Thesis project in the framework of the monitoring program of the removal of Selune dams

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<th>The decommissioning of the dams on the Sélune River in international context. Comparative geographic approach applied to decommissioning projects of hydraulic works on both sides of the Atlantic</th>
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| Thesis supervisor    | Supervisor: Laurent LESPEZ, Professor in physical geography, University Paris Est Créteil Val de Marne / Laboratory of physical geography – LGP – de Meudon, UMR 8591 CNRS  
Co-supervisor: Marie-Anne GERMAINE, assistant professor in geography, University Paris Ouest Nanterre La Défense / Laboratoire Mosaïques UMR LAVUE 7218 CNRS |
| Research program     | The decommissioning of the Selune dams : environmental and social issues  
| Thesis duration      | 36 months  
Program duration | February 2015 to April 2019 |
| Host University      | The student will join the doctoral school « Sciences Ingénierie Environnement » (SIE) in Paris East University |
| Host laboratory      | The student will be based at the Laboratory of physical geography (LGP) in Meudon (UMR 8591 CNRS) |
| Financial support of the program | Water Agency of Seine-Normandie |

To apply: send a CV and a covering letter to laurent.lespez@u-pec.fr and marie-anne.germaine@u-paris10.fr before 2015/05/10.

Laboratory of physical geography
Thesis project in the framework of the monitoring program of the removal of Sélune dams

Doctoral thesis title

The decommissioning of the dams on the Sélune River in international context. Comparative geographic approach applied to decommissioning projects of hydraulic works on both sides of the Atlantic

Scientific context of the study

The removal of the Roche-qui-Boit and Vezins dams on the Sélune River (France, Manche), announced in November 2009 by the Minister of Ecology, is an unprecedented project on both a national scale in France and on the broader European scale given the size of the structures (respectively 16 and 35 m high). Many studies have been conducted on the hydro-geomorphological and ecological effects of their removal (see e.g., Darby & Sear, 2008). While much of this research has emphasized the interest in addressing the social aspects of these operations (Junker et al., 2007; Chiari et al., 2008; Egan et al., 2011; Morandi & Piégay, 2011; Lave, 2012; Morandi et al., 2014), little work has as yet been done to develop a holistic approach.

The experience acquired on these aspects via the socio-geographic axis of the scientific monitoring program for the removal of the Sélune River dams and observation of the difficulties in social acceptance and policy building for the operations demonstrate the need to develop such a holistic study. Such a study puts the Sélune project in perspective in an international context to measure its impact. The most active dam removal policy is applied across the Atlantic and works higher than 10 m have been decommissioned. Much research has been done on the rivers on the West Coast of the United States during the removal of very large structures, some of which have developed landscape and socio-economic research axes (e.g., for the Elwha River in the state of Washington: Loomis, 1996, Gowan, 2006, Mapes, 2013, among others). In contrast, little work has been done on the socio-economic challenges of projects developed with success on the East Coast. Nonetheless, this region contains watersheds with hydro-geomorphological (medium-energy rivers) and geographic (former agricultural development, population density, proximity to major urban centers, etc.) characteristics that are much more similar to those of the rivers in northwest France.

This project is thus based on the completion of a doctoral thesis in Geography in order to conduct a comparative study of the project in progress on the Sélune River with examples of dam removal on the East Coast in the states of Pennsylvania, New Jersey, Connecticut and Maine. The water ways of these states have recently undergone many dam removals: these rarely involve dams higher than 10 m, but given the number of structures removed, this has significant repercussions for the rivers.

1 Darby S., Sear D., 2008, River restoration, managing the uncertainty in restoring physical habitat, Wiley, Chichester.
9 See the benchmarking axis led by M.-A. Germaine and L. Lespzez in 2012: http://reppaval.hypotheses.org
After fieldwork undertaken in the framework of the ANR-REPPAVA\textsuperscript{13}, potential study sites have been identified: the dams located in the south-central hills of Pennsylvania (in particular Birch Run Dam – 19 m high; Manuel, 2009\textsuperscript{14}), on the Kennebec River in Maine (Edwards Dam – 8 m high; Crane, 2009\textsuperscript{15}) and plurimetric works along the Raritan River in New Jersey. Other dam removal projects will also be surveyed.

**Institutional context and objectives**

This thesis will be done in the context of research undertaken in axis 4 of the scientific monitoring program for dam removal on the Sélune River, which focuses on the social and geographic dimensions. The doctoral student will be a member of the team involved in this program and will benefit from its supervision.

(1) The first objective will be to create an inventory of removal operations for hydraulic works on the East Coast of the United States. The implementation of different exemplary projects will then be analyzed and compared by studying their history, the socioeconomic, political and landscape contexts in which they were developed and the intended environmental objectives. This involves understanding the jurisdictions of these operations and identifying the arguments on which these objectives were based and supported. More specifically, the modes of communication, participation and interaction employed will be analyzed. This initial topic will be based on the collection and analysis of studies and documentation for these American projects, using analytic tools of their contents (Le Lay, 2013\textsuperscript{16}; Comby & Le Lay, 2014\textsuperscript{17}).

(2) The second objective focuses on identifying and comparing the interplay of the participants in the dam removal projects, which includes the promoters, financial backers, scientists and local communities as well as the users involved. Survey by interview and questionnaire will be done. This will identify the keys for acceptance of the environmental project and the political and economic means that permitted its adoption (or not) by the residents.

(3) Finally, the thesis will address the landscape transformations and the specific procedures planned or carried out in the context of the operations studied, such as drawing the channel and treatment of the riparian vegetation, the installation of equipment for visitors (paths, recreational facilities, public reception services, etc.) and/or the creation of communications about the newly restored site (ecological valorization, media dissemination, etc.). This will measure how the ecological project is supported and how it meets (or not) the land improvement projects.

**Inclusion of the doctoral student**

The doctoral student will participate in discussions with the researchers from other teams involved in the scientific monitoring program for dam removal on the Sélune (Resp. Baglinière J.-L. and J.-M. Roussel, INRA Agrocampus Ouest, ESE, Rennes) and will be more specifically associated with the work of axis 4 (sociogeography) that monitors the landscape transformations, use and representations (Resp. M.-A. Germaine, U. Paris Ouest).

\textsuperscript{13} See the benchmarking axis led by M.-A. Germaine and L. Lespez in 2012: \url{http://reppaval.hypotheses.org/category/actualites-scientifiques-scientific-watch/feed}


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The student will be part of the LGP where s/he will have a workstation in a research environment. The student will be a member of Team 2.

Financial conditions

The student will receive a doctoral allowance for three years as well as funding to cover the costs of field missions (surveys, fieldwork, etc.).

Desired profile

The candidate must have a Master 2 diploma (at the end of the 2014-2015 academic year at the latest) in Geography, Environmental Sciences and Techniques or in the fields of Political Ecology and Social Sciences.

Knowledge in the field of water management policies, ecological restoration and the operation of hydrosystems will be an advantage, as well as the ability to work in both French and English.

To apply: Send a CV and covering letter to laurent.lespez@u-pec.fr and marie-anne.germaine@u-paris10.fr before 10 May 2015.