11.1: Scenario H: Watershed management

Over a number of years, research faculty in the Departments of Land Management and Forestry at the University of Western Canada had developed a range of digital graphics, computer models and simulations about watershed management, partly as a consequence of research conducted by faculty, and partly to generate support and funding for further research.

At a faculty meeting several years ago, after a somewhat heated discussion, faculty members voted, by a fairly small majority, to make these educational resources openly available for re-use for educational purposes under a Creative Commons license that requires attribution and prevents commercial use without specific written permission from the copyright holders, the faculty responsible for developing the artefacts.

What swayed the vote is that the majority of the faculty actively involved in the research wanted to make these...
resources more widely available. The agencies responsible for funding the work that resulted in the development of the learning artefacts (mainly national research councils) welcomed the move to make these artefacts more widely available as open educational resources.

Initially, the researchers just put the graphics and simulations up on the research group’s web site. It was left to individual faculty members to decide whether to use these resources in their teaching. Over time, faculty started to introduce these resources into a range of on-campus undergraduate and graduate courses.

After a while, though, word seemed to get out about these OER. Research members began to receive e-mails and phone calls from other researchers around the world. It became clear that there was a network or community of researchers in this field who were creating digital materials as a result of their research, and it made sense to share and re-use materials from other sites. This eventually led to an international web ‘portal’ of learning artefacts on watershed management.

The researchers also started to get calls from a range of different agencies, from government ministries or departments of environment, local environmental groups, First Nations/aboriginal bands, and, occasionally, major mining or resource extraction companies, leading to some major consultancy work for the faculty in the departments. At the same time, the faculty were able to attract further research funding from non-governmental agencies such as the Nature Conservancy and some ecological groups, as well as from their traditional funding source, the national research councils, to develop more OER.

By this time, the departments had access to a fairly large amount of OER. There were already two fourth and fifth level fully online courses built around the OER that were being offered successfully to undergraduate and graduate students. A proposal was therefore put forward to create initially a fully online post-graduate certificate program on watershed management, built around existing OER, in partnership with a university in the USA and another one in Sierra Leone. This certificate program was to be self-funding from tuition fees, with the tuition fees for the 25 Sierra Leone students to be initially covered by an international aid agency.

The Dean, after a period of hard negotiation, persuaded the university administration that the departments’ proportion of the tuition fees from the certificate program should go directly to the departments, who would hire additional tenured faculty from the revenues to teach or backfill for the certificate, and the departments would pay 25 per cent of the tuition revenues to the university as overheads. This decision was made somewhat easier by a fairly substantial grant from Foreign Affairs Canada to make the certificate program available in English and French to Canadian mining and resource extraction companies with contracts and partners in African countries.

Although the certificate program was very successful in attracting students from North America, Europe and New Zealand, it was not taken up very well in Africa beyond the partnership with the university in Sierra Leone, although there was a lot of interest in the OER and the issues raised in the certificate courses. After two years of running the certificate, then, the departments made two major decisions:

- another three courses and a research project would be added to the certificate courses, and this would be offered as a fully cost recoverable online master in watershed resource management. This would attract greater participation from managers and professionals in African countries in particular, and provide a recognised qualification that many of the certificate students were requesting;
- drawing on the very large network of external experts now involved one way or another with the researchers, the
university would offer a series of MOOCs on watershed management issues, with volunteer experts from outside the university being invited to participate and provide leadership in the MOOCs. The MOOCs would be able to draw on the existing OER.

Five years later, the following outcomes were recorded by the Dean at an international conference on sustainability:

- the online master’s program had doubled the total number of graduate students in her Faculty;
- the master’s program was fully cost-recoverable from tuition fees;
- there were 120 graduates a year from the master’s program;
- the degree completion rate was 64 per cent;
- six new tenured faculty had been hired, plus another six post-doctoral research staff;
- several thousand students had registered and paid for at least one course in the certificate or master’s program, of which 45 per cent were from outside Canada;
- over 100,000 students had taken the MOOCs, almost half from developing countries;
- there were now over 1,000 hours of OER on watershed management available and downloaded many times across the world;
- the university was now internationally recognised as a world leader in watershed management.

Although this scenario is purely a figment of my imagination, it is influenced by real and exciting work being done by the following at the University of British Columbia:

- Dr. Hans Schreier, Watershed Management Courses, Institute of Resources, Environment and Sustainability, UBC
- Virtual Soil Science Learning Resources (developed by a consortium of British Columbian universities)
- Graduate Certificate in Technology-Based Learning, Division of Continuing Studies/Faculty of Education, UBC
- International Master in Educational Technology, Faculty of Education, UBC