



**PROGRESS REPORT**  
**YEAR 2012**  
**Sustainability Assessment Protocol for Geothermal  
Utilization**

Project ID: 10-03-012

Coordinator: Brynhildur Davíðsdóttir

Start date: September 1 2011

Duration: 3 years and 4 months

Partners: University of Iceland, ISOR, Orkustofnun, Reykjavik Energy

## 1 General status of the project

Sustainable development calls for the use of sustainable energy systems. However the way in which a geothermal resource is utilized will ultimately determine whether or not it is sustainable.

Sustainable utilization of geothermal energy means that it is produced and used in such a way that it is compatible with the well-being of current and future generations.

The objective of GEOVISAR is to develop a Sustainability Assessment Protocol for Geothermal Utilization (GSAP), tailored especially for geothermal energy development projects. This protocol will be tested and implemented for projects in countries at various stages of development, including Iceland.

### 1.1 Project progress/time schedule:

Time schedule is shown below. The structure of the project has slightly changed since the project was designed due to delay in student arriving in Iceland and beginning her work. The student arrived in late August and began work on September 1 2011. As a result there is a 4 month delay in the initial work plan. In addition, as the result of a very interesting stakeholder meeting held in December 2011, the project committee has decided to add one iteration in Iceland. As a result the New Zealand iteration will be performed in the fall in New Zealand, instead of in the spring of 2012.

| Subtask   | Original plan: Start | Original plan: Finish | Deliverable/Milestone                        | Progress                                      |
|---|----------------------|-----------------------|--|---|
| <i>Student Hired</i>  |                      |                       |  | Completed with the hire of Ruth Shortall (RS) |
| <i>Choice of preliminary indicators and first assessment at Krafla energy project</i> | 1/4/11               | 31/12/11              | Krafla assessment                            | Completed                                     |
| <i>Review of indicators for suitability</i>   | 1/1/12               | 31/3/12               | First iteration of indicators                | Completed                                     |
| <i>Assessment in Nesjavellir</i>  | 1/4/12               | 31/5/12               | Nesjavellir assessment                       | Completed                                     |
| <i>Review of indicators for suitability</i>   | 1/6/2012             | 30/6/2012             | Second iteration of indicators               | Completed                                     |
| <i>Assessment of energy project in a developed country</i>                            | 1/4/12               | 30/6/12               | Assessment and implementation in New Zealand | Currently in operation. RS is in NZ.          |
| <i>Review of indicators for suitability</i>   | 1/7/12               | 30/9/12               | Third iteration of indicators                | Currently in operation. RS is in NZ.          |
| <i>Assessment of energy project in</i>  | 1/10/12              | 31/12/12              | Assessment Kenya,                            | Delayed until Spring 2013                     |

|  |         |          |   |   |
|--|---------|----------|---|---|
| <i>a developing country</i>                                |         |          |   | 1/1/2013 – 30/5/2013<br><br>Please note we may need to switch assessment in Kenya and Dominica, as the spring of 2013 may be unstable in Kenya due to elections to be held at that time.                              |
| <i>Review of indicators for suitability</i>                | 1/1/13  | 31/3/13  | Fourth iteration of indicators            | Delayed until Spring 2013<br>1/1/2013 – 30/5/2013<br><br>Please note we may need to switch assessment in Kenya and Dominica, as the spring of 2013 may be unstable in Kenya due to elections to be held at that time. |
| <i>Assessment of energy project in an emerging economy</i> | 1/4/13  | 30/6/13  | Assessment and implementation in Dominica | Delayed until Fall 2013<br>6/1/2013 – 30/11/2013  |
| <i>Review of indicators for suitability</i>                | 1/7/13  | 30/9/13  | Fifth iteration of indicators             | Delayed until Fall 2013<br>6/1/2013 – 30/11/2013  |
| <i>Final Indicator set produced</i>                        | 1/10/13 | 31/12/13 | Final set of indicators delivered         | 1/12/2014 – 31/2/2014   |
| <i>Development of thesis and software</i>                  | 1/1/14  | 30/9/14  | Thesis delivered                          | 1/3/2104 – 31/1/2015  |

## 2 Project Management

The project is supervised by Icelandic sustainability and geothermal experts, which include the following individuals:

Dr. Brynhildur Davidsdóttir (Háskóli Íslands)

Dr. Guðni Axelsson (ÍSOR)

Dr. Ladislaus Rybach, Director, IGA

Liasons with Orkustofnun and projects abroad:

Mr. Jónas Ketilsson (Orkustofnun) – chairperson of the working group for sustainable geothermal utilization.

Liasons with Reykjavik Energy:

Dr. Einar Gunnlaugsson

### 3 Student involvement

One PhD student works full time on the project, Ms. Ruth Shortall. She is expected to graduate in the spring of 2015 with a PhD in Environment and Natural Resources, from the faculty of Life and Environmental Sciences at the University of Iceland.

### 4 Publications and disseminations

The dissemination strategy of this project contains formal academic publications, participation in academic meetings such as the Geothermal PhD day, publication on websites as well as a formal website that belongs to the project.

Dissemination in 2011 consisted of:

1. Organized a stakeholder workshop on the indicators in December 2011– attended by stakeholders in Iceland.
2. An online article on the effort: <http://thinkgeoenergy.com/archives/9322>

In 2012 dissemination consist of of:

1. Participation in the Geothermal PhD Day and EERA workshop in March 2012. R. Shortall will present a poster as well give a short presentation on the project.
2. Completion of website. Please see: <http://gsap.is/>
3. Publication on the indicator set in Encyclopedia of Earth (see [eearth.org](http://eearth.org)). Submitted.
4. Submission of the theoretical framework of the indicator set in an ISI rated journal. Submitted.
5. Publication in “Comprehensive Renewable Energy” which is published by Elsevier in 2012. B. Davidsdottir, 2012, Sustainable Energy Development: The Role of Geothermal Power, Comprehensive Renewable Energy

### 5 Cost statement

The only cost of this project so far is the salary of the hired PhD student, a well as travel cost to New Zealand as well as additional living expenses in New Zealand. Salary payments since September 1 2011.