

**Le rapport entre la réhabilitation
et
le développement soutenable**

par

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Le développement économique soutenable a été défini en 1987 par le groupe d'intervention national sur l'environnement et l'économie comme "un développement assurant que l'utilisation actuelle des ressources et de l'environnement ne puisse nuire aux perspectives de leur utilisation par les générations futures". Il est assez facile de concevoir comment ce concept peut s'appliquer aux ressources renouvelables tel que la foresterie, où la surface du sol n'est pas perturbée de façon importante et où la ressource (les arbres) peut être remise en état par reboisement. Il est plus difficile de comprendre comment ce concept peut s'appliquer aux perturbations graves, tel que l'exploitation minière, où la ressource est enlevée de façon permanente. Un mécanisme pour réussir le développement soutenable, dans un tel contexte, est la science (certains préféreraient dire l'art) de la réhabilitation.

Cette communication définit le développement soutenable dans un contexte de ressources non-renouvelables. J'examine ensuite la nature changeante de la réhabilitation dans le temps, à mesure qu'elle se dirige vers une méthode visant à assurer que le développement soutenable, dans le secteur des ressources non-renouvelables, soit possible.

Une révision de l'approche du gouvernement albertain, en matière de réhabilitation, montre comment nous parvenons à lier réhabilitation et développement soutenable. L'Alberta fut la première province à développer une réglementation visant à remettre en état les sites perturbés pour usage productif (soutenable). En effet, une loi sur la conservation des sites et la réhabilitation fut votée en 1973, anticipant le rapport du groupe d'intervention national de quelque quinze années.

Finalement, je poserai également un défi aux défenseurs de la réhabilitation, les incitant à présenter leurs solutions à la population; nos efforts constituent la deuxième meilleure nouvelle (après la création d'emplois) qu'une compagnie peut offrir au public local, concernant ses opérations, et nous devons nous assurer que les représentants des compagnies aient accès à l'information requise pour réussir leur travail de vendeurs.

THE RELATIONSHIP BETWEEN RECLAMATION AND SUSTAINABLE ECONOMIC DEVELOPMENT

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ABSTRACT

Sustainable economic development is defined as development which ensures that the utilization of resources and the environment today does not damage prospects for their use by future generations. It is relatively easy to see how this concept can be applied to renewable resources; it is more difficult to understand how it can be applied to a "drastic" disturbance, such as a surface mine, where the resource is permanently removed. One mechanism for achieving this is reclamation.

This paper will define sustainable economic development in the context of non-renewable resources and examine the changing nature of reclamation over time. A review of the Alberta Government's approach to reclamation will show how we tie reclamation and sustainable economic development together.

Finally I will also challenge reclamationists to promote their wares to the public.

INTRODUCTION

Sustainable economic development was defined by the National Task Force on Environment and Economy (1987) as "development which ensures that the utilization of resources and the environment today

does not damage prospects for their use by future generations". It is relatively easy to see how this concept can be applied to a renewable resource industry such as forestry, where the soil surface is not drastically disturbed and the resource (trees) can be returned through reforestation. In the case of an industry that utilizes a non-renewable resource, such as coal, the resource is permanently removed, and there is a "drastic" disturbance of the environment when surface mining methods are used. One mechanism for achieving sustainable economic development for the non-renewable resource sector is the science of reclamation.

In the non-renewable resource sector we can not return the resource for future use. At best, we can ensure that it is recovered, processed and used wisely (Orman 1990). This means that the recovery process is carefully planned to ensure that the maximum amount of the resource is removed with the least possible effect on the environment. In Alberta, the Energy Resources Conservation Board is charged with ensuring the orderly development of energy projects.

Sustainable economic development promotes environmentally sound economic development and growth. It does this by integrating environmental and economic planning. In this context, Alberta Environment's mandate is "to achieve the protection, improvement, and wise use of our environment now and in the future" (Alberta Environment 1990). From a land conservation perspective, this means that our objectives are to avoid irreparable environmental damage and ensure that Alberta's land resources are returned to productive use. The Alberta Land Conservation and Reclamation Council is charged with ensuring that developments are planned, conducted and reclaimed in such a manner that the land is returned to a capability equivalent to that prior to the disturbance.

CHANGES IN REGULATION

The following brief history of reclamation legislation in Alberta was abstracted mainly from a presentation by Bratton (1987) and serves as an overview of how the regulatory approach has evolved over time towards a sustainable economic development philosophy.

Prior to 1963, there was no reclamation legislation; in the case of mining, the resource was extracted and the spoil piles and pits were left untouched. In the 1960s, increased activity, coupled with a growing awareness of environmental issues resulted in the passing of the Surface Reclamation Act (SRA) of 1963. The Act was administered by what was then the Department of Mines and Minerals. It was the first provincial legislation that dealt specifically with reclamation.

The Act set minimum standards for reclamation which were mainly concerned with cleanup and recontouring of the land. It also established field enforcement staff and provided for reclamation certificates.

In 1973, 10 years after the passage of the SRA, the Land Surface Conservation and Reclamation Act (LSCRA) was passed. This Act marked a distinct change in attitude towards reclamation. Whereas the SRA required industry to clean up after the damage was done, the LSCRA provided for the planning of development to minimize adverse impact and to ensure that reclamation is accomplished.

In 1973, Parts 1 and 2 of the Act were passed. Part 1 dealt with general administration and responsibilities and Part 2 provided for the designation of surface disturbances requiring development and reclamation approvals. The operations that were "designated" were coal mines, oil sands schemes, pipelines, and sand and gravel pits. Regulations were developed to describe the form, content, and review process for applications for development and reclamation approval. In 1978, Part 3 of the Act was proclaimed and listed the types of surface disturbances for which reclamation standards were enforceable under the Act. It also provided for reclamation orders to enforce conservation and reclamation standards, and for reclamation certificates to ensure that the land was satisfactorily reclaimed. In 1980 a set of minimum standards was developed for Part 3 disturbances (Alberta Environment 1980).

In 1991, Alberta will introduce the Alberta Environmental Protection and Enhancement Act. This omnibus environment bill will continue the thrust of the government towards environmental protection, proactive reclamation, and public participation.

From this brief history of regulations in Alberta we can see the progression from "What mess?" to "Let's clean up the mess we have made" to "How can we do the job and minimize the mess we have to clean up". Taken in another context, we have moved from do nothing, to do it after (reclamation), to plan to minimize it (conservation) and then clean up what is left (reclamation). More and more we are focusing on conservation and planning to help make the reclamation job easier.

Since the mid 1970s, Alberta has had a system in place to promote sustainable economic development. This system is based on integrated decision making and the development of reclamation technology. Much of the success in Alberta has been due to the cooperative system we have put in place for solving development and reclamation issues. The regulatory process is highly interactive from the beginning of a project, through its operation, and up to its final reclamation. Furthermore, both government and industry work together through the Reclamation Research Technical Advisory Committee (RRTAC) to research better ways to achieve reclamation in Alberta (Reclamation Research Technical Advisory Committee 1990).

RECLAMATION AND SUSTAINABLE ECONOMIC DEVELOPMENT

In Alberta, reclamation is a pro-active process that anticipates and prevents problems by being integrated into the planning, operation, and ultimate abandonment phases of a project or activity. The goal has always been to return disturbed landscapes to a condition where they can be used again. We have changed the words or phrases we use to describe the end-point of reclamation over time, but the goal remains the same. Initially, the focus was to be at least as productive or useful after development. This was often misinterpreted as implying equal or better productivity. To correct this, the concept of equal capability was introduced. Equal capability has recently given way to equivalent capability.

We define equivalent capability to mean that after reclamation, the ability of the land to support various land uses is similar to the ability that existed prior to an activity being conducted on the land, but that the ability to support individual land uses will not necessarily be equal after reclamation. We feel that in order for development to be sustainable you must return those characteristics of the land which determine its ability to sustain various uses. The critical features of capability are: landscape form (primarily slope), drainage, and soil quality and quantity. Climate is considered to be a constant for the purposes of this discussion. For smaller disturbances such as pipelines and wellsites, the landscape is generally constant as well; thus we focus on soil capability in those areas.

In an area to be disturbed, there will be various parcels of land with different capabilities (due to slope or soil conditions). If the critical features are returned in each of the parcels the capability of the site has not been changed. However, this is not likely to happen. Changes in the critical features, the proportion of parcels with various capabilities, or the physical location of parcels of various capabilities may improve or detract from the overall capability of the site. Our general approach to this is to say that the percentage of land in a given capability class prior to disturbance should be returned after reclamation.

Generally, the original land use is the final land use; agricultural land goes back to agriculture, forested land goes back to forest cover, and wildlife areas go back to wildlife habitat. However, the original land use may not be deemed appropriate or feasible following disturbance and thus an opportunity exists to change the capability for various land uses and the use itself. All parties must then sit down and determine whether the new land capability and use have a similar, or better, "value" than the previous land capability and use. An example might be the creation of an end-pit lake fishery in an agricultural area. Another example might be the replacement of low productivity, rough topography scrub brush with smoothed agricultural land. A third example might be the creation of escape terrain for sheep in a forested area in a mountain setting.

Productivity is not considered to be a valid measure of successful reclamation because it measures only the ability of the land to support one crop, at one time, under one management scheme. Many years of crop data, for many crops, would have to be collected to demonstrate that the capability of the land had not been altered. In addition, productivity is difficult to apply to resources such as wildlife and fisheries where data are much less available and understood relative to agriculture or forestry. Furthermore, productivity cannot be applied to a recreation land use. In Alberta, land capability is the preferred method of evaluating- reclamation success.

The Alberta government's perception of successful reclamation may be different than that of the landowner or the operator or any of the other interest groups, or all of these. It is not the government's role to necessarily please either the landowner or the operator. Rather, our role is to ensure that the land base of Alberta is maintained for the full benefit and enjoyment of present and future generations of Albertans (Brocke 1987).

PROMOTING OUR WARES

Numerous polls have shown that the public is demanding higher environmental standards. They are also demanding more information and a greater level of participation in environmental decision making (Alberta Environment 1991).

Reclamation is what makes non-renewable resource extraction a sustainable industry. It is the second best thing about a large development (after jobs) that a company executive could use to sell a project at a local meeting. This is particularly true where there is a potential for improving the location of a land use, or providing a special land use that the community wants. If we could reach the public to tell them the things we do, I believe we could significantly reduce the concerns that surround large developments. However, I rarely see mention of our activities in newspapers or anywhere else except at these conferences.

Some corporate publications (notably the INCO Triangle) and some industry associations (Mining Association of British Columbia, Australian Mining Industry Council) are making headway in popularizing reclamation. In the near future we may also see an article in Canadian Geographic on mine reclamation which may help.

Industry continues to demonstrate greater concern for the environment by initiating guidelines with respect to environmental issues, joining with government in research programs, and restructuring operations to create environmental divisions (Orman 1990). At the same time, a 1989 poll showed that the public does not trust the mining industry and does not think it is environmentally friendly, although it ranks far above the chemical industry; 29% of respondents felt mining had poor performance vs.

52% for chemical (International Environmental Monitor Limited 1989) .

Who then should be promoting reclamation? In a 1989 survey, more of the public expressed a great deal of confidence in information from scientists/experts (51%) than from government (13% federal, 11% provincial), or industry (3%) (International Environmental Monitor Limited 1989). Much more communication is needed and I suggest that the CLRA/ACRSD, as a body of experts, is the best forum for this to start.

Notwithstanding the need for more communication, actions speak louder than words. Both government and industry need to convince Canadians through our actions.

SUMMARY

Reclamation of the land surface is what makes non-renewable resource developments sustainable. We must continue to strive to improve our science so that we can prove to regulators and the public that large developments are compatible with sustainable development. We must also greatly improve our communications with the public regarding the efforts we make towards sustainable economic development. The CLRA/ACRSD is an ideal forum to start promoting reclamation to the public.

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