Section 2.1, p. 23).

Under sections 2.1.2.2, 2.1.5.1 and 2.1.5.2, the NLUP recognizes that caribou sea ice crossings, Ecologically and Biologically Significant Areas (EBSA), and polynyas are all important marine features for Nunavut biodiversity. These features, however, are all assigned a Mixed Use Land Use Designation, which is the least protective land use category under the NLUP. While direction is given to regulatory authorities to mitigate impact on these areas, under the Mixed Use Designation, “all uses are considered to conform to the Plan, including mineral exploration and production, commercial fisheries, oil and gas activities...[and] shipping” (Chapter 6, p. 41).

In addition, under Section 2.1.3, sea ice is identified as “the primary influence on habitat use” for polar bears, and susceptible to climate change. Furthermore, multi-year ice is identified as important habitat for the species during winter months. Despite its important role, however, sea ice used by polar bears is not given a land use designation under the Plan.

Caribou sea ice crossings, polynyas and sea ice used by polar bears are dynamic in their location and duration. Although identifying and monitoring these features may be challenging, protecting them is important for Nunavut biodiversity, especially in the face of climate change and increasing marine shipping activity. It is difficult to assess the

adequacy of protection given to EBSAs in the Draft NLUP, since they are not defined, and currently are only identified at large spatial scales.

There is significant oil and gas potential in Nunavut, in particular:

- 1) the Sverdrup Basin in the northern Arctic Islands of the Qikiqtani Region,
- 2) the Eastern Arctic Basin along the eastern edge of Baffin Island of the Qikiqtani Region, and
- 3) the Foxe – Hudson Basin along the western edge of Baffin Island of the Qikiqtani Region and within the Hudson Bay area of the Kivalliq Region.

This creates widespread overlap between existing and oil and potential oil/gas and the key marine features identified in the NLUP. Examples of these overlaps are:

- 1) The presence of Oil and Gas Significant Discovery Licenses at site number 168 on Southampton Island. These occur in an area that overlaps with an EBSA (polynya), as well as a Key Bird Habitat Site – Boas River (site number 2), which has been assigned a SMA Land Use Designation.
- 2) The presence of Oil and Gas Licenses immediately east of the National Marine Park at Lancaster Sound.
- 3) The presence of a proposed National Park on Bathurst Island which occurs in the centre of the highly prospective Sverdrup Basin.

The NLUP should provide greater clarity on the levels of protection for key marine features (i.e., caribou sea ice crossings, EBSAs, polynyas, polar bear use of sea ice) in relation to the how it may affect access and use of these features by oil and gas exploration and production and commercial shipping.

It is recommended that EBSAs be defined in the NLUP to provide greater clarity and justification regarding why they are important components of the Plan.

In addition, identification and monitoring of these key marine features should be identified as a research priority in the NLUP, as sea conditions in Nunavut may change due to climate change and human activity in future.

3.0 CONCLUSION

This review of the Draft (2014) Nunavut Land Use Plan highlighted several shortcomings with respect to:

- 1) the overall approach,

- 2) the negative impacts on mineral, oil and gas potential,
- 3) the negative impacts on infrastructure development, and
- 4) protection of freshwater resources and marine areas.

The key conclusion of the review is that the decision-making process for establishing Land Use Designations has not been provided, supporting data are not consistently included or referenced in the Draft (2014) NLUP and there is no clear requirement for systematic review and update to incorporate new findings into the NLUP. There is not, therefore, sufficient information to determine the appropriateness of the Land Use Designations to meet the various goals for environmental protection and encouragement of development and growth outlined in the NLUP.

4.0 REFERENCES

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Parks Canada. 2007. Canadian Heritage Rivers System Strategic Plan 2008-2018.

NORMIN and NUMIN Databases – contain all the current and historic mineral exploration reports for Nunavut.

Geoscience Data Repository, Geological Survey of Canada, Earth Sciences Sector, Natural Resources Canada - contains all the current and historic geoscience data and surveys completed by the Government of Canada via Natural Resources Canada.