PRELIMINARY REPORT

SOCIAL IMPACT ASSESSMENT FOR THE NORTHERN AIRPORTS INFRASTRUCTURE IMPROVEMENT PROGRAM: KANGIRSUK

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SOMER

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1. INTRODUCTION

This report presents a summary of the information that has been collected in Kangirsuk on the social impact assessment for the Northern Airports Infrastructure Improvement Program. The information and findings on social impact contained in this document will be integrated into a Final Report that is being prepared by the consulting firm SOMER. The final report will also include findings of SOMER researchers on the bio-physical environment and urban landscape, and conclusions from a study on the archeological potential of Kangirsuk that was completed by the consulting firm Archéotec under contract with the Québec Ministry of Transport.

The 1070 meters (3,500 feet) airstrip that is proposed for Kangirsuk will replace a runway of 500 meters (1,500 feet) that has a soft poorly graded surface with no passenger or navigation facilities. The proposed airstrip will be built near the one presently used, but a new access road of 1.5 km is required. The new airstrip and access road will be linked to the road for the water point, and a new power house to be built closer to the airstrip, means that the airport facility will be integrated with a larger system of community infrastructure. The proposed airstrip will facilitate passenger and freight service for the 280 Inuit residing in Kangirsuk and for the Co-op, Hudson Bay Company, Kativik School Board, nursing station and smaller entities that comprise the economic and service structure of the community.

The requirements for an impact assessment study were introduced to Kangirsuk in a meeting on September 25, 1984, that was organized by Transport Québec and included the Municipal Council, research personnel from SOMER and Juusipi Ilimasaut of the Makivik Research Department. Field research for the social impact assessment was carried out in Kangirsuk from November 5 to 17, 1984, by William Kemp and Souie Gorup of

the Makivik Research Department. The information collected for the study, was obtained from a series of meetings with the Municipal Council and with representatives from the other community organizations. These meetings were supplemented by individual interviews, by a discussion on the FM radio and by many informal contacts that were made possible because the researchers were provided with work space in the municipal office building.

In Kangirsuk, the approach prefered by the community was to discuss a list of topics and concerns that was prepared by the Council after consultation with the researchers, and with Juusipi Ilimasaut who was in contract with the Municipal Council by phone after this trip to Ivugivik where he found out some of the problems encounted by Inuit community during the planning and construction of their airstrip in 1984. It was this format that structured the community discussions which, in term, gave rise to the data and conclusions that are presented in this report.

This report is divided into two parts. Part I provides a background and perspective on the Northern Airports Infrastructure Improvement Program and it summarizes the development of air service in northern Ouébec. Much of the information is based on a substantial revision and updating of material presented in the final report entitled "Social and Environmental Impact Assessment for the Northern Airports Infrastructure Improvement Program: Ivujivik" that was submitted to Le Service de l'Environnement, Ministère des Transports, Gouvernement du Ouébec, on March 30, 1984. Part I also reviews the methodology used in the social impact assessment study and it summarizes the communities point of view about the entire process of impact assessment. In order to advance the long term development of impact assessment procedures and their applications to planning and constructing airstrips, a review of the Ivujivik findings in light of the community's actual experience with construction is included in Part 1.

Part II presents the specific data and findings from the Kangirsuk study. In this section, Inuit knowledge and concerns, about the bio-physical environment, community infra-structure, economy and social life are described. The real or perceived impacts from the airstrip program on the community and environment are identified and appropriate corrective measures as developed by Inuit are defined. In order to assure that community concerns will be represented and possible impacts averted as specific planning decisions are made after submission of the Impact Study to the Kativik Environmental Quality Commission, a process for continued consultation and community participation in decision making related to the identification and resolution of impacts, is established. The need for such a process is clearly evident from the Ivujivik experience, since community consultation and the participation of the Inuit must keep pace with the finalization of project plans, the selection of contractors and with the organization and carrying out of the actual work.

2. THE NORTHERN AIRSTRIP PROGRAM

2.1 Project Justification

The fundamental need for the Northern Airports Infrastructure Improvement Program is based on the reality that air travel is the only feasible transportation alternative for the Inuit communities of northern Québec. This justification is strengthened by the fact that the airstrips now in use are both unsafe and unable to accommodate any improvement in services that are based on the use of larger aircraft. The construction of airstrips and airport facilities that are safe, and which have the capacity to accommodate different aircraft and expanding local needs, is vital for the health, safety and development of every northern Québec community. There are no other means of public transport available to the Inuit, and the future expansion and delivery of services within the region is fully dependent on the quality of air service.

In the world of today's Inuit, it is the airplane that saves lives, delivers essential goods and personnel, and facilitates the movement of travellers within the north and between north and south. Air travel has become a way of life for many Inuit who are active in the social, educational, political and economic development of northern Québec. This mode of transportation is gradually becoming more accessible to those Inuit wishing to travel for personal or professional reasons and to tourists or other southern based travellers. The adventures and delays of the "bush pilot" should be over, at least when flying on regularly scheduled service. However, many serious problems with northern air travel still exist. Most of these problems relate directly to poor quality of the airport infrastructure that characterizes every municipality north of the 55th parallel, except Kuujjuaq and Kuujjuarapik.

Community airstrips present a constant danger to pilots and air travellers. The runways are too short and too narrow, with soft and uneven surfaces that cannot be improved or easily maintained with the equipment and budgets available to the communities. Lighting and navigational

aids are poor or non existant and there are no passenger or freight facilities. Night landings often require the aid of snowmobile lights; beacons can guide a plane to the community but not get it to the ground; wind conditions and ceiling are guess work; and patients, passengers or freight may either freeze or get wet, depending on the season. Nevertheless, these airstrips are all there is, so they are used day in and day out, good weather and bad. They must accommodate the long dark of winter, the fog of summer and the rapidly changing weather conditions that can occur at any time. Most northern flyers soon realize that their only margin of safety lies in the technology of the STOL aircraft and in the skill and direct northern experience of the pilots.

Individuals, communities and northern organizations are all vitally concerned that the present conditions of air travel be greatly improved. Northern air service still involves frequent delays and many anxious moments, especially while flying at night or in bad weather. The skill and experience of pilots and the remarkable adaptability of the Twin Otter aircraft have reached the limits of their capacity to overcome poor and unsafe facilities. This can only be accomplished by upgrading the physical infrastructure and navigational aids.

The standards for improvement that have been set out in the Northern Airports Infrastructure Improvement Program will, in the mind of Inuit, create a significant and positive change in the quality of air service, that is already long overdue. Inuit state that the most important change will be the safety of air travellers and the improved conditions for evacuating the sick and injured. Inuit also realize that improvements in the airport infrastructure will have significant implications for the economic, social and political development of their communities and the region.

2.2 The Northern Airport

The precarious state of the airports was an important subject for negotiations related to the James Bay and Northern Québec Agreement.

Before the signing of the Agreement, the then-Minister of Indian Affairs and Northern Development, Mr. Judd Buchanan, in a letter dated November 15, 1974, addressed to Mr. Charlie Watt, President of the Northern Québec Inuit Association, stated Canada's commitment to undertake the construction of adequate airstrips for permanent northern communities. Negotiations began in 1975, and from 1981 until the fall of 1983, long and complex negotiations were needed to reach an acceptable agreement on the improvement of community airstrips.

On September 27, 1983, a comprehensive agreement was signed by the federal and provincial governments, creating the Northern Airports Infrastructure Improvement Program. The stated objective of this program is to promote the economic and social development of northern Québec. The program calls for Québec and Canada to jointly plan and carry out the construction of new, or upgrading of present, airstrips and other infrastructures in eleven Inuit communities north of the 55th parallel. At a meeting held in March 1983, the mayors of all eleven communities established the following priority list for airport construction: Salluit, Ivujivik, Povungnituk, Kangirsuk, Tasiujaq, Inukjuak, Kangiqsujjuaq, Quaqtaq, Kangiqsualujjuaq, Akulivik and Aupaluk. This list was formally ratified by a resolution of the Council of the Kativik Regional Government. The mayors also indicated that the planned community of Umiujaq (Richmond Gulf) and the proposed community of Taqpangayuk (Singer Inlet) would have to be included on their priority list when relocation agreements are signed and funding provided.

The program began in August 1984, at Ivujivik and it is scheduled to continue for approximately 10 years. As of January 1985, the program has not followed the schedule since the location of the Salluit airstrip has caused major problems. This delay means that the most dangerous situation for air travel in northern Québec will not be resolved as quickly as needed for the safety of air travellers. A decision to proceed with Salluit was made on December 13, 1984. The new schedule now calls for Ivujivik to be completed in early summer 1985, and Salluit and Kangirsuk to be started in the summer of 1985.

The cost of the Northern Airports Infrastructure Improvement Program is estimated to be $68.5 million. This amount will not be indexed over the duration of the program. Québec will pay 40% of the total and the Federal government, 60%. The Federal government will be responsible for the selection of each airstrip site, technical studies and engineering plans, project costing, and for the purchase, installation and maintenance of navigational aids. Transport Québec, as the proponent, is responsible for the environmental and social impact studies; the purchase and maintenance of mobile equipment required for the construction and operation of the airports; and for obtaining the required rights and authorizations needed for construction. Transport Québec will also be responsible for the long term operation and maintenance of airport facilities and equipment, with the exception of navigational aids.

The program is the same for each community except Povungnituk and will include: a gravel runway, 1,065 m (3,500 ft) long and 30 m (100 ft) wide, a taxi way and parking area, a system of airstrip lights and navigational aids; facilities for passengers, freight, equipment, and airport operations. An access road to the airstrip will be built or improved and power transmission lines will be erected. At Povungnituk, a 1,220 to 1,370 m (4,000 to 4,500 ft) paved airstrip will be constructed to provide jet ambulance service for the new hospital. A program for training Inuit to operate heavy equipment during the construction phase is now underway and further training will be provided to assure permanent employment of Inuit in the operation and maintenance of the completed airport infrastructure.

2.3 Development of Air Services in Northern Québec

The utilisation of the airplane in northern Québec has a history that began in 1927, when a major air survey was undertaken in the vicinity of Ivujivik and Kangiqsujuaq. In the 1940's, major airstrips were built at Kuujjuaq and Kuujjuarapik in support of the military effort of World

War II. In the early 1950's, a sophisticated airport infrastructure associated with the Direct Early Warning (DEW) radar system was established in the Northwest Territories. This sopisticated air network did nothing to ameliorate the severe problems that were facing eastern Arctic Inuit at that particular time in their history. Personnel, material and fresh foods could be routinely delivered to remote radar sites, but the needs of the Inuit population of Québec and the Northwest Territories could not be met. Although there were many discussions and an active exchange of memos and correspondence about the critical need for an improved northern air service, no general policies nor specific programs were put forward. Thus it seemed quite easy to overcome the obstacles of getting airlifted supplies into a defense establishment but almost impossible to routinely move vaccines or other critical materials into Inuit settlements.

Charter service using single engine aircraft with float or ski landings, characterized air travel from 1955 to around 1970 for most communities. Flights were erratic and at its best, single engine charter service could never respond to the changing needs of northern people or to the growing responsibility of government to provide improved health and other services. During these years, no one was able to depend on air service as a reliable means of northern travel. Chartering a plane could secure priority of use and determine destinations but it could never guarantee the actual completion of a northern air journey. Until the development of land-based airstrips, there was service during freeze-up and break-up; each of which could last from four to six weeks. At other times of the year, poor weather, especially fog, caused prolonged delays. There was no regularity to freight or mail and no assurance that even the most critical circumstances of sickness or other community problem could be alleviated by calling in an aircraft. Throughout the mid-1950's to the late 1960's, there were occasional air borne miracles, but there were also many tragedies occasioned by the fact that no infrastructure was developed for community air service.

In the 1960's, charter service for the Ungava region was based in Kuujjuaq and relied on single engine Beavers, Norsemen or Otters equipped with skies or floats. For special purposes, such as the movement of personnel or heavy equipment, Cansos were available for water landings and DC-3's could be used on the winter ice. Wheeler Airlines and St- Félicien Air Service were common names in the Ungava Bay region. On the Hudson Bay coast, Austin Airways established charter and mail service as far north as Povungnituk, basing their operation in Timmins and Moosonee, Ontario.

In the early 1970's, small community airstrips started to be built, and it was hoped that 'charter only' air service could eventually be replaced by some type of scheduled flights. From 1972 to 1977, some of the airstrips were extended and, in 1978, a federal-provincial agreement on airstrips provided $100,000 per community for upgrading. In the late 1970's, the use of Twin Otter aircraft became more common, and regularly scheduled air service was established by Austin Airways on the Hudson Bay coast and by Survair in Ungava bay.

2.4 Present and Future Air Service

In 1977, Air Inuit was incorporated and began scheduled service for the Ungava Bay and Hudson Strait routes. On January, 16, 1984, Air Inuit acquired the Austin Airways route and mail contract for all points from Kuujjuarapik north to Salluit and across Hudson Strait to Cape Dorset. Since January 1984, Twin Otter air service operated by Air Inuit is available to every municipality north of the 55th parallel. The development of essential airport and navigational facilities have not however, kept pace with improved air service and this fact has had a serious negative impact on the delivery of safe and efficient air travel. Characteristics of airstrips in Northern Québec are summarized in Table 1, and comparisons with Eastern Artic communities of the Northwest Territories are described in Table 2. The air service network for Québec and the Eastern Arctic is illustrated in Figures 1 and 2.

TABLE 1

NORTHERN OUÉBEC AIRSTRIPS

	LENGTH Meters	LENGTH Feet	WIDTH Meters	WIDTH Feet	EVALUATION OF CONDITION	ACCESS
INUKJUAK	610	2000	34	111	sandy and very soft	adjacent to the village
POVUNGNITUK	280	800	20	63	bad	5 km of road in bad condition
AKULIVIK	366	1200	30	96	bad	adjacent to the village
IVUJIVIK	250	810	25	81	good	adjacent to the village
SALLUIT	458	1500	23	73	dangerous	1.5 km of road to be constructed
KANGIOSUJUAO	400	1300	20	63	good (soft)	approximately 500 m. from the village
OUAQTAO	400	1300	25	81	pitiful	300 m. from the village
KANGIRSUK	**350**	**1100**	**20**	**63**	**bad**	**1.7 km from the village, on the hillside, bad condition**
AUPALUK	450	1500	20	63	very soft	adjacent to the village
TASIUJAO	750	2400	30	96	good	0.7 km of good road
KANGIOSUALUJJUAO	650	2100	25	81	dangerous	300 m. to the village

Note: These statistics were gathered by Transport Québec and reflect the size and condition as of 1980.

TABLE 2

NORTHWEST TERRITORIES AIRSTRIP INFRASTRUCTURE

	LENGTH (Feet)	WIDTH (Feet)	BEACON	LIGHTS
FROBISHER BAY	9000	200	X	X
LAKE HARBOUR	1700	50	X	X
RANKIN INLET	5000	150	X	X
PELLY BAY	3524	110	X	X
IGLOOLIK	3500	75	X	X
HALL BEACH	5400	150	X	X
REPULSE BAY	3400	100	X	X
CORAL HARBOUR	5200 6000	140 200	X X	X X
CAPE DORSET	4000	100	X	X
RESOLUTE BAY	6500 4000	200 150	X X	X X
PANGNIRTUNG	2500	100	X	X
NANISIVIK	6400	150	X	X
POND INLET	4000	100	X	X
CLYDE RIVER	3500	100	X	X
BROUGHTON ISL.	3475	98	X	X

Figure 1

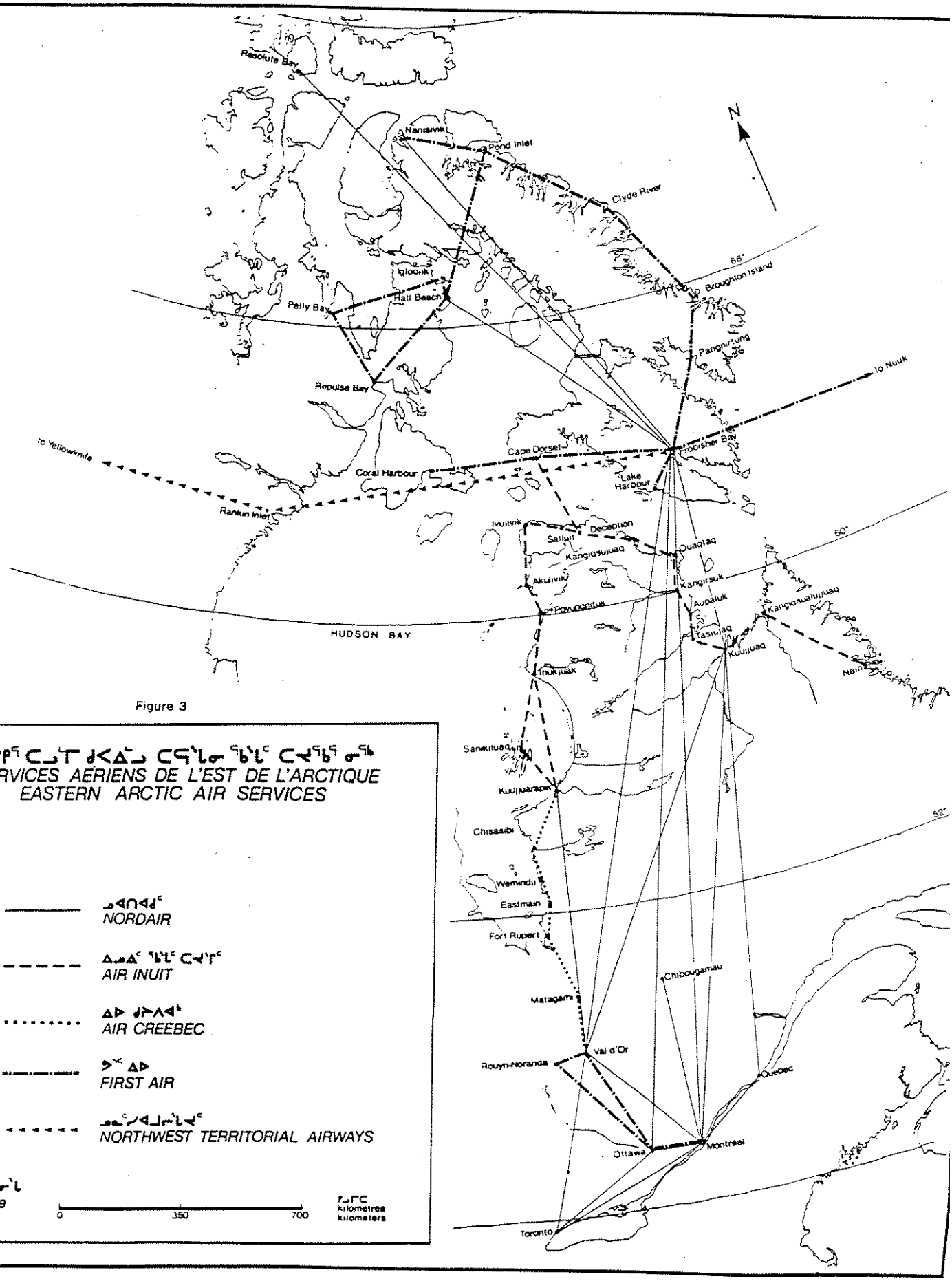

Figure 3

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SERVICES AÉRIENS DE L'EST DE L'ARCTIQUE
EASTERN ARCTIC AIR SERVICES

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Figure 2

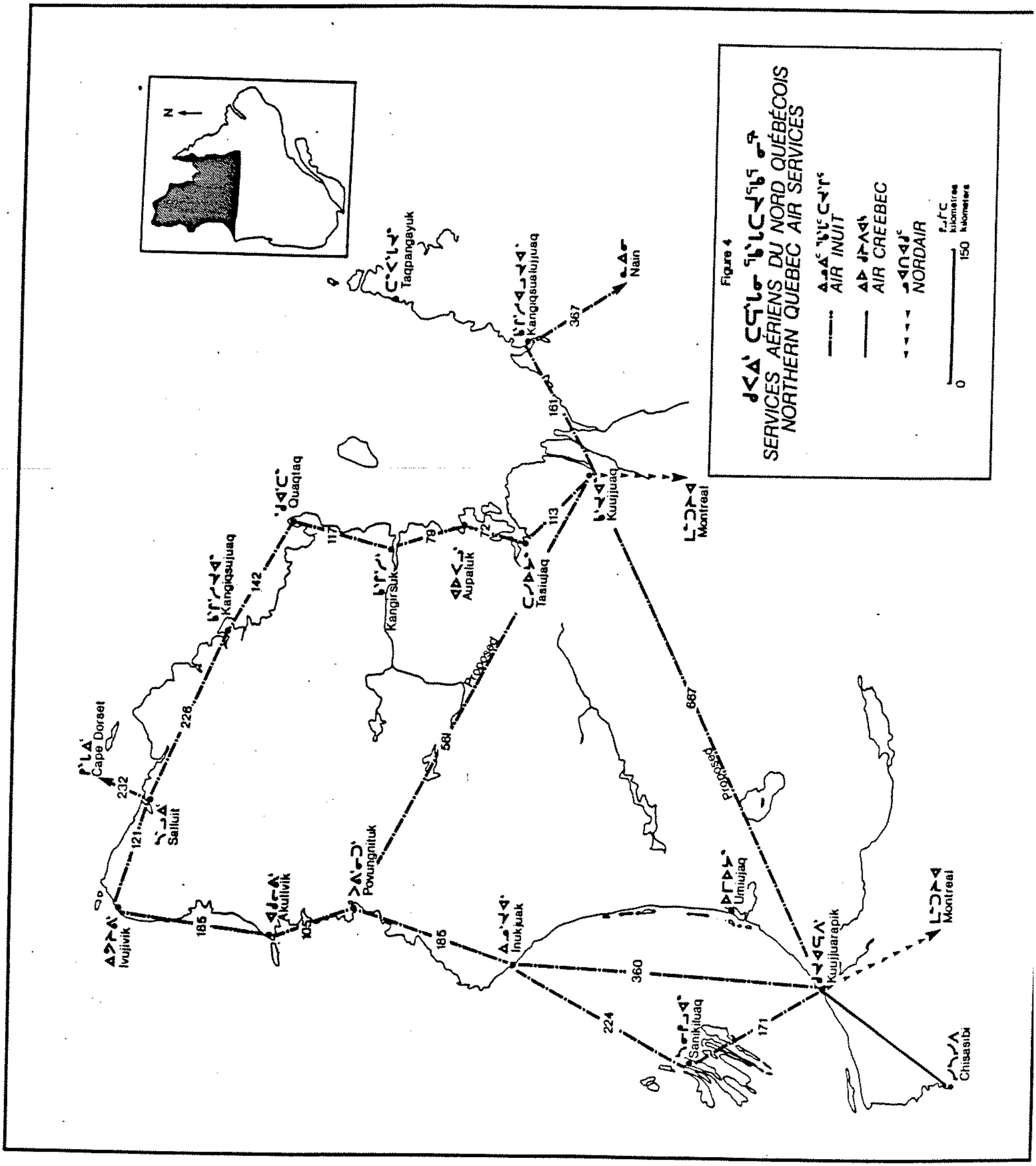
Figure 4
SERVICES AÉRIENS DU NORD QUÉBÉCOIS
NORTHERN QUEBEC AIR SERVICES
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AIR CREEBEC
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Kangiqsualujjuaq
Nain
367
161
Kuujjuaq
Montreal
113
72
79
117
Quaqtaq
Aupaluk
Tasiujaq
Kangirsuk
142
Kangiqsujuaq
Proposed
226
Cape Dorset
232
581
687
Salluit
121
Ivujivik
185
Akulivik
105
Povungnituk
186
Inukjuak
Umiujaq
360
224
Kuujjuarapik
Montreal
171
Sanikiluaq
Chisasibi

Air Inuit operates De Havilland Twin Otter aircraft out of Kuujjuarapik and Kuujjuaq. Overnight bases are maintained at Povungnituk and Ouaqtaq to facilitate early morning travel south to Kuujjuaq or Kuujjuarapik for connections to Nordair. The planes stationed at Povungnituk are used to service Akulivik, Ivujivik and Salluit to the north, Inukjuak and Sanikiluaq to the south, and to provide once a week service between Salluit and Cape Dorset. In the summer of 1984, once a week air service was initiated between Kuujjuaq and Kuujjuarapik, using aHawker-Siddley 748 aircraft. Movement from the Ungava to the Hudson Bay coast can also take place on Saturdays by travelling north to Salluit and connecting with the flight for Povungnituk. Weather conditions, however, can often make such a trip very risky, with long delays. Consequenty, movement between coasts frequently requires travelling.

Pilots, users and management all express confidence in the role of Twin Otter aircraft for northern service. It was this development in technology (short take-off and landing capability), rather than any significant upgrading of the airport infrastructure, that has enabled the present level of air service to be established and maintained. The Twin Otter aircraft, however, is both expensive to purchase and to operate. The freight payload is 1,134 Kg (2,500 lbs.) maximum and it can carry 20 passengers with 2 pilots. It is considered to be slow with a cruising speed of 130 nautical miles per hour, which is significantly reduced when strong headwinds are encountered. Since the planes are constantly combining freight and passenger service, it is impossible to have any on-board facilities for passenger comfort. Space is often cramped and the seats uncomfortable for long distance travel. It should be noted that the flight from Kuujjuaq to Salluit is 616 km and takes 4 hours when stopping in other communities. Kuujjuarapik to Salluit, is 800 km and takes 5.5 hours. Time spent in the air is often greatly extended when a destination cannot be reached and the flight has to return to its point of departure.

Precise information on passenger and freight volume is not available for either the Hudson Bay or Ungava Bay coast. Tables 3 and 4 provide an indication of the volume of passengers movement between

communities for 1984. These figures only represent scheduled passenger service, not charter flights that comprise approximately 20 per cent of Air Inuit business and which move a considerable number of people and pounds of freight.

Air Inuit is currently able to meet passenger demand as it exists on a day to day basis, although there are problems of overcrowded flights, schedule delays and poor connections. Special situations requiring the transport of large groups of people medical evacuations or off schedule travel can only be accomplished by charter service. Estimates of total air service are more accurate therefore when using total hours flown. This figure has increased steadily from 1979 to 1983. In 1979, Air Inuit flew 2,928 hours. By 1983, this figure almost doubled to 5,650 hours. The 1984 figure illustrates almost a 100% per cent increase to 11,000 hours. In order to meet the demand represented by these hours, eight Twin Otters are now in use. Early in 1985, Air Inuit will purchase an HS-748.

Travel patterns in the north are dependent on many factors. Travelers can be divided into two groups: those that travel for business or professional reasons and those that travel for personal reasons. The majority of those in the first group have their airfares paid by an organization, and most of their travel is to the south via Kuujjuaq - Kuujjarapik. The figures in Table 3 and 4 show that a total of 22,061 individuals departed the 18 communities and that 7,295 or 33 per cent of them travelled to either Kuujjuaq or Kuujjarapik. For all other departures the overwhelming majority or approximately 70 per cent only travelled one community away. Part of this fact reflects individuals business who move through the region community by community. Most, however, probably represents the travelling northern public that has a more limited range of either travel need or affordability. A review of passenger information from Salluit for 1983 supports these generalizations. For those travelling from Salluit to either Kuujjuaq or Kuujjuarapik, 78 per cent were paid for by an agency. For the two closer communities, only 14 per cent were paid for by an agency.

TABLE 3

UNGAVA COAST AVERAGE PASSENGER VOLUME 1984	KUUJJUAQ	AUPALUK	TASIUJAQ	KANGIRSUK	QUAQTAQ	KANGIQSUJUAQ	SALLUIT	DECEPTION BAY	KANGIQSUALUJJUAQ	NAIN	ASBESTOS	KUUJJUARAPIK
KUUJJUAQ	---	483	524	743	555	389	497	16	869	51	27	0
AUPALUK	408	---	95	267	39	17	4	0	3	0	0	0
TASIUJAQ	504	115	---	48	41	9	7	0	4	0	0	0
KANGIRSUK	649	223	57	---	236	47	83	0	4	0	0	0
QUAQTAQ	484	32	44	192	---	161	47	4	9	1	5	0
KANGIQSUJUAQ	356	5	7	95	145	---	232	1	0	0	3	0
SALLUIT	413	12	7	77	75	196	---	8	12	0	15	0
DECEPTION BAY	61	0	3	0	3	0	16	---	0	0	0	0
KANGIQSUALUJJUAQ	633	0	4	0	8	4	3	0	---	116	0	0
NAIN	51	0	1	0	3	0	1	0	127	---	0	0
ASBESTOS	71	0	0	3	5	0	3	0	0	0	---	0
KUUJJUARAPIK	63	0	0	0	0	0	0	0	0	0	0	---

TABLE 4

HUDSON BAY COAST AVERAGE PASSENGER VOLUME 1984	KUUJJUARAPIK	SANIKILUAQ	INUKJUAK	POVUNGNITUK	AKULIVIK	IVUJIVIK	SALLUIT	CAPE DORSET	LA GRANDE	QUAQTAQ	KUUJJUAQ
KUUJJUARAPIK	---	639	1116	991	161	76	141	0	11	0	19
SANIKILUAQ	711	---	111	13	0	1	11	4	0	0	0
INUKJUAK	1223	101	---	613	65	21	89	13	0	0	0
POVUNGNITUK	1265	33	699	---	379	139	203	16	0	0	0
AKULIVIK	10	4	59	436	---	44	88	8	0	0	0
IVUJIVKI	116	0	16	233	75	---	201	15	0	0	0
SALLUIT	115	1	59	269	101	160	---	72	0	1	0
CAPE DORSET	1	1	4	15	5	13	95	---	0	0	0
AUPALUK	0	0	4	0	0	0	0	0	0	0	0
KANGIQSUALUJJUAQ	0	0	0	0	0	0	1	0	0	0	0
KUUJJUAQ	35	0	0	0	0	0	0	0	0	0	---
QUAQTAQ	0	0	0	0	0	0	0	1	0	---	0
KANGIRSUK	0	0	0	0	0	0	0	1	0	0	0

TABLE 5

CARGO MOVEMENT 1984
(AVERAGE PER POUNDS)

	KUUJJUAQ	TASIUJAQ	AUPALUK	KANGIRSUQ	QUARTAQ	KANGIRSUJUAQ	SALLUIT	KANGIQSUALUJJUAQ	DECEPTION BAY	TOTAL
KUUJJUAQ	------	51,111	32,740	75,070	43,310	50,685	62,291	94,619	1,953	411,779
TASIUJAQ	8,011	------	1,144	100	96	776	0	0	0	10,127
AUPALUK	6,767	573	------	628	442	327	0	0	0	8,737
KANGIRSUK	15,293	806	2,018	------	1,395	60	1,445	48	0	21,065
QUAQTAQ	14,182	517	185	3,136	------	309	185	142	0	18,656
KANGIQSUJUAQ	6,586	56	590	524	1,296	------	5,699	0	0	14,751
SALLUIT	6,384	40	0	38	33	265	------	0	0	6,760
KANGIQSUALUJJUAQ	27,745	0	201	1,168	33	55	0	------	98	29,300
DECEPTION BAY	1,080	0	0	0	0	0	0	229	------	1,309
TOTAL	86,048	53,103	36,878	80,664	46,605	52,477	69,620	95,038	2,051	522,484

The cost of northern air travel continues to be very high and it is argued that it is not possible to make significant progress in lowering this cost until there are more options available for the type of aircraft that can be used. If a person wants to travel directly from Kuujjuaq to Salluit, for example a return ticket will cost $468. If all of the communities are visited en route the cost will be $882. If travel requires a trip south, then another $736 must be added to the total fare. A return trip from Kangirsuk to Inukjuak will cost $1,060 via Salluit, $872 via 748 service and $2,006 via Montreal. Northern travel is expensive and when travelling between the coasts or to the south it can also be very tine consuming. For example, a mid-week meeting of one day in Montréal requires people from Ivujivik or Salluit to be gone for a minimum of six to eight days, which usually includes at least one weekend. The average cost of this trip is $1,000 for lodging and meals, and $1,800 for travel.

Freight costs also create problems in the economic development of the north although some options are available for the shipment of smaller items. The use of Canada Post can significantly reduce freight costs, but here are limitations on weight and size. If the limitations on size do not pose a problem, then a 30 kg. package can be shipped from Montreal to Salluit via Kuujjuaq via post for $11.40 the same package cent air freight will cost $119.70.

Charter service is an essential element of northern air travel, from both Kuujjuaq and Kuujjuarapik. In addition to Air Inuit, Johnny May Air Charters, a privately-owned company based in Kuujjuaq, operates a charter only service with one Cessna 185, two Beavers, and one twin engine Aztec. Air charters using single engine aircraft or the Aztec are less expensive and they provide the only float or ski service into remote areas. The range of this operation is somewhat restricted by an absence of aviation gas in many communities, and by weather conditions that are often more limiting when flying visual flight rules. The Cessna 185 is expected to average 400 to 450 flying hours per year on floats only; the Beavers 1,100 to 1,500 hours and the Aztec 160 to 200 flying hours.

A major source of charter business for the Ungava Bay region is the fishing and caribou hunting camps that operate from mid-July to late September. The Ungava Bay region has sixteen active tourist camps and there are five areas where permits have been issued for future development. At the present time, there are no active outfitting camps on the Hudson Bay or Hudson Strait coast, although three permits have been issued for sites in the Povungituk region. One of the problems that is said to to limit tourist camp operations on the Hudson Bay coast is the unreliable 737 flights into Kuujjuarapik.

2.4.1 Future Planning

Northern residents are outspoken about the problem with air travel and they are determined to make their voice heard. The Inuit accept the fact that major changes can not be accomplished until the physical infrastructure is greatly improved. They also insist that the improvements must be to the same standards in every community to assure that decisions on equipment used and the facilities required, do not have to vary because of different requirements in each community. This, they say, would be expensive and therefore slow the process of improvement.

The terms of reference for the impact assessment focuses primarily on the construction of an airstrip, but this is not a narrowly defined subject in the minds of Inuit. The terms of reference for this airstrip impact assessment define specific topics with respect to the bio-physical, social and urban environment, but Inuit are equally concerned with many other airstrip related issues that are more likely to have an impact on their lives. Service, schedules, fares and freight rates; safety and the personnel treatment and respect for Inuit passengers; access to specific information about flights and more general information about the operations and priorities of northern air service; and the availability of adequate personnel and ground support within each community are the issues most frequently raised in the community meetings.

A major limitation for the development of future air service is the inability to provide efficient cargo service. Cargo shipments are the lifeline of each community and it is not possible to carry enough combined passenger/cargo loads with Twin Otters to be economical. At the same time, Air Inuit cannot maintain enough Twin Otters to run cargo only. Larger aircraft would greatly improve the situation and it is assumed by Air Inuit that the capacity to carry greater payloads would generate a growth in the demand for air service. The HS 748 aircraft, for example, has an average freight payload of 5,215 kg (11,500 lbs). Even the utilisation of the Macdonnell-Douglas DC-3 in all seasons provides a freight capacity that averages 2,945 kg (6,500 lbs). Both of these aircraft can operate on an airstrip of 1,065 m (3,500 ft). A summary of the characteristics and requirements for aircrafts used in the north are illustrated in Table 5.

The need for greater freight capacity of aircraft must, in the future, be integrated with plans to decrease the volume transported by the annual sealift. It is becoming more apparent that some of the cargo now sent north by ship once a year, would be sent by air, alleviating long delays in receiving items such as building materials, equipment, parts, vehicles and food. This service would also significantly reduce warehousing costs and enable organizations to carry smaller inventories and thus plan more efficiently. Management personnel of Air Inuit felt the larger payloads would help slow down the fare and rate increases over time which, according to airline management, would mean savings to the consumer.

The new 3500' airstrips and their supporting infrastructure will allow Air Inuit to expand its operations to include the acquisition of more appropriate and cost efficient aircraft and to develop new staging points which will increase the efficiency of service for passengers. This could, for example, mean that planes are stationed in one of the Ungava Bay communities, thus dividing the present "long run" up the Ungava coast from Kuujjuaq to Salluit into a different arrangement of routes.

TABLE 6

CHARACTERISTICS OF AIRCRAFT USED IN NORTHERN OPERATIONS

TYPE OF AIRCRAFT	FREIGHT CAPACITY (FULL TANK)	PASSENGER CAPACITY (FULL TANK)	RANGE OF AIRCRAFT (FULL TANK)	FUEL TYPE	REQ'D RUNWAY LENGTH WIDTH
BOEING 737	22,000 lbs.	119	5 hours	JET	6,000 ft.
F 27	10-12,000 lbs.	20 30	8 hours 6.5 hours	JET	4,500 ft.
HS-125	3-4,000 lbs.	8-10	3.5 hours	JET	4,500 ft.
HS-748	11,500 lbs.	52	6 hours	JET	3,500 ft.
DC-3	6,500 lbs.	28	10 hours	AVGAS	3,500 ft.
DHC-4 CARIBOU	5,608 lbs.	30	7-9.8 hours	AVGAS	2,030 ft.
DHC-6 TWIN OTTER	3,000 lbs.	16	5.25 hours	JET	1,500 ft.
SINGLE OTTER	2,003 lbs.	11	n/a	AVGAS	1,600 ft.
BEAVER	1,000 lbs.	4-5	6 hours	AVGAS	1,200 ft.
AZTEC	1,000 lbs.	5	6 hours	AVGAS	1,500 ft.
CESSNA 185	800-900 lbs.	3	6 hours	AVGAS	800 ft.

There is also the concern with the placement of services in the northermmost point at Salluit so that both coasts can be served from a single point. As pointed out above, direct air service between Kuujjuaq and Kuujjuarapik was established in the fall of 1984. This link has yet to prove itself as an integrating force between the two coasts. The next phase in a more integrated air system will connect the Ungava Bay and Hudson Bay network in the north at Salluit. This development will strengthen all three major points of the air service triangle; Kuujjuaq, Kuujjuarapik and Salluit. The intended relocation from Kuujjuarapik to Umiujaq, coupled with the longer paved air strip to be built in Povungnituk, may mean that this community could replace Kuujjuarapik as the western point of the triangle.

Many scenarios can be suggested for future air service but there is no accurate way to establish a specific plan prior to at least the partial completion of the infrastructure improvement program. The program will take at least 10 years to finalize and until then, service and planning can only incorporate the pices, not create a unified system. Most important, safety will be greatly improved; safety of passengers, communities, pilots and equipment. The communities will achieve a greater sense of security knowing that medical evacuations will be possible day or night and that direct flights from any community to Québec City or Montréal by aircraft could be available. This peace of mind cannot be measured in payloads and air hours but it remains a central concern of the communities. Important decisions on future air transport networks will be included as part of continuing discussions on the economic future of northern Québec and specific choices should become part of a structure that will be suggested once an integrated plan for regional economic development is formulated for northern Québec.

3. INUIT PERCEPTION OF IMPACT ASSESSMENT AND PLANNING

3.1 General Principles of Inuit Involvement

The research methodology applied to impact assessment studies in the north must identify problems and address issues that are relevant to the current conditions and long term needs of Inuit. In order to help accomplish this task, the methods used in the Povungnituk study are part of a larger program within the Makivik Research Department that is concerned with the use of Inuit knowledge as an essential element in northern research. The program is also concerned with the development of Inuit expertise in the design and execution of research, and in the evaluation and application of research findings. This approach can best be accomplished through the creation of a cooperative association between Inuit and southern-trained scientific personnel. Both groups have the capacity to act as teachers rather than lose themselves in endless argument over "who knows best".

The effective participation of Inuit in cooperative research involves five basic principles. First, each group must respect the knowledge of the other. Inuit knowledge is reflected in the vast amount of information that has been acquired over time about the behaviour, patterns, cycles and eccentricities of the biological and physical environment. Such an approach to learning is significantly different from the formal, often very imperical and precisely structured studies that characterize southern science. Second, both groups must also respect the means by which information is collected, organized and arranged in a coherent structure. For Inuit, the nature of this structure differs considerably from that which characterizes southern scientific thought. Third, the specific information and organized knowledge of both Inuit and southern sicentists is bounded by certain restraints and limitations that must be identified and respected. Cooperative research should act as one important catalyst for creating a new integration between northern and southern frames of reference that is required by the first three principles.

The fourth and fifth principles involve certain political as well as scientific implications if they are to be acted on. Fourth. The quality and accuracy of both northern and southern knowledge need not be evaluated on the degree to which they correspond. At times, the knowledge of one group can provide answers to the questions asked by the other group. At other times, the explanations of both group may differ significantly yet both explanations can be equally correct in explaining the problem under investigation. Finally, the conflict in knowledge and explanation may be very real. At times, cooperation will allow for a common answer to be found or it may mean that both groups must maintain a separate understanding of the problem and its resolution. The fifth principle applies primarily to the utilization Inuit knowledge. What Inuit know will only assume its rightful place in the larger framework of explanation if the rules that govern the conduct of inquiry and if the hierarchy that controls these rules are modified to accomodate and give equal value to the Inuit way of viewing and understanding the world.

The development and application of these principles to northern research requires time. The impact assessment studies provide an opportunity to develop the process yet another step and, at the same time, to provide the Inuit of northern Québec with a series of community studies that reflect their ideas and concerns about the airstrip program and its impact. Overtime a new methodology will emerge and new research associations will be created. As the impact assessment process changes and evolves so will its relevance for the Inuit of northern Québec.

3.2 An Overview of the Inuit Perspective

Social impact assessment in the north can only be effective if it incorporates the perspectives, values and participation of Inuit in each of the four phases that comprise the assessment process. These phases are: establishing the terms of reference for impact assessment studies; participating in the planning and execution of these studies; maintaining membership in the Environmental Quality Commission; and exercising a

control over decisions that occur during the final stage of project planning and throughout actual construction.

Access to information and decision-making, through the Environmental Ouality Commission, is the cornerstone of Inuit involvement in impact assessment. At the present time the Inuit hold three positions on the Commission and, consequently, they have the opportunity to contribute specific knowledge, perspective and values to the deliberations and decisions on the merits and conditions of development projects. Inuit have also have the opportunity to participate in the design and execution of research and data analysis for impact assessment studies the airstrips, through the Makivik Research Department and through the archeological program between Transport Québec and Avataq Cultural Institute.

The most important problem that must be resolved, is how Inuit can participate more effectively in Phases 1 and 4 of the assessment process. Participation in Phase 1 requires that a well-defined procedure be established to assure that Inuit have a continuing voice in determining the content for the terms of reference that must be submitted by project proponents. The need for establishing this role is demonstrated by the fact that Inuit do not feel they are presently able to make any significant contribution towards setting the principles, questions and priorities for impact assessment studies. To this end, the Inuit are adamant in their opinion about what elements in the life of their communities are communities are most important with respect to potential impact from projects. They also cautioned researchers not to try to establish the only value system around which the positive and negative impacts from airstrips or other projects should be evaluated.

Inuit question who controls the assessment procedure; what type of protection impact assessment actually provides for the bio-physical and socio-economic environment of their community and region; why these protections are needed; and how specific impacts are determined and corrective or remedial measures established. In order to answer these questions, appropriate terms of reference must be developed so that they

identify problems and address issues that are relavent to the current conditions and long term needs of Inuit.

Such an approach does not mean that southern-based concerns are disregarded, or basic principles of research and analysis ignored. It simply means that the context for identifying and solving problems must be enlarged and the time frame, methods and statement of results made accountable to Inuit. What these questions imply is that the proponent of a development project must be able to interact with Inuit values and points of view in a manner that enables a cross cultural understanding of problems and their solutions to be addressed in the terms of reference in the research and in the recommendations. An excellent model of how Inuit can be included is illustrated by the way in which the archeologists of Transport Québec have worked with Avataq Cultural Institute. Appropriate terms of reference for the archeological surveys required for the airstrip program have been designed; a structure for training Inuit to undertake the research is being put in place; and a means for Inuit to evaluate the findings and implement the recommendations has been established.

Closely tied to the question of social impact assessment is the question of planning and of establishing a better framework for coordinating all of the different decisions that are made on behalf of the community by outsiders who are themselves usually not knowledgeable of one another. Fieldwork on social impact assessment for the northern airstrips has now been carried out in four communities and there is a coalescing of Inuit opinion about their roles and their rights in this process. Ideas first stated at Salluit and Ivujivik were heard again in Povungnituk and Kangirsuk, and the experiences of Ivujivik are being heard in the other communities. In particular, questions are raised about how the Inuit can gain an effective sharing of control over a process that in itself has such a strong potential for negative impact.

The Inuit considered that impacts resulting from the airstrip or other community infrastructure developments are often related to ineffective planning. They questioned why it seemed to take impact assessment for a project to create a concern about planning. The problem as stated by Inuit is that no one is really in control of community planning and thus, every mandate is treated in isolation. They called upon the different organizations that were proposing projects to coordinate their plans and specific requirements prior to coming to the community. It was felt that the municipal councils or other bodies could never make rational decisions since they never knew the full range of issues.

The Inuit felt that certain groups were very naive about the requirements of northern projects and the type of planning that was necessary to make them successful. They also said they felt that some of the people sent to do studies are unaware of how to work in the north, and do not ask the proper questions or seem to understand the issues. These people are said to bother the community and it is felt they can not write strong reports if they are unprepared and do not have the time to understand.

The Inuit stated that, although it may be the mandate of project proponents to identify planning requirements and impact assessment, it is the communities that are penalized when improper studies and poor consultation lead to the failure of a project to meet the criteria necessary for the review process. If a project needed by the community is rejected because of poor planning, or because the people were not able to do a proper study, it is the community that is the big loser.

These concerns are well summarized in the statements that were made in a formal meeting of the Kangirsuk Municipal Council on November 12, 1984.

> You say that you are here to find out how the new airstrip will affect our lives, and we don't know why you bother to ask that question because it should be clear to anyone who knows our problems. But it always seems that people down south know more about our problems than we do because their answers are stronger than ours. (...)
>
> If everybody in all the governments is worried about all that is going on up here in this community, why do they come to us the very last, after everything is done, to ask what we think; does it matter to them anyway if we like something or are against something. You are asking all these questions about a little airstrip, but are people busy asking why all those caribou were killed by one of those projects your people had to have. If we cooperate and tell you what we think or what we worry about, will anybody down south pay attention if they think we should be thinking or worrying about something else?

3.3 Inuit Concern with Ivujivik Project

The acquisition of a better understanding about the meaning of impact assessment, the role of assessment studies, and the responsibilities of both the communities, the proponent and the other interest groups, comes about through actual experiences with, and evaluation of, the process. Thus the Inuit wanted to know more about Ivujivik before they started reviewing another community airstrip. The idea was raised and acted upon by Juusipi Illimasaut as a way to increase community knowledge and to animate the upcoming field studies. A three-day trip to Ivujivik has provided important insights about the project in relationship to the assessment study, the post assessment study planning and the actual construction. The following comments are derived from the taped and written notes in Inuktitut that resulted from formal discussion with the Council and other individuals. The notes assembled by Juusipi Illimasaut included a series of topics that were classified as comments from the Municipal Council; problems voiced by the people of Ivujivik; and problems arising from construction activities.

3.3.1 The Council Viewpoint

The Municipal Council of Ivujivik expressed that the construction of their airport will greatly improve that facility and that they are very pleased with a long airstrip. However pleased that they are, they feel that there have to be some improvements made to the procedures of making airstrips in the Inuit territory so that other communities might benefit from the Ivujivik experience. There are certain problems. Therefore, the other communities must prepare themselves in advance in order to be ready for the renovation of their airstrips. The organizations should be concerned over this and Makivik Corporation and Transport Québec should always know exactly what is going on. And also, the president of the construction company building the airstrip should come to the community often to see construction of the airport before it is completed.

3.3.2 Dynamiting Problems

The construction of the Ivujivik airstrip has required dynamiting, the explosions are noisy and the Municipal Council said it was bothersome but could not be helped because rock is needed. The wildlife usually follow certain routes, but even though there has been blasting, there don't seem to be any changes in usual wildlife behaviour.

3.3.3 The Land After Construction

When the Ivujivik Airport is completed, some parts of the hills of Ivujivik will have been removed. The long time community look-out point will not be there anymore and the people of Ivujivik are sorry about it. However, the aspect of getting a better airstrip is greater than that loss. Another impact that the new airstrip will have when completed is that it is right on the hunters' route when leaving or arriving at Ivujivik. This means that they will have to find another route.

3.3.4 The Council Viewpoint on Employment

The Council expressed that they are very pleased with the airport construction at Ivujivik. However there are some very noticeable problems. Before the construction of the airport, they were told that the Inuit would get employment and that there would not be enough local men to fill all the jobs. They were told to be prepared to receive people from the other communities coming to work at Ivujivik. And then when the construction started, there were very few Inuit working and very many white people. Therefore, because of this, the people of Ivujivik kept mentioning that they were not told the truth.

3.3.5 Other Problems of Employment

The employment of Inuit and non-native people is causing some uneasiness and this is due to their salary differences. This problem should be corrected by the organizations concerned. The reason for this is that the white people come to work in the Inuit territory. They are a source of great expense, their airfare has to be paid, their food and lodging, and they also bring a lot of equipment for which transportation has to be paid.

The salaries of the non-natives and all the other expenses could be better suited for people of the territory. We feel very sorry for the Inuit because of this. This also does not look good because most of these jobs they do could be filled by the Inuit, like driving vehicles and such, although it is fine in areas of work which cannot be performed by the Inuit.

One of the reasons they do not like this situation is that the people who live in the Arctic face very high prices whereas in the south, the goods are a lot less expensive. In the north also, there are not often many jobs and the Inuit are not happy if too many of he jobs are not done by them, because after construction, there will not be the chance to earn

money becaue the work goes away and the Inuit cannot follow. This situation has to be solved by the Inuit before the next airstrips are started.

Also, there is a kitchen at the lodging house of the white people who come to work. The cook has an Inuk helper who had this to say, "The Inuit work very hard, seven days a week. Why are they so underpaid? And why are the white people being paid a lot more? Why is this so?"

3.3.6 Concern with Shipping of Crushed Rock

The hills of Ivujivik are dynamited, removing parts of them, then the shattered rock is crushed by a crusher and then washed. Some of the crushed rock is put in small bags and sent south. The people would like to know why this rock is shipped south and if it is valuable. Do the white people keep it for themselves or will they sell it or make an exchange?

3.3.7 Food and the Co-op

The white people mainly brought up there own food because we said that there was never enough in our store for such a large group. This worked pretty good except that the construction would fill up plane after plane and this would mean we could not get our own fresh food in. Maybe we lost about $1,400 from food spoiling. But we were also glad for all of the other business from the workers for our Co-op.

3.3.8 Selection of Contractors

The people want to point out that when the organizations are looking for contractors to build for them, they should not look for the cheapest contractors. When an organization finds the least expensive

contractor, it can turn out that a cheap contractor will do a much more inferior work and a more expensive one do a much better job. This should be taken into consideration. And also, when the Ivujivik Airport is completed, they want it reviewed to see if it was done properly.

3.3.9 Bothering the Municipal Council

The Council and the secretary and Mayor want to say that they sometimes had problems getting the work of the community done because they often had to be finding parts and many other things for the contractor's equipment, housing and other things. The contractor should try to have more of these things with him. Sometimes it was a real bother, but they needed everything they asked for and they were very careful to make sure they always returned or replaced anything they borrowed.

3.3.10 Equipment Breakdowns and Borrowing

The construction company is also to bring up their equipment that is in good working order because we told people in Québec that the community did not have equipment to use for the airstrip becaue it was always busy in doing other jobs in the community. The front end loader was hard for the community to use when it was at the airstrip and even more the water truck was there because they didn't have one to start with. The equipment people bring up should not be too old and in need of repair before the work starts because then the Inuit are asked to stop working and parts must be brought up. We never minded lending equipment or anything else as long as we were able to get our own work done and not always be delayed.

PART II - FINDINGS FROM KANGIRSUK

1. The Community of Kangirsuk

The community of Kangirsuk is located on the north side of the Payne River at 60°01 north and 70°02 west. The settlement is approximately 13 kilometers (8 miles) from the shoreline of Ungava Bay, and its river location facilitates easy access to both marine and inland hunting areas. The 10 meter tide of coastal Ungava, forces a movement of salt water for up the Payne River, and creates a very large exposed tidal flot along the perifery of the community. The community is 265 km by air from Kuujjuuaq, and the present airstrip forms is part of the Ungava Bay and Hudson Strait Air network. The physical characteristics of the community and the social and economic characteristics of the population are clearly described in the texts, maps and Tables of the community Master Plan that was prepared for Kangirsuk and the Kativik Regional Government by Bernard Ouellet.

The original settlement of Kangalasuk was comprised of a cluster of early historic dwellings located on the coast just north of the community and refered to as Maijuqiakjuq. Small outposts of the Hudson Bay Company, Revion Frères and independant traders have been located in the area of Kangirsuk since around 1920. The Hudson Bay Company established its previous location in 1921 and this formed a stable nucleus around which future growth would take place. The tradding post was the center of activity for a large settlement territory comprised of small family camps and larger seasonal villages. In 1960 a school was established at Kangirsuk and the people began to move, with the strong encouragement of government, into the present day settlement.

In the early 1960's the people living in the area of Aupaluk settled in Kangirsuk and remained there until the late 1970's when they started to move back to their traditional territory. Also, until the mid 1970's, the Inuit of Ouaqtaq had to travel to Kangirsuk by boat, dog sled

or snowmobile in order to trade and obtain essential supplies at the Hudson Bay Company.

In 1982 there were 255 Inuit and 11 non-native living in Kangirsuk. The community Master plan predicted that the 1985 Inuit population should be 283, which is very close to the estimate of 279 as of November 1984. Approximately 58 percent of the 1982 population was under 20 years of age, 23 percent between 20 and 40 years of age and only 18 percent of the population was over 40 years old. A more telling figure is that in 1982 there were 9 people 70 years of age and older and by 1985 only 5 remained, which reflects the serious concern on the part of Inuit about the passing of guidence and knowledge to the young from their elders.

Over the last twenty five years, the community experienced various programs of econommic and social development but no major institutions or organization have been able to create a strong economic base. There was an attempt to establish a commercial arctic char fishery around 1963, but this could not sustain a market without much better facilities for transporting frozen fish to Montréal and there was the danger of severely reducing an important subsistive resource. A small eiderdown industry has been underway for the last 20 years and some income is created by arts and cratfs. Hunting, fishing and trapping remains very important for food, although the Inuit note that the fox population is not as abondant as in the past and the seal controversy has forced the price to plummet to around $1.00 for a clean seal skin.

Presently, the economic base of Kangirsuk is based on government transfere payments and on 33 full time and 14 regular part time jobs (1982 figures). Whith a 1982 total labor force estimated at 119 this means that at least 42 percent of the population is unemployed. In a study of income carried out in 1980, 34 percent of total community income was from transfere payments. This same study estimates that 84 per cent of family income is spend for food and other consumer goods and 5 percent on

housing. This leaves only 11 percent of disponible income for luxuries such as air travel (See Municipal Master Plan, 1982, pp. 18-21).

The distribution of regular employment opportunities and positions is shown in Table 6. The Municipal Council and Kativik School Board employ 9 full time workers, the Co-op employs 8, and the Hudson Bay and Ungava Hospital Corporation each employ 3. There is some summer employment at the fishing camps, but it is construction and other types of projects that is most important for creating short term economic opportunities. When approximately 42 percent of a community is unemployed, short term wage labor can make a critical difference in acquiring necessary hunting or household items.

An important element in the association between hunting and part time work is the ability of an individual to have some opportunity to hunt during the period of work. This is the only way that an Inuit worker can be sure that some of his wages can be used to purchase need equipment and not be expended to feed large families with store bought food. The importance of hunting, even for those who can only travel on weekends or after working hours is illustrated by a harvest study that showed that the hunters of Kangirsuk could harvest approximately 130,000 pounds of edible food from about 25 species of land, freshwater and marine wildlife.

1.1 Present and Future Air Service

The pattern of scheduled air service into and out of Kangirsuk is illustrated in Table 3. The pattern of air travel in Kangirsuk is similar to the pattern in all other communities; most people travel to or from Kuujjuaq and those that don't travel to the two closest communities. Kangirsuk does not have any major organizations operating out of the community, but there is frequent travel by the residents. The community is on the Ungava air network, midway between Salluit and Kuujjuaq, and its position, though convenient, creates travel problems, since planes are often fully loaded when travelling either North or South and therefore,

overfly Kangirsuk, making passenger service somewhat irregular.

Freight service for the community is dominated by the Coop and Hudson Bay store. Together, these two organizations bring in approximately 3000 pounds of foods per week. Freight is heaviest from March to June, when the sealift orders have run low. In addition, the two stores usually require approximately 2000 pounds per month, in other consumer goods.

The people of Kangirsuk feel that it is absolutely vital to improve the quality of the airstrip before passenger and freight service can improve significantly. They view their community as having potential of becoming an air terminal on the Ungava coast and they point out the possibility of linking in to the network going north to Salluit and west to Inukjuak. The community also indicates that they require air service to the tourist camps in the summer time and that this activity could be greatly increased if there was local single engine float plane service that could originate in Kangirsuk.

1.2 Airstrip Infrastructure

The 1070 meters (3,500 feet) airstrip that is proposed for Kangirsuk will replace a runway of 500 meters (1,500 feet) that has a soft poorly graded surface with no passenger or navigation facilities. The proposed airstrip will be built near the one presently used, but a new access road of 1.5 km is required. The new airstrip and access road will be linked to the road for the water point, and a new power house to be built closer to the airstrip, means that the airport facility will be integrated with a larger system of community infrastructure. The proposed airstrip will facilitate passenger and freight service for the 280 Inuit residing in Kangirsuk and for the Co-op, Hudson Bay Company, Kativik School Board, nursing station and smaller entities that comprise the economic and service structure of the community.

Table 7

Employment distribution according to type of jobs and employers, Kangirsuk, 1982

	Inuit 1*	Inuit 2**	Others 1*	Others 2**	Total
Co-op	3(a) 1(c) 2(t) 1(l) 9 in fishing camps				07
The Bay	2(c) 1(l)		1(a) 1(c)		05
K.S.B.	1(a) 4(p) 1(c) 2(l)	4(p) 3(l)	7(p)		22
Land Holding Corporation	1(a)				01
M.T.P.A.	1(c)	1(l)			02
Shell Canada	1(tc)				01
Sûreté du Quebec	1(m)				01
SUB-TOTAL	22	8	9		39

	Inuit 1*	Inuit 2**	Others 1*	Others 2**	Total
Air Inuit	1(c)				01
Ungava Hospital	1(c) 1(tc) 1(l)		2(tc)		05
Housing	1(a) 1(l)				02
Municipal Corporation	2(a) 4(t) 3(l)				09
Hydro-Quebec			1(t)		01
Post Office	1(c)				01
Recreation Committee	1(tc)				01
SUB-TOTAL	11	6	3		19
TOTAL	33	14	12	0	58
	47		12		58

Positions : (p) professional; (tc) technical (a) administrative
(c) clerical (t) trade (l) labourer

1* Full-time
2** Part-time

Source : Kangirsuk Master Plan (1982) p.20

2. METHODOLOGY AND STUDY OBJECTIVES

2.1 Methodology

The social impact assessment study in Kangirsuk included four types of activity: consultation and animation about the airstrip and about the impact assessment process; collection of the information required to establish the facts and define the perceptions of Inuit with respect to potential impacts from the airstrip and its construction; determination with the community, of appropriate corrective measures to mitigate the perceived impacts and; consultation and community review of the data base, potential impacts and corrective measures.

Consultation begins and ends the assessment process, and the intermediate steps were carried out through a direct association between the researchers and the community, with the Municipal Council acting as the primary consulting body. The methodology used in Kangirsuk incorporated the general principles described in Section 3.1. and the concerns and attitudes of the Inuit as expressed in this study were influenced by their knowledge of the airstrip planning and construction in Ivujivik.

Information was collected from a series of formal meetings with the Municipal Council and from interviews or conversations with individual Inuit. The representation of other community organizations in the assessment study was through the Municipal Council which invited representatives of these organizations to participate in all the discussions and decisions. A description of the airstrip program, coupled with an explanation of the assessment and review process, was presented on the F.M. radio so that the objectives of the study could be made known to most of the households. The project was physically located in the Municipal Council building because this is where most people had an opportunity to come in contact with the researchers, look at the maps and other reference material and exchange ideas or information. Communication was based on

asking and answering questions that focused on a list of topics considered important by the community. A description of the airstrip program, coupled with an explanation of the assessment and review process, was presented on the F.M. radio.

In Kangirsuk of the social impact assessment reflected the fact that communities are growing more aware of the potential problems that could arise from the planning and construction of the airstrip and its infrastructure. Inuit have not lessened their desire to have better and safer air service, but they also realize that the end product of a finished airstrip is not the only benefit that should accrue to their community. Information about the experience of Ivujivik is now known to other communities, and they are using this information to formulate their response to social impact assessment.

The primary concerns voiced by the Inuit of Ivujivik were told to the mayor of Kangirsuk in a phone conversation with Juusipi Illimasaut. The Municipal Council along with representatives of community organizations then reviewed the Ivujivik problems in relationship to the Kangirsuk impact assessment. Meetings and discussions began on November 12, 1984. On November 13, a list of particular topics and local concerns about the airstrip was drawn up by the Municipal Council and representative of other groups. This list provided the structure for all of the group discussions and individual interviews. The data gathered during these discussions and interviews is described in Section 3 and the specific impacts and corrective measures that relates to this data base are described in Section 4.

2.2 Study Objectives

The primary objectives of the social impact assessment study in the community of Kangirsuk were:

1. To inform the community about the northern airport infrastructure project and about the role of impact assessment as related to this and other types of community development.

2. To animate the community to express its own priorities about the topics, problems and issues that they feel are relevant for social impact assessment and to participate in the design of a research methodology that is appropriate for each community.

3. To develop the data base needed to explain the topics, problems and issues as stated by the community, and to use this data base for defining the potential impacts and establishing corrective measures.

4. To recognize the importance of Inuit knowledge in building the data base including both specific knowledge and more general perspectives about the bio-physical environment and local archeology, and about the present and future community infrastructure, economy and social environment.

5. To use the social impact assessment studies as a means for expanding Inuit participation in research; for establishing cooperative liaisons between Makivik Research department and outside researchers, and; for assuring that communities are able to express their priorities and concerns in the design and execution of impacts research in the communication of results, and; in the application of findings.

2.3 Research Schedule

2.3 suite

3. IDENTIFICATION OF COMMUNITY CONCERNS AND PERCEIVED IMPACTS

In discussions with the community, a list of topics, problems and issues that are of concern to the residents of Kangirsuk was established. This list provided a structure for collecting information and for determining perceived impacts and corrective measures. When each of the topics was evaluated for its importance, a general ordering of community priorities with respect to the problems and impacts of airstrip construction, became more clearly defined. The comments which are presented below represent a composite of what was said in discussions with the Municipal Council, in interviews and in many informal conversations.

The content of all these discussions was recorded in written field notes which were then used to create the first person voice for this section. The wording tries to represent the actual expressions of the people, and this along with the topics emphasized by the Inuit should convey an important context for understanding what the community really thinks about the airstrip project and its potential impacts. As summarised by the Mayor of Kangirsuk after a morning meeting on November 15, 1984:

> All of this talk we are having can only help if it really means that somebody will listen - our ideas and solutions should be written in the report to the government and they should know we are really wanting to be serious about what is being said. If we are not careful every community will just have the same problems and even though we know there has to be some problems, we should try to do things right and make it easier. If you write this down just because that is your work, it will be like all those other studies about our community that never help the Inuit one little bit because we never know what happens after you leave.

The topics and impacts that were discussed are organized into four categories; economic and social concerns; concern with the contractor and project supervision; concern with land and resources and concern with

airstrip and community infrastructure. Each of these categories has been subdivided into more specific topics, the order of which, is representative of the level of community concern. Some of the information collected in Kangirsuk especially on the land and resources and the infrastructure has been mapped. This data is included on Figures 3, 4, 5, 6 and 7.

3.1 Economic and Social Concerns

In the discussions with the community, it was often difficult to distinguish between economic and social concerns since the two were usually talked about within the same context. The community considered that the social well-being of the people living in Kangirsuk would be greatly improved by the new airstrip. They assumed, however, that this fact should be self-evident and they were impatient with any questions that appeared to cast doubt on their ability to know what is best for their own community.

The real concern of everyone who spoke about the airstrip was that employment of local people was very important. Economic opportunities they feel, must be created, even though the construction does not go on year after year. The type of economic opportunities defined by the community involve direct employment or indirect benefits to individuals or to community entities. The Inuit quickly pointed out that this objective can only be accomplished if the community is included in the planning and decision making that will follow the impact assessment study.

3.1.1 The Concern for Income

Community discussions brought out a wide variety of feelings and points of view about the community economy and about the impacts of this project on improving the situation at least in the short term.

Everything in the north is very expensive and almost everyone of us here in Kangirsuk has a problem to make enough money to live. It is not really good when people from the south come here to say we have it too good. That is not the truth. Not that we are starving or don't have services, but the problem is getting what those same people say is our right to have. The government said come live in this community of Kangirsuk, so is it wrong for us to ask for good nursing care and schools and houses, things like that? This is what the airstrip is suppose to be, a good service that we really need to feel comfortable here where we were told to come live not so long ago.

Many of us don't always want to be thinking about trying to make money and being driven crazy that way. But how can we pay for things that we use almost all the time. Maybe we can all use dog sleds and kayaks, but probably not, because we had to change from the old ways and now it is easier to move around but much harder to pay for. When non-native workers come to Kangirsuk sometimes they are very helpfull and take a job that an Inuk already can do. Some teach us what to do, but others just come to work in what should be our jobs.

I think the people at Ivujivik were very sorry about not being able to work more, all that money did not belong to them most belonged to the outsiders. Somethings are ok for outsiders, but we can do a lot more, even if we do it our way we can still get everything done. Especially if there is a good foreman who can work with us. Inuit will have to work on the airstrip construction and be guaranteed that jobs are really available and not just a few to keep us happy.

3.1.2 The Concern for Direct Employment

A major concern expressed by Kangirsuk is the need to have employment opportunities directly related to airstrip planning and construction.

Some people have gone to the south for almost a year to drive heavy equipment, and they are prepared to work with the experience they have from this training. And the same training exists for people in other communities and these Inuit can also work here in Kangirsuk if there are no local people with that experience and the others need jobs. Even better is to have training right here our community for people who can easily drive vehicles and operate other equipment. Many men here are very familiar with operating vehicles and equipment. They can learn quickly if someone is prepared to train them. Usually we hear that the people in charge would like to do this, or that for us, but not now because there is a big hurry and our needs will have to wait. Maybe for this project it can be different and even if it is a bit slower it doesn't have to cost more if you don't have a big group of non-native guys sitting up here being feed everyday and flown up from the south and all of those expenses to a contractor.

Not only can the men work on construction but the women can also be employed and work in cooking and cleaning because for sure some non-natives will be here for this project. Getting the work to the Inuit is not always easy, and there might not be enough people to take all the jobs, or people have to hunt to support their families, but if the right person comes up early to help in planning, a lot of these problems won't happen if some problems do come up we can figure out together what to do to solve them.

3.1.3 Concern with Pay and Work Conditions

One of the things that really discourages us is to be working right next to a guy from the south doing all the same work and not really getting equal pay. We live here, buy food from the store if we cannot hunt and this is really expensive. Are the guys from the south having to pay for the steaks and other things they eat from their pocket right here in Kangirsuk? Probably not very much. We have to buy here and that really costs a lot and our men almost get poorer if they work, but

something should change this situation for us and equal pay on the same job will at least help.

We also have other things that bother us when working with non-natives. The workers from the south are always wanting the most money possible and work overtime and on Sundays. Why not. They are away from home and they want overtime wages to make their pay better. We live here and have families close by and need to be home and to have the days off from time to time for hunting purposes. Not all the time we would like especially good weather, but enough to keep country food for our families. And the Inuit here dont't want to have to work on a Sunday if there is no emergency problem for us to deal with on that day.

3.1.4 Service Contacts

The most important thing will be for the Municipality and the Co-op to provide services and also the shell oil agent. The community should get a service contract to rent garage space for repair of the vehicles they will be using for construction. The community has equipment and garage space and some of our vehicles can be used to help out on the airstrip, but we use most or our equipment for other purposes so that fact must be considered when the contractor makes his plans. The Municipal Council can also be responsible for servicing the construction people for garbage removal and for supplying water.

The local community Co-op has a building to be renovated for housing some of the workers and the Federation in Montréal should be allowed to provide the food order to the constructor.

The fuel can be sold from the shell oil agent for all of the equipment as long as he has the truck he needs and there is enough fuel for construction and for community purposes. And if there is taxi service in town that can be used by the contractor, by giving a contract not just a trip here and there.

3.1.5 Concern with Economic and Social Spinoffs

I guess the question is if the airstrip is just some project to build or if it is kind of a community service that can help a lot in other ways, even some small but important ways. We all have a hard time with making the money to live but the young people are really unemployed and then it is easy to get lazy. Maybe student summer jobs could be part of the airstrip program if it gets started after the ship arrives. There is all the construction equipment and it could be used a little bit for community purposes like piling up gravel that a youth employment program could use to make playgrounds and other things useful for the community like a better swimming place or improving the beach front for canoes and freight. Funding is always a problem but what about something like sharing in a percent of the contractors' profit who is here to make money on our aistrip. We want to know exactly what the contractor is going to make on this job and maybe some of the money should go to these community projects like fixing up the recreation hall this year.

We should also think about what other people can do, not just the aistrip workers or cooks and cleaners. Like women sewing cloths and making eiderdown clothing for the outsiders and cooking the bananock and bread for coffee breaks if they wanted to do this.

3.2 Concern with the Contractor and Project Supervision

This is one of the most important topics raised by the community, since it directly involves what happens after the project and assessment study are reviewed by the Kativik Environmental Quality Commission. The community is seeking a means for establishing a cooperative role in this stage of the project, and to make certain that the Inuit view as stated in the impact study is respected. They consider the hiring of a local community supervisor and coordinator to be essential for accomplishing this goal.

3.2.1 Choosing the Contractor

The community will have many things to look after and some of these things will be very technical, like blasting and knowing where to build the road and airstrip and keep it level and all that. The contractor will have to do this. But we know where to get sand or store supplies and even get spare parts. The land holding corporation will be the people to see about blasting and getting sand and the Municipal Council will take care of certain supplies and other requests.

The contractor can only be chosen if he is going to do a good job, but not be the cheapest one to hire. The contractor should not just have equipment and know how to build things, he should also know how to work with our community.

> "When there is understanding by the company, we can work side by side and both groups will not have problems. It always seems to be the non-native up high as the boss and the Inuit down below him that is not the best."

The contractor will have to let us know what he wants to do before he is chosen and we should help choose who is going to be the best and to tell that company what the community wants and how things should be organized so we can work together the best way. Transport Québec should expect that the bids for this construction by contractors should reflect the direct costs for working with the community.

There will have to be a regular meeting between the contractor and the Municipal Council and after things get started a special Airstrip Committee can take over most of this work, but the Council should always be kept informed. This type of committee is really important for our community because we have really not seen any final plans, so how can we be expected to make every decision at this time.

3.2.2 Project Supervision

We know that it won't work the way it should if there is not some Inuit from this community to look after everything. It is the best if we hire a person that would be like an inspector, he could be trained for this job and then work with the person who is sent here to look after everything for the construction. It if is Transport Québec who sends this person, he could work with the Inuk. Maybe that could even be a long term type of job so the person from Kangirsuk could go to the next community to explain what happens and teach a local person who will work with the inspector from Transport Québec. If the Inuk inspector works with the government person the two will be able to solve many of the problems or even keeping them from happening.

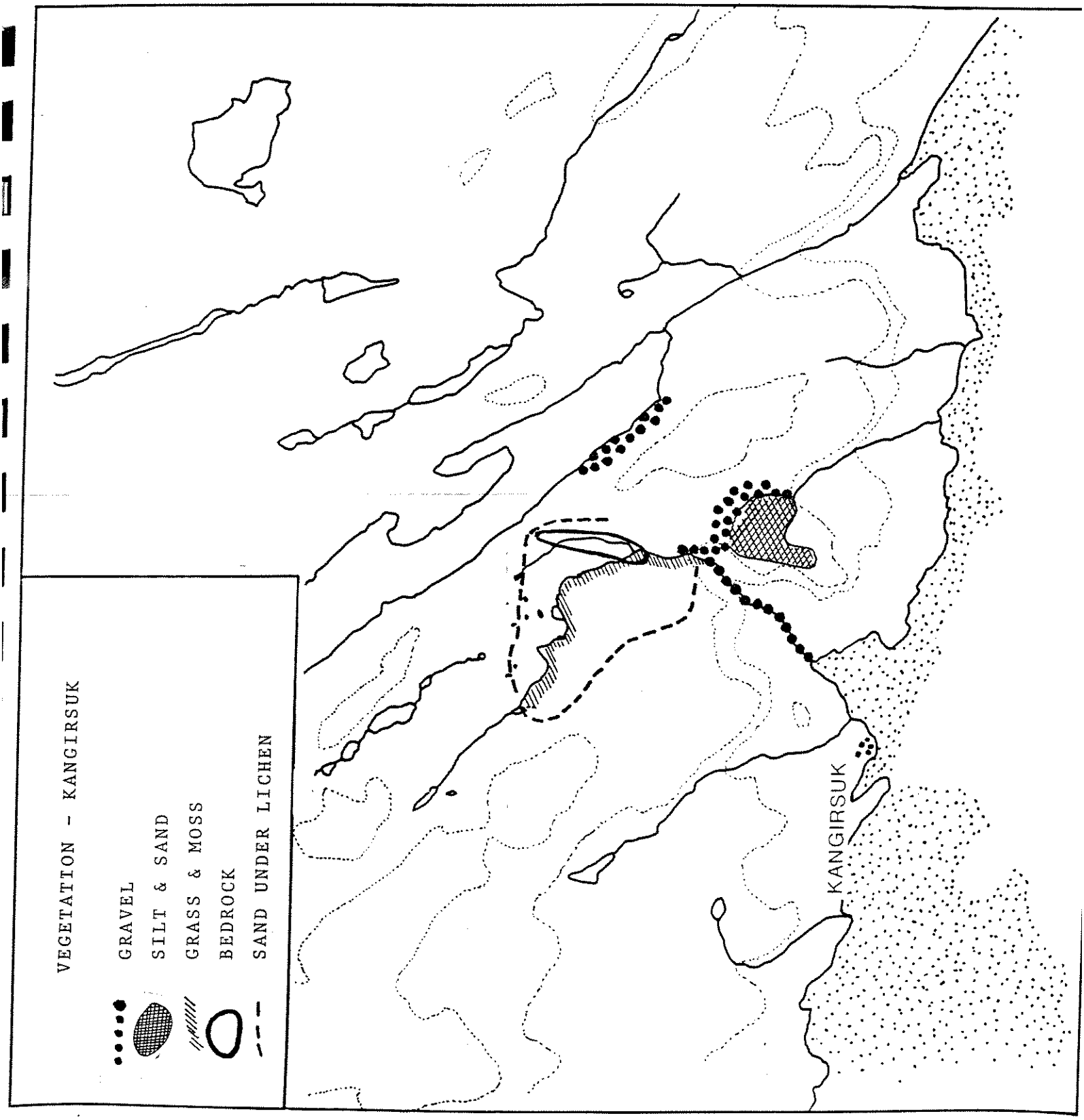
3.3 Land and Resources

The Inuit of Kangirsuk did not consider the airstrip construction to have a significant impact on local resources. They countered however that even close to the community there is hunting and it is always best to be careful about causing any permanent damage to the animals. They also said that the land around the community has not been "torn apart" like in some other areas and the construction should not "create a mess", and could even improve the way the community looks because there will be big equipment available.

3.3.1 Sand and Gravel

Getting good sand and small rocks for building the roads and the pads for buildings is a real problem, we never really have enough. Maybe that because we don't have enough good equipment and our new supplies are far away without having good roads there isn't any way to even get them. One of this communities big problem is the gravel and sand is near the cemetary and playground and it is not good to get much closer.

FIGURE 3


VEGETATION - KANGIRSUK
GRAVEL
SILT & SAND
GRASS & MOSS
BEDROCK
SAND UNDER LICHEN
KANGIRSUK

There is not very much gravel around the aistrip site. There is some close to the surface but when you dig it up it doesn't lact very long because it is not deep. The most sand is up the river but it is covered with small grass and moss. The hills around our community do not have a lot of steep cliffs where small rocks would pile up to be hauled away and maybe crushed to make it smaller. The road for water goes all the way to the big lake and you can get some small rock and sand there but right below the sand there is too much mud.

The best place to go for sand is west of the community but the contractor would have to build a road and that would benefit the community for future projects. The blasting is much better and the contractor would work with the Inuit inspector and the land holding corporation and Municipal Council to locate the best places. The community would benefit very much if the contractor would remove the large boulders near the beach and then crush these into small stones.

We want the contractor to try to stockpile crushed stone or to build a road to a good site since the community would be beneficial since there is not enough for future needs and the airstrip and new road could take away to much and leave us without anything for next year.

3.3.2 Vegetation

What is it you want to know about plants like the traditional medicine or just about whats going on here where the grass and the moss and low bushes grow? We don't want our community to be like Kuujjuarapik or even Kuujjuaq in the summer, lots of sand and dust everytime the wind gets strong. Maybe that isn't ever going to be a problem here because there is so much rock everywhere.

There isn't much willow around here and the rest is just very small plants or top of the ground. We have name for all of them and can tell about there use and if they have roots or leaves that can be eaten.

People don't go up to the airstrip area for picking berries, the vegetation is not heavy there and not much protection from the winds. We usually go closer to the shoreline and towards the salt water and some travel up along the shore of the river for that also.

3.3.3 Snow, Drainage and Winds

The snow here isn't a big problem its pretty much in the same place every year, although recently the winters were different and not as much as before. But it always drifts along side the hills where we marked on the map and it doesn't really cause problems for moving around the community. After a big storm it can drift anywhere and always has to be plawed out to get the water and garbage truck to the houses.

The two rivers that run to the sea are bigger problems especially the one where the airstrip road go up the hill by the garage. When there is heavy snow that melts it is very wet and soft snow there and the water is very strong and can flood out the road and the bridge. It can even be dangerous for children or old people when the big melting happens.

The wind around here is never a heavy problem. Its not like Salluit where it goes up and down the hills. We can even know which way we are travelling up the valley and even around the airstrip because the drifts are very even and run the same direction that point to the river. The wind blows from a different direction between the fall and the winter or summer, but most of the wind is from the east up the river except when the first dark and first big snows come in September and to around now (November). In our area its pretty much the same so it doesn't change after we travel out, except it can be very strong on the coast, and calm here in the community.

FIGURE 4

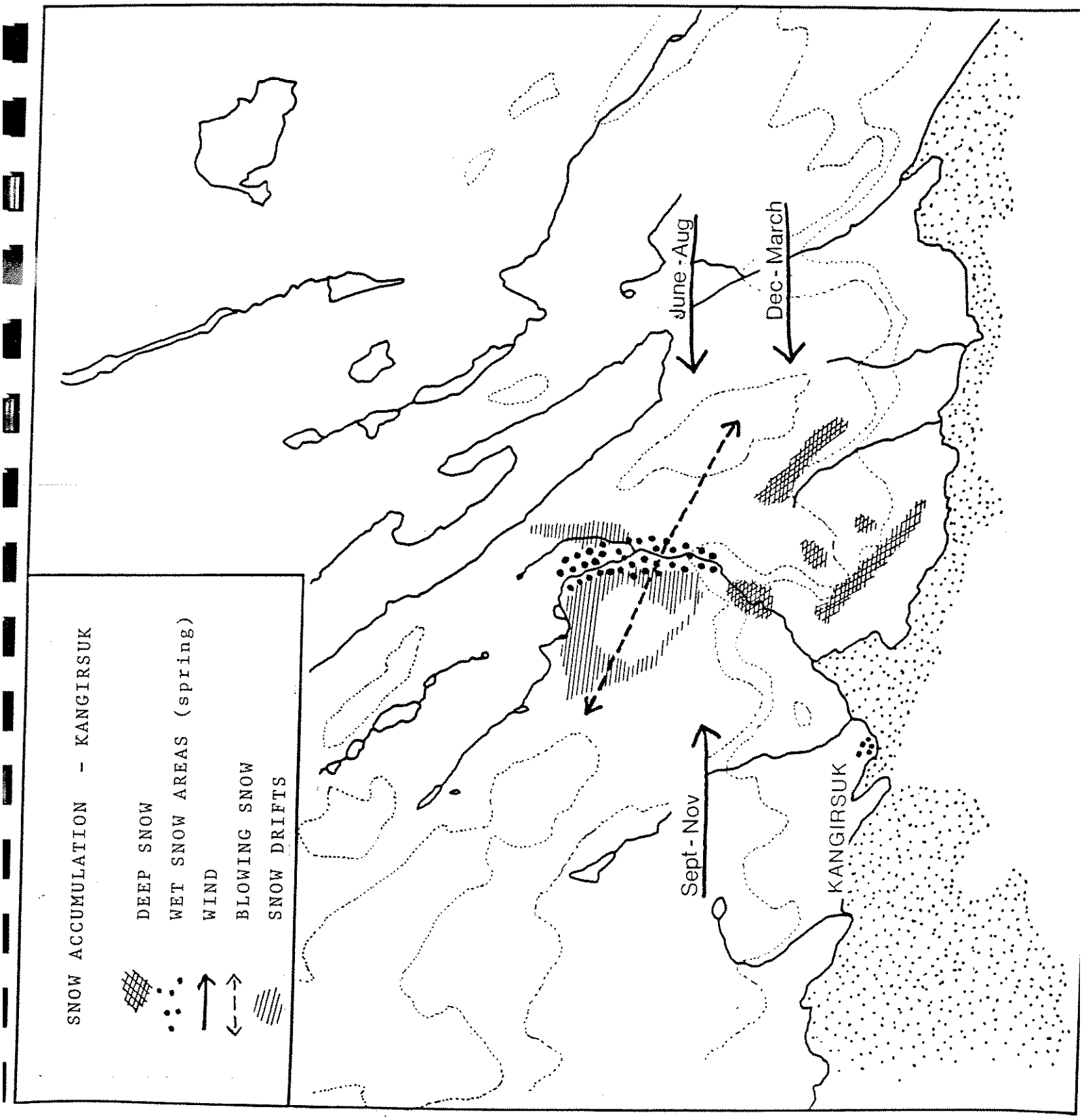
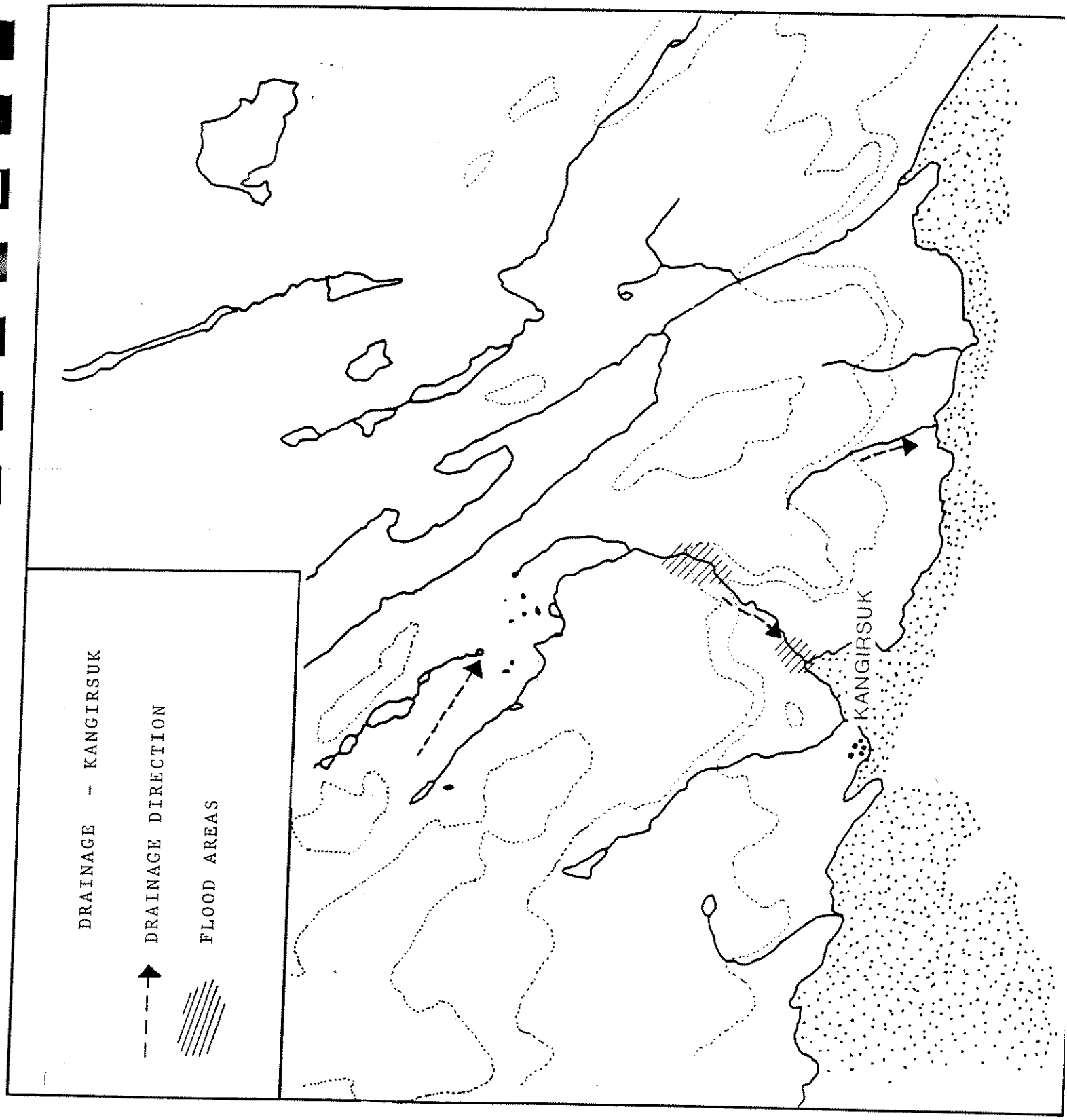

SNOW ACCUMULATION - KANGIRSUK
DEEP SNOW
WET SNOW AREAS (spring)
WIND
BLOWING SNOW
SNOW DRIFTS
June - Aug
Dec - March
Sept - Nov
KANGIRSUK

FIGURE 5


DRAINAGE - KANGIRSUK
DRAINAGE DIRECTION
FLOOD AREAS
KANGIRSUK

3.3.4 Wildlife Resources

There really isn't much of a problem with our wildlife around the community. We don't really hunt right here in our community because there are too many people and all the noise and activity keeps animals away. It is ok for some hunting, like ptarmigan and sometimes geese move into the area but serious hunters move further away. We don't think the airstrip is really going to change very much the way the animals and birds now use the area but we shouldn't take changes to create problems if we don't have to take these changes by being careful with building the airstrip.

We heard that they did much blasting at Ivujivik and even took away a hill the people use to sit on to watch for the seals and beluga whales to move by. The Inuit hunters there said this did not seem to force the whales away from the traditional hunting area, even if the hill is gone, they will still have the animals in the sea.

We here in Kangirsuk, especially those full time hunters worry most about the Arctic char in our river and also we have concerns about Canada geese. But everything is valuable for our food supply and that is why the hunters are always out looking for animals. We also work and there are all there meetings because our community is changing but most of us and the women and children too never stop thinking about going out after all kinds of animals.

Canada geese fly into our area and some land especially around the edges of the small lakes in the spring and the fall. Not too many land, but its fly overhead to other important areas that are used for hunting by our community and even from other communities like Ouaqtaq. Using the air is important and they can be scared away from the traditional travel routes near our community and in our hunting area. Maybe the blasting could push geese away we don't know because noise can be a problem, especially if they are not expecting it. But if they put up all kind of bright colors for the airstrip building that may be more

dangerous and should be avoided. Not like the orange category I marker or those red oil tanks because that bothers the hunters.

There are also some ptarmigan that come here in the early spring and around October, but not always the same number come every year but they usually use the same places each season, and people enjoy hunting them, especially younger and older people who walk to the close places for hunting.

The arctic char is always important to us and the river will always be their home so it can not be destroyed and we know the airstrip will not do that, maybe even make our beach area a bit better to use. The char are feeding closer to the shore in the early part of the summer as the ice goes. The big harvest is in the full and the fish are not as close to the shore and moving upstream. The work of the airstrip if it uses the beach can always be done after the fish move out but since it can only go on at low time it should not cause any serious problems if nothing is left to pollute the water. Some clams and mussels are collected close to the community on the other side of the bay, mostly clams here and in winter they are a little further away.

Thats about it for the wildlife around the community for something like the airstrip. If we start to talk about other animals like caribou and the seals and whales we can say many things but we know even if whales sometimes come up the river it isn't affected by the airstrip so what else is on that list for the airstrip problems.

3.4 Community Infrastructure

Many of the specific concerns or descriptions of conditions in Sections 3.1 and 3.2 also relate closely to the development of community infrastructure. Many of the activities refered to in each of these

Sections have a direct consequence on the location, function and visual elements of the infrastructure and therefore on the integration of the natural and man made landscape of the community.

3.4.1 Airstrip Location and Orientation

The location of the airstrip is ok for this community, we know that it is hard to find a place to build and that is safe for us and for the airplanes when they land and take off. When we built the airstrip we now using the Inuit knew there were not many flot places without hills close by. It is the same when the other people came here to look around for the strip. We already had that area in mind and they agreed that the larger airstrip should go there.

The big problem is the way they laid out the airstrip for its direction. Sometimes the wind is very strong across the airstrip especially through the real winter. The way the land is up on the hill, the snow always blows and will drift right across the proposed new airstrip. Even if there is not much wind the snow will drift so there is always a problem to keep the airstrip clear. When the storms come the cross wind can be more dangerous and even keep the plane from landing.

The council meet earlier with the people who studied where to put the airstrip and the road and they said this was the best, but they were never here in winter and when they came I don't think wind was a problem, well thats the way it is sometimes so we have the council resolution with the old council and the mayor, that was passed. We are not opposed to his resolution, but it is best to make a decision like this by using real plans not just a little map. If the direction can be changed more to follow the river (east west) it will be better for cleaning and also will be safer to land here during bad weather.

3.4.2 The Access Road

The road to the airstrip will be changed from where it is now located and it will be easier to build and not as steep. Everywhere there

Table 8

CORPORATION OF THE NORTHERN VILLAGE OF KANGIRSUK

MEETING OF THE COUNCIL

RESOLUTION NO: 84-06-214

Re: Approval of airstrip location

WHEREAS under the Northern Québec Airports Improvement Program, Canada and Québec proposed to build an airstrip and airport facilities in the Community;

WHEREAS the proposed location of the airstrip has been identified and is shown outlined in red on a plan attached to the present resolution;

WHEREAS the location of the said airstrip meets with the approval of the Council;

WHEREAS Canada and Québec request that the said location be approved by the Community before the undertaking of preliminary studies during the coming summer;

WHEREAS the said attached plan has been signed this day by Transport Canada's representative Mr. Rhéaume Allard for purposes of identification and reference;

WHEREAS it is in order to approve the location shown on the said plan subject to certain safeguards;

THEREFORE IT IS RESOLVED:

THAT the location of the proposed airstrip as shown outlined in red on the attached plan be and it is hereby approved, subject to the following:

a) That whatever conditions the Kativik Environment Quality Commission may impose be fully respected by all parties involved; and

b) that the design and standards as well as the construction of the said airstrip comply with the Canada-Québec Agreement for the construction of such airstrips signed in Kuujjuaq on September 27, 1983.

MOVED BY: ADAMIE TOMASSIE

SECONDED BY: WILLIE TOMASSIE

IN FAVOUR: 5

ABSENT: 2

ADOPTED: JUNE 7, 1984

ADAMIE TOMASSIE, MAYOR

GEORGE KAUKI, SECRETARY

FIGURE 6

ECOLOGY - KANGIRSUK
ARCTIC CHAR (late spring, early summer)
CANADA GEESE (spring and fall feeding)
PTARMIGAN (fall feeding group)
PTARMIGAN (spring feeding group)
CLAMS & MUSSELS (spring)
CLAMS & MUSSELS (winter)
WHITEFISH
WHITEFISH
LAKETROUT
KANGIRSUK
S
S

will always be places with deep snow drifts, but not too bad on the proposed road. The big problem can be the spring flooding that goes on where the river enters (Kanik) bay. There is always too much water in the spring when the snow really starts to melt and the river can wash the road out so a good bridge must be built and there must be a way to carry the water away in the large pipes under the road.

A big problem also exist right where the road comes to the community, because there can be a bad accident there. People have already crashed there snowmobiles and also a truck, because you can never see who is coming especially in winter because of the piles of snow. All of the trucks are here and the traffic moves right through there going between the houses near the Hudson Bay and those on this (east) side. It is going to be worse with the airstrip and more traffic. Maybe a stop light just like Montréal.

The new road that they want to build will go right in the middle of our playground for the older children and even for adults that want to play baseball. Something will have to be done for that problem, like the youth employment to build a new playing field, maybe with a smoother surface.

3.4.3 Water Point and Access Road

The road to the water point uses the airstrip for the trucks and we know this can be dangerous because the Twin Otter is very quiet and they sometimes arrive by supprise. The truck driver has no choice because the airstrip is actually the same as the road. The best place to get the water is on the lake where we now go. There is never a short supply even if it is a long way to go.

We have not seen how a new road will be built, but the contractor will have to make sure that we can get our trucks there safely. We heard from the Mayor of Povungnituk that they have some problems to because they were told that the trucks or any kind of vehicle cannot even cross the

airstrip because of safety. That is a good idea that we agree with, so the road will have to run along the side to meet the existing road, which can be fixed up some more on its surface. The hunters on snowmobiles will also use this road, or for when people are out to have fun on a good day on their machines.

3.4.4 Beach Front and Offloading

There is a difficult time in Kangirsuk to properly offload the ships and to store all of the supplies that arrive for construction. The beach in the small bay is not enough to hold all of the supplies and it is where all of the canoes must be kept so there can be a conflict with the hunters and also between organizations because their equipment and supplies can get part in big piles and very mixed up. Sometimes a foreman has really got mad and sometimes the hunters can also become angry.

The cleaning up of the beach and taking away big boulders for crushing could be a solution and the airstrip equipment might be powerful enough to do this job properly.

3.4.5 Community Garbage Dump

This is also a problem for us here and it will be moved as soon as possible. It is really bad to have it there and the garbage can flow into the small stream which flows into the river. Maybe if the dump is not moved it can at least be fixed up but somebody should look into that problem for us.

3.4.6 Electrical Service

The new generator is going to be put much further from the community, up by the airstrip and it can be quieter for us here and also the new airstrip needs electricity. The poles are ok for us and will follow the road up to the airstrip and down to the village.

4. SUMMARY OF IMPACTS AND ESTABLISHMENT OF CORRECTIVE MEASURES

Section three identified the basic concerns that the Inuit of Kangirsuk perceived to be most important when discussing the potential impacts from the planning and construction of the airstrip and its infrastructure. Facts and opinions about how this type of construction program will affect economic and social life is the community as well as the land resources and community infrastructure were not difficult to establish. The Inuit provided a clear statement of perceived impacts and of the most appropriate corrective measures not should be taken. The community has reviewed the statements in this section.

4.1 Employment and Work Conditions

Clearly, the economic aspects of the northern airports infrastructure improvement program are considered to be very important by the Inuit of Kangirsuk. Although they cannot provide an exact statement of how they want to benefit through participation until more specific details are available to them, they suggest the following measures to minimize potential negative impacts.

It should also be noted that if there is to be an emphasis on Inuit employment the conditions of the contract and the schedule of work will have to be defined in greater detail. These discussions should involve the contractor, Transport Québec, the Municipal Council, and the proposed airstrip committee (see section 4.2.3).

4.1.1 Hiring of Inuit

The company selected to construct the airstrip must follow a policy of hiring Inuit. In order to accomplish this the following steps must be taken.

1. The company should provide a clear description of manpower requirements to the community. This can first be done in writing followed by a community visit and meeting. Each position noted in this document must be accompanied by a brief job description.

2. The contractor and a Transport Québec or Manpower representative should then interview the qualified and or interested people in Kangirsuk and find out what people are available for work at what jobs. The Inuit should be told exactly what is required so that no misunderstandings arise later.

3. The qualified people from Kangirsuk should have first opportunity for jobs and these would be followed by qualified candidates from other communities. This task can be accomplished by using Table 9. The Inuit of Kangirsuk should also review the list and rank their preferences if any. Potential candidates should then be contacted as soon as possible to see if they are interested.

4. After the formally trained people have been reviewed, the other positions can be reviewed and a program to have on the job training should be set up.

5. The other labor requirements, cooks, cleaners, airstrip labor, etc. should be defined and attemps made to locate candidates for each available position.

4.1.2 Rates of Pay

The pay scale of each position should be defined, and the conditions that govern the rate of pay clarified. The basic principle that the Inuit want to apply is equal pay for any job where there is both an Inuit and non-native person and even if the position is only filled by Inuit it should be a fair and representative pay. The pay scale

TABLE 9

HEAVY EQUIPMENT OPERATOR PROGRAM	
Moses Alaku	Salluit
Noah Angutijivk	Salluit
Arngnatuk Kopergualuk	Salluit
Lyiatuk Ajiaruk	Ivukivik
Jimmy Qunnilaaluk	Ivujivik
Levi Ammarualik	Povungnituk
Irquaq Kumarluk	Povungnituk
Sam Willie Kumarluk	Povungnituk
Charlie Kunvaquak	Povungnituk
Adamé Alaku	Kangiqsujuaq
David Tukkiapik	Kangiqsujuaq
Tommy Annahatak	Quaqtaq
Elijah Tukkiapik	Kangisuk
Mark Yates	Kangirsuk
Charlie Iggyook	Aupaluk
Peter Kudluk	Kuujjuaq
Jobie Munick	Kuujjuaq
Billy Saunders	Kuujjuaq
Tommy White	Kuujjuaq
David Baron	Kangiqsualujjuaq

associated with each position should be printed and made available. And a written Inuktitate contract should be provided each worker.

4.1.3 Conditions of Work

The community recognizes that the contractor must have control over many parts of the project because he has final responsibility for getting the job done, but the Inuit should be consulted on certain conditions of work, especially the expected hours of work, and of overtime, working on Sunday, and time available for hunting.

4.1.4 Labor Relations and Foreman

The community wants to make sure that people are not reluctant to work because the foreman and other non-natives are not undestranding or easy to work with. In particular the foreman must have the support of the community and also try to have experience working with Inuit on other projects.

4.1.5 Explanations of the Construction and Work Expertations

A meeting should be held with all of the workers to discuss the conditions of work, the responsibilities and expectations of the contractor and foreman. In this meeting the expected schedule of work required for the contract to be completed should also be described, and the way in which the airstrip and access road are to be constructed, (slope, grading of materials, packing, etc) should be explained so that the type and sequence of tacks is understood.

4.2 Project Supervision and Consultation

The need to clarify and formalize the process of community involvement after the social impact assessment and review is a major concern for the Municipal Councils. The experience from Ivujivik illustrates that the findings and recommendations of the Impact Study, coupled with the specific directives from the Kativik Environmental Quality Commission are not necesarily built into all of the plans and decisions that follow the impact assessment review. It is at this post-assessment stage that many of the conditions set out by either the community or the K.E.Q.C. can be ignored in the rush of accepting bids, selecting a contractor and preparing final plans. If the contractor is not fully aware of all the procedures, conditions and responsibilities that should be followed, then serious problems can occur. If this situation is allowed to happen then most of the recommendations that were stated during the research and project evaluation phase will never be reflected in the actual project.

Procedures are in place for preventing certain problems from arising, especially those that relate to the environmental recommendations, but even these could be strengthened. What obviously has to now be greatly strengthened are the procedures needed to assure that Inuit employment will be maximized under appropriate working conditions.

4.2.1 Project Supervision - Transport Québec

Throughout the Ivujivik project, Transport Québec maintained a full-time supervior in the community and the Inuit stated that this individual was important, and helped make sure that problems did not get too complicated. Suggestions were made about how to strengthen this position by making sure that it carried authority that must be respected.

Transport Québec should again provide a full time supervisor for the Povungnituk project. This individual will be responsible for overseing compliance to technical and environmental requirements by the contractor, and act as a much needed coordinator between parties.

4.2.2 Project Supervision - Kangirsuk

This position should be supplemented by a new position that is incorporated within the general airstrip budget. This position would be held by an Inuk from the community who would be responsible for assuring that all of the many details that are required if the contractor is to meet the conditions set out in the social impact study and by the K.E.O.C. This must be a full-time employee that should be hired as soon as the project is evaluated and approved by the K.E.O.C. This person will work with company personnel and make certain that community based environmental concerns are accomodated, and personnel problems minimized. As much as possible this person should learn specific skills that he can use to train other Inuit when a new community is to have an airstrip built. This individual could also serve to represent the northern airport project to explain certain details and identify problems prior to impact assessment in these other communities.

4.2.3. Community Consultative Committee

Kangirsuk has suggested that a community consultative committee be set up to act on behalf of the Council and other organizations if problems arise, especially problems involving social control or behavior of the outside workforce; or serious employment or other worker problems that could have a negative impact on construction. This committee could also help facilitate recreation for the outside workers and make sure they "feel at home" in Kangirsuk.

The committee will be comprised of representatives from the following organizations: 1) Municipal Council; 2) Land Holding Corporation; 3) Federation of Cooperatives; 4) Tukvik; 5) Recreation Committee; 6) Church Committee; 7) Housing Committee.

4.2.4 Supervision of Archeological Material

Avataq Cultural Institute has responsibility for looking after archeological field survey and excavation that maybe made necessary because of site disturbance from airstrip construction. Within Kangirsuk Avataq is represented by a community field worker who they have designated for informing them of decisions or problems related to archeology. This person is Samwillie Annahatuk.

4.3 Selection of the Contractor and Questions

The Municipal Council of Kangirsuk has expressed the same concerns as Ivujivik, Salluit and Povungnituk councils about the importance of their participation in selecting the contractor. They realize that the system of bids limits their influence at a certain level, but they feel that prior to the submission of bids, they should be able to state their expectations and requirements to the candidates. In Ivujivik, the Inuit stated that the person that provides lowest bids may not always do the best job. In Kangirsuk, they stated that contractors are looking for work, and they must be willing to meet the terms set out by the communities in order to get this work. In Povungnituk, they said that the selection of the contractor should not be the cheapest but rather the best for the community. "We want to build it good and for them to work with our people."

In order to accomplish a better working relationship between the community, the project proponent and the contractor, a set of questions

was prepared by the Kangiqsujuaq Research Center, in conjunction with their Municipal Council. It is felt that these questions provide the basis for informing the contractor about the expectations of the community and they seem too highlight the responsibilities associated with the airstrip construction.

1) Before you prepare your bid for the airstrip, what factors will you consider?

2) Before you prepare your plans for the airstrip, will you consult with the Inuit to find out how they feel?

3) How will you proceed to find out how the Inuit feel about airstrip construction and what conditions they have set out for the contractor to follow?

4) When you will make the plans for the airstrip, how will you proceed to find out how many workers you will need?

5) Before you hire the workers, will you take into consideration the Inuit that have been trained for operating heavy equipment?

6) Will you be prepared to train Inuit for certain types of work on construction and with vehicles and other equipment?

7) What is your policy concerning licensed and unlicensed employees?

8) Will there be equal pay between non-native and Inuit workers?

9) Have you read the Environmental and Social Impact Assessment Report that defines what should be done to protect the environment and the community?

10) Will the president of the company be willing to travel to the community when necessary to settle problems and meet with the Inuit and other responsible people?

4.4 Social Control of Workforce

The community stated that the contractor should attempt to hire workers who will not disrupt normal social life in the community. They also stated that the contractor should be responsible for supervising the outside workers to make sure that there are no problems.

The community stated that no one from outside is to sell or to give liquor away individually or through partys. Drugs are illegal and there can be no sale or any sharing of any type of drug.

The community stated that outside workers are sometimes put under pressure from individuals within the community for selling or sharing alcohol. If problems arise the contractor should contact the Tukvik Committee that is responsible for "looking after" problems related to alcohol or other social problems within the community. Tukvik has a representative on the Airstrip Consultative Committee.

The community stated that problems with alcohol or other social problems could be reduced if the outside workers had access to recreational facilities in the community. The recreation for outside workers, which can include volleyball and other sports, hiking, travelling with Inuit for photography or, if legally allowed, fishing or hunting. Recreation and special trips will be organized through the Airstrip Consultative Committee that will also establish the payment when travelling with Inuit for recreational purposes. Table 10 provides a description and schedule of non-native hunting and fishing regulations for the Kangirsuk category I, II, III lands.

Table 10 Hunting and fishing regulations

Non-Native Sport Hunting and Fishing Regulations - Zone 23 for 1985 - (specific to the Povungnituk area)			
SPECIES	SEASON	DAILY OR POSSESSION LIMIT	
Arctic Char	May 17 - Sept.8	10	
Brook Trout	May 17 - Sept.8	25	
Lake Trout	May 17 - Sept.8	4	
Caribou	Aug. 1 - Oct.31 Feb.15 - April 15	2 2	
Ptarmigan	Aug.25 - April 30	10	30
Geese	Sept.1 - Dec.10	5	15
Eider Duck	Sept.1 - Dec.10	6	12
Old Sqaw	Sept.1 - Dec.10	6	12
Other Ducks	Sept.1 - Dec.10	6	12

Notes:

1. Fishing is by angling only.
2. Trapping is reserved for Native people.
3. Whitefish is a reserved species for Natives people.
4. Wolf is a reserved species for Native people.
5. Polar bear is a reserved species for Native people.
6. Marine mammal hunting is not permitted by non-natives.
7. Section 39 of an Act Respecting Hunting and Fishing Rights in the James Bay and New Quebec Territory (Bill 28) provides for special controls to be implemented in the event of large influxes of non-native labour forces.

4.5 Service Contracts

The community of Kangirsuk stated that the airstrip construction could also provide benefits to the community by offering service contracts to specific organizations.

4.5.1 Municipal Services

The Municipal Council is prepared to provide garbage pickup and water delivery to the contractor. The water will be used for household or if required also for construction purposes. The rate charged for this service will be the same as that paid by other groups in the community.

4.5.2 Municipal Equipment

The Municipal Council is prepared to rent space to the contractor for repair of equipment. This space will be in the new garage or arrangements can be made to renovate the older garage especially for this purpose.

The Municipality will not be able to rent or to loan major equipment and vehicles since they are in use every day for other purposes. The Council noted however that if need for certain equipment is critical they will be able to accomodate special requests. The equipment available from the community is :

3 water trucks - 1,000 gallon capacity
1 water muskeg - 600 gallon capacity
1 garbage truck
1 garbage muskeg
1 front end loader
1 D-6 bulldozer.

4.5.3 Housing the Workforce

Exact plans on housing requirements cannot be made until the size of the outside workforce is determined. The community wants to utilize their own structure for housing at least a large part of the outside workers for the airstrip. This building is owned by the Federation of Cooperatives and would be rented on a long term basis to the contractor. The building can also be used for kitchen and dining space. Certain renovations will be required and it will have to be equipped to the contractors' specifications. The local cooperative in Kangirsuk will be responsible.

The building is located in the central park of the commmunity near the Municipal Council building. It has kitchen, dining and living areas and is estimated at the present time to sleep 10 people.

4.5.4 Feeding the Workforce

The outside workers including Inuit from other communities will be fed through facilities and supplies provided by the contractor. The community states that it would be beneficial to them if the Federation of Cooperatives was given the contract to supply meat, fresh foods and all other foods to the contractor from their southern depot. The local co-op in Hudson Bay Company does not have the stock for meeting the demands for food.

The contractor should contact Mister Peter Murdock at the Federation of Cooperatives in Montréal.

4.5.5 Supplying the Fuel for Vehicles

The requirements for fuel can be met in Kangirsuk by the representative of shell oil that will provide gasoline and diesel fuels. Prior to construction the fuel agent, Mister David Pingyapik, should be contacted as should be the shell oil supplier for the north in Montréal to assure that construction requirements will not over extend the supply needed for the community. In Ivujivik it is estimated that ... ... gallons of gasoline and ... ... gallons of diesel fuel were required for the airstrip. One fuel truck of 1,000 gallons and one fuel muskeg of 600 gallons are available.

4.5.6 Other Contracts

The community stated that the construction program should provide an opportunity for other small contracts to be given out. If the needs of the construction company are made known early enough then individuals in Payne Bay may find it possible to develop the required service in time for summer, if their use will be guarantee. An example given by the Municipal Council is a private taxi that might be bought if the contractor would use it for moving personnel to the construction site.

4.6 Land and Resources

The community state that with the exception of granular materials they do not expect major impacts to occur for the local resources. They are concerned about sand and gravel deposits and about the damage that trucks or tracked vehicles can do to the landscape, but they feel that birds and fishery resources should not suffer any long term impacts.

4.6.1 Granular Resources

The community does not want the construction of the airstrip to further deplete their sand and gravel deposits that are now being utilized. The community prefers that the contractor would blast outcrops of exposed bedrock for granular material which would then be crusched.

The community stated that they did not wish to designate specific blasting sites until the requirements are specified by the contractor. Sand and gravel deposits and blasting sites would be decided on by the contractor in cooperation with the proposed Inuit supervisor and with the Landholding Corporation that is responsible for all the municipal, category I lands.

The community stated that there was one potential benefit to community development that might be accomodated by blasting and crushing. This is to removed and crush the large boulders that are exposed at low tide on the beach used for offloading supplies.

The community stated that if sand and gravel is required a separate road to the north west might have to be built. This would be consider a benefit since it may be necessary to explate this area for granular resources sometime in the future. The community also said that if sand and gravel is needed the contractor could explore east of the village towards Kayak Bay. If deposits are found in that area a road from the village would be beneficial because the community would eventually like to build such a road in order to transport canoes and supplies to the coast.

The community stated that they would benefit greatly a significant stock piles of crushed rock could be left for future use. They would prefer to have these strategically located since the heavy equipment will be available.

4.6.2 Canada Geese and Snow Geese

The community stated that they did not feel that this resource would be negatively affected by construction activity. They did state that some long term impacts could occur if bright colors are used for the buildings at the airstrip or for other purposes such as electrical poles.

4.6.3 Other Resources

The community stated that there is no reason to suspect that other resources would be minimly affected by airstrip construction. This includes fish, ptarmigans or local beeries.

4.6.4 Vegetation and Land Surface

The community stated that the contractor should minimize disturbance to the surface of the land. They do not want to have a network of tracks cut into the surface of the ground since these never disappear and often become worse. Care must be taken to decide where vehicles can travel and these routes must be marked. This can be the responsability of the proposed Inuit supervisor and Landholding Corporation.

4.7 Infrastructure

The community stated that there will not be a significant number of negative impacts on the community infrastructure from the airstrip project. They did note that the community road to the water point would have to be integrated with the airstrip and road system, and that the present large playing field near the airstrip would be affected. The other impacts are ones that could create some benefit to the physical

infrastructure of the community by using airstrip equipment and by the stockpiling of crushed stone.

4.7.1 Airport Road and Water Point Road

The water point now used by the community will continue to be used. This means that a new road will have to be built paralleling the airstrip until it joins the present road to the lake and water point. A plan for this road will have to be drawn up by the contractor prior to construction and reviewed by the community.

It will also be the responsibility of the contractor to make sure that a route to the water point is maintained during construction, since the community depends on this service daily.

4.7.2 Relocation of Playing Field

The community stated that construction plans will destroy the large play field near the airstrip. The community in consultation with the contractor and with Landholding Corporation will have to locate a new area and the contractor should be responsible for supplying required granular materials and for levelling the site.

4.7.3 Electrical Transmission

The community stated that they had no negative reaction to the location of the planned power house near to the airstrip. This will reduce the noice in the community and they did not state a preference for above ground or onground supply lines.

4.7.4 Other Infrastructure Problems

The community stated that there are other problems that they will have to be solved that will involve the relocation of the dump site and a relocation of improvement of the present dump site but that this will not be directly affected by airstrip construction.

The community also stated that the cemetary now used is in danger of being disturbed by the spread by the presently used gravel pit and that this disturbance could be speeded up if airstrip construction also takes granular materials from that deposit. The grave yard must be protected. No decision has been made about relocating or maintaining the cemetary but its physical bounderies will have to be respected during airstrip construction.

4.8 Other Potential Disturbances and Requirements

The community stated that during construction certain aspects of community life and acticity patterns will have to be respected.

4.8.1 Blasting of Rock

The community stated that the blasting of rock will have to follow a schedule required by the contractor, but that special days like sunday and special hours or situations will have to be respected by not having a disturbance from blasting. The conditions limiting blasting will be discussed and set out by the Airstrip Consultative Committee.

4.8.2 Utilization of the Community Beach

The community stated that the beach used to offload supplies if also used by hunters to land canoes and to store them on shore. At ship

time the amount of available space is extremely limited on the beach. The community stated that the contractor will have to remove all materials for airstrip construction quickly so that there is space for other users and for hunters. An area of equipment storage and supply stockpiling will have to be designated and used by the contractor.

4.8.3 Safety Equipment

The community stated that they were inadequately supplied with fire and other types of safety equipment that might be required for this large scale project. The contractor should be aware of this fact and it is recommended that equipment for this purpose is brought into the community for use by the contractor.