25th WEDC Conference Addis Ababa, Ethiopia, 1999

INTEGRATED DEVELOPMENT FOR WATER SUPPLY AND SANITATION

A community-owned engineering cooperative

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"FUTURE GENERATIONS... WILL find almost incomprehensible the circumstance that, in an age paying tribute to an egalitarian philosophy and related democratic principles, development planning should view the masses of humanity as essentially recipients of benefits from aid and training. Despite acknowledgement of participation as a principle, the scope of the decision making left to most of the world's population is at best secondary, limited to a range of choices formulated by agencies inaccessible to them and determined by goals that are often irreconcilable with their perceptions of reality."[1]

Introduction

North Coast Technical Services (NCTS) provides municipal engineering and public works services. The organization is structured on the cooperative model where the owners receive a quality service at a reduced cost. Indeed, the benefits of the co-operative model have been reported on in a recent study of a water utility in Bolivia[2]. NCTS is owned and directed by seven small, remote First Nation (Aboriginal) communities on British Columbia's Pacific coast.

NCTS offices are centrally located in the small urban centre of Prince Rupert, population 17,000. The member communities are accessible only by boat or float plane; for them, NCTS is considered local, providing the advantage of having professional advice easily accessible. Most engineering consultants are located 1,200 km to the south, in Vancouver.

Traditionally, the technical formulation of capital projects for First Nations communities in BC has been made in Vancouver. As such, NCTS is the first community owned engineering cooperative in BC and it routinely prepares proposals and capital funding requests on behalf of its members. The members indicate that having projects formulated by their own organization makes for better conceived projects.

These communities all aspire to be independent of INAC, as the resurgence in treaty negotiations has recently indicated. Consonant with the quote above, the main aim of setting up the Association was to provide a technical agency accessible to the people it serves and whose direction was determined by them. Additional objectives of the Association are:

- deliver cost effective engineering and utility services
- provide training to, and build capacity in, Maintenance Departments
- facilitate the sharing of information among the members

Governance

As per its constitution, the organization is governed by a Steering Committee, with each community providing a member. Although occasionally a Steering Committee member is an elected Councilor, most are employees of their respective communities. Some are administrators, capital projects officers or public works managers. Appointments are made by the elected Councils of each member community and they are often the same from year to year.

The intent of Steering Committee meetings is technical, functional and operational, with no emphasis on political issues. Meetings occur every other month and find members presenting updates on their capital projects, discussing issues relative to O+M activities, reviewing NCTS finances, etc.

NCTS staff is part of these meetings and make presentations on current and future projects. The meetings are a good training ground for members to understand engineering procedures, the current capital project approval process of funding agencies and issues related to industry.

Some administrative aspects of setting up the Association required:

- drafting and registering the constitution and bylaws
- determining standard policies and procedures for staff
- setting up the administrative and financial framework
- preparing job descriptions.

Services

The services provided by NCTS fall essentially into two overlapping categories: engineering and public works. In Canada, these two activities have usually been undertaken by separate companies, however there are definite advantages to having them performed by one. A few examples will serve to illustrate the point.

For example, preparing community base mapping for water and sewer services was best performed by the two services together. Although the information is generally used for public works activities, it was prepared by the engineering department: the final product was more thorough by having the two departments work together.

Having the public works and engineering services under one roof also facilitates communication. On sewer inspection projects, the engineer, responsible for the design, made recommendations on system upgrading based on camera

inspection findings. With the PWA in the same office, interpretation of the findings by both the engineer and the PWA was the same.

Also, the troubleshooting of operational problems for some of the new water treatment plants has been relatively smooth. The engineers have provided the theoretical component to troubleshooting and the PWA, who has been available for call-outs at short notice, has provided the practical.

Engineering services

Engineering includes both consulting and acting as client representative when other consultants are involved. Of the five NCTS staff members, two are engineers. The type of projects NCTS undertakes includes water, sewerage, marine facilities, roads, drainage, fire protection, capital planning, etc. When projects are outside its scope, NCTS uses a team approach to proposal development. Teams have been developed with specialists from the following disciplines: structural, fire protection, geotechnical, planning, hydrology/hydraulics, limnology and erosion.

Acting as client representative, NCTS has prepared project terms of reference; reviewed consultant's proposals, reports and designs; provided construction management services.

Being so close to the communities it serves, NCTS is well aware when local employment opportunities exist for the communities. For example, NCTS provided construction management services on a project which employed 26 residents in a community of only 260 people. Had the project been tendered, as the Department of Indian and Northern Affairs (INAC) had wanted, not only would it have been more costly but there would have been a significantly reduced local labour component.

Public works services

Although public works services fall generally into the two categories of advisory/training services, and undertaking of specific maintenance activities, there is usually a training component to all public works undertakings. Public works includes camera inspection of wells and sewers (not the same camera!!), swabbing of water supply and distribution mains, leakage investigations, servicing of fire hydrants, etc. The public works advisor (PWA) also provides inspection services for construction works designed by NCTS engineers.

Most of the above public works activities require little more than solid experience and reasonably priced equipment to undertake; consequently, the PWA usually has one or two local maintenance workers with him when he is working in a community. General contractors undertaking the same work wouldn't normally want to have local people working with them, as this could reduce their prospects for future business in that community. The advantage of working with local crews is that the PWA develops a close relationship with the maintenance department. This is useful for them because the PWA is a senior person to whom they can turn to when in difficulty.

NCTS also prepares annual Village Maintenance Management Systems (VMMS) for each member for their entire infrastructure: water, sewer, roads and solid waste. The VMMS includes updated descriptions of all maintenance tasks related to the above infrastructure items. The task description sheets are numbered and colour coded. Tables are used to show maintenance allocation indexed on task number for annual and monthly time periods. Additionally, a weekly calendar is prepared to show which tasks are to be completed on a particular day of the week. This VMMS is used for planning annual budgets and facilitates a periodic reporting structure between staff, the Head of Maintenance and the community Administrator.

Lift stations and pump houses are not computerized in member communities. Local maintenance staff provides the hour meter data to NCTS, who prepares operational statistics on sewage lift stations and potable water consumption. The PWA, who reviews this information, flags anomalies to the Head of Maintenance for each village. These reports allow NCTS to monitor local operations, which is what the elected councils have asked for.

Funding

Although it still has a fiduciary responsibility towards the First Nation Communities, INAC provided only start-up funding of US$155,000 for NCTS, and the member owners provided office furnishings and about US$70,000. All of its current income is from billable work, with approximate total annual expenses of US$ 230,000. NCTS markets its services to other clients, but the charge-out rates are slightly higher for non-members.

Profits from the organization have gone into the provision of free services, funding travel related expenses for Steering Committee meetings, equipment upgrades and employee professional development.

For the past four years, INAC has been promoting a procurement strategy aimed at encouraging First Nations businesses; however, information on the implementation of the program is essentially non-existent. The future, undoubtedly, will provide increased opportunities for organizations owned by traditionally disadvantaged populations.

Salaries paid to employees are generally in line with those paid by consultants. Isolation is somewhat alleviated by the stimulus of working in a team environment with other consultants on larger projects.

Conclusions

North Coast Technical Services was founded because a group of First Nations communities wanted technical support geographically close to them. As the trend to empower local decision makers continues, as the above quote predicts, then organizations like NCTS will become more prevalent. Indeed, the experience of NCTS indicates

that the co-operative model is a tested and viable alternative to the traditional engineering firm.

References

[1)]Bahá'í International Community, Office of Public Information. 1993. The Prosperity of Humankind.

[2)]Nickson, Andrew. 1998. Organisational Structure and Performance in Urban Water Supply: The Case of the Saguapac Co-operative in Santa Cruz, Bolivia.

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