



Naturpark  
Møllerdall  
*Geopark*

## APPLICATION DOSSIER

for UNESCO Global Geopark

# EXTRAIT DU DOSSIER DE SOUMISSION NOVEMBRE 2017



Møllerdall Geopark



# Table of Content

<b>A Identification of the Area..... 3</b>	<b>D Economic Activity &amp; Business Plan (including detailed financial information)..... 38</b>
A1. Name of the proposed Geopark: Möllerdall Geopark..... 3	D1. Economic activity in the proposed Geopark..... 38
A2. Location of the proposed Geopark..... 3	D2. Existing and planned facilities for the proposed Geopark (e.g. geo-education, geotourism, tourism infrastructure etc)..... 40
A3. Surface area, physical and human geography characteristics of the proposed Geopark ..... 5	D3. Analysis of geotourism potential of the proposed Geopark ..... 42
A4. Organization in charge and management structure (description, function and organogram) of the proposed Geopark ..... 9	D4. Overview and policies for the sustainable development of: - geo-tourism and economy - geo-education - geo-heritage ..... 43
A5. Application contact person (name, position, tel./fax, e-mail) ..... 13	D5. Policies for, and examples of, community empowerment (involvement and consultation) in the proposed Geopark ..... 46
<hr/>	
<b>B Geological Heritage ..... 14</b>	D6. Policies for, and examples of, public and stakeholder awareness in the proposed Geopark ..... 47
B1. General geological description of the proposed Geopark ..... 14	
B2. Listing and description of the geological sites within the proposed Geopark..... 21	
B3. Details on the interest of these sites in terms of their international, national, regional or local value (for example scientific, educational, aesthetic) ..... 29	
B4. Listing and description of other sites of natural, cultural and intangible heritage interest and how they are related to the geological sites and how they are integrated into the proposed Geopark ..... 30	
<hr/>	
<b>C Geoconservation..... 33</b>	<b>E Interest and arguments for becoming a UNESCO Global Geopark..... 47</b>
C1. Current or potential pressure on the proposed Geopark ..... 33	
C2. Current status in terms of protection of geological sites within the proposed Geopark.... 35	
C3. Data on the management and maintenance of all heritage sites (geological and non-geological) ..... 37	

**The following annexes exist as separate documents:**

- Annexe 1: Self-evaluation document
- Annexe 2: A separate copy of section B  
“Geological Heritage”
- Annexe 3: Letters of endorsement and support
- Annexe 4: A large scale map of the proposed  
UNESCO Global Geopark
- Annexe 5: 1-page geological and geographical  
summary

# A Identification of the Area

## A1. Name of the proposed Geopark: Mëllerdall Geopark

“Mëllerdall” is the Luxembourgish expression for „valley of the mills”. Being originally the name of a small hamlet in the area, Mëllerdall (also spelled Mullerthal or Müllerthal) has become the established name of a larger region in the east of Luxembourg. This region has its own designated strategies for regional planning and is also used by different organizations such as LEADER-LAG<sup>1</sup>, ORT-MPSL<sup>2</sup> and the Nature Park Mëllerdall. The name originates from the numerous mills that, in former times,

operated along the river Sauer and its tributaries Black Ernz and White Ernz as well as along smaller creeks. The water that feeds the rivers emerges out of the important Luxembourg Sandstone aquifer in addition to other sandstone and dolomitic units. Today, several of these springs are used for the supply of drinking water, allowing the municipalities of the region to be nearly fully self-sufficient in this respect.

Since the late 19<sup>th</sup> century, the rocky landscape of the Luxembourg Sandstone Formation has been touristically promoted as “Luxembourg’s Little Switzerland” (“Petite Suisse Luxembourgeoise”). With its great variety of sedimentary and weathering structures, the up to 100 m thick sandstone unit forms one of the most spectacular and impressive sandstone landscapes in Western Europe. The formation constitutes the central part of a small-scale cuesta landscape with a large variety of geomorphological forms. The sequence of different rock types has provided areas for settlement and farming and allowed the exploitation of natural resources such as groundwater or building stones. Since the Stone Age, the influence of human activity has turned the natural landscape into a cultural one, rich in biodiversity and with a large diversity of ecological niches.

## A2. Location of the proposed Geopark

The Geopark is situated in Eastern Luxembourg. Address and geographical coordinates of the park administration:

**Maison du Parc:**

8, rue de l’Auberge,  
L-6315 Beaufort

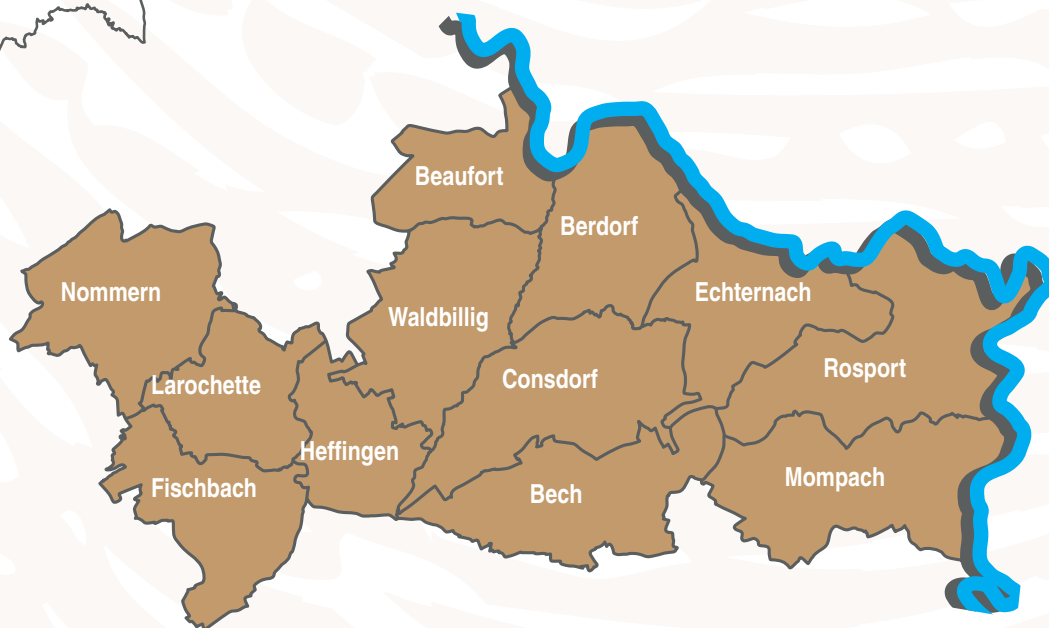
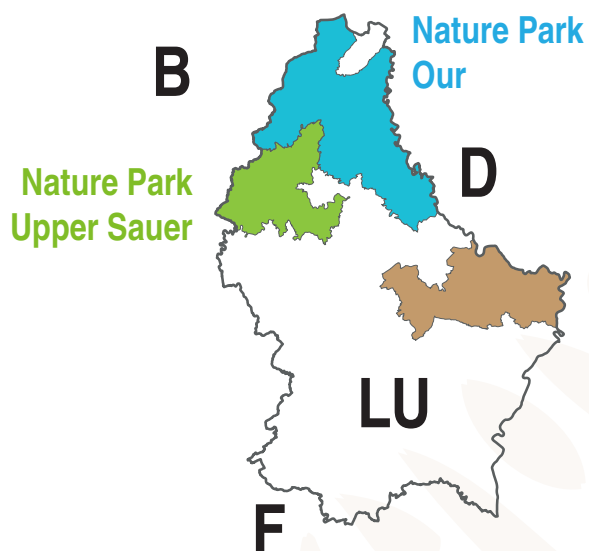
(6° 17’ 31.7” E | 49° 50’ 04.2” N)

Luxembourg is one of the smallest countries in Western Europe with an area of 2586 km<sup>2</sup>, bordering France, Belgium and Germany. It is situated in the centre of the Saar-Lor-Lux region, the so-called “Greater Region”.

<sup>1</sup>: LEADER-LAG: “Liaison Entre Actions de Développement de l’Economie Rurale”, a European initiative, Local Action Group LEADER Region Mëllerdall

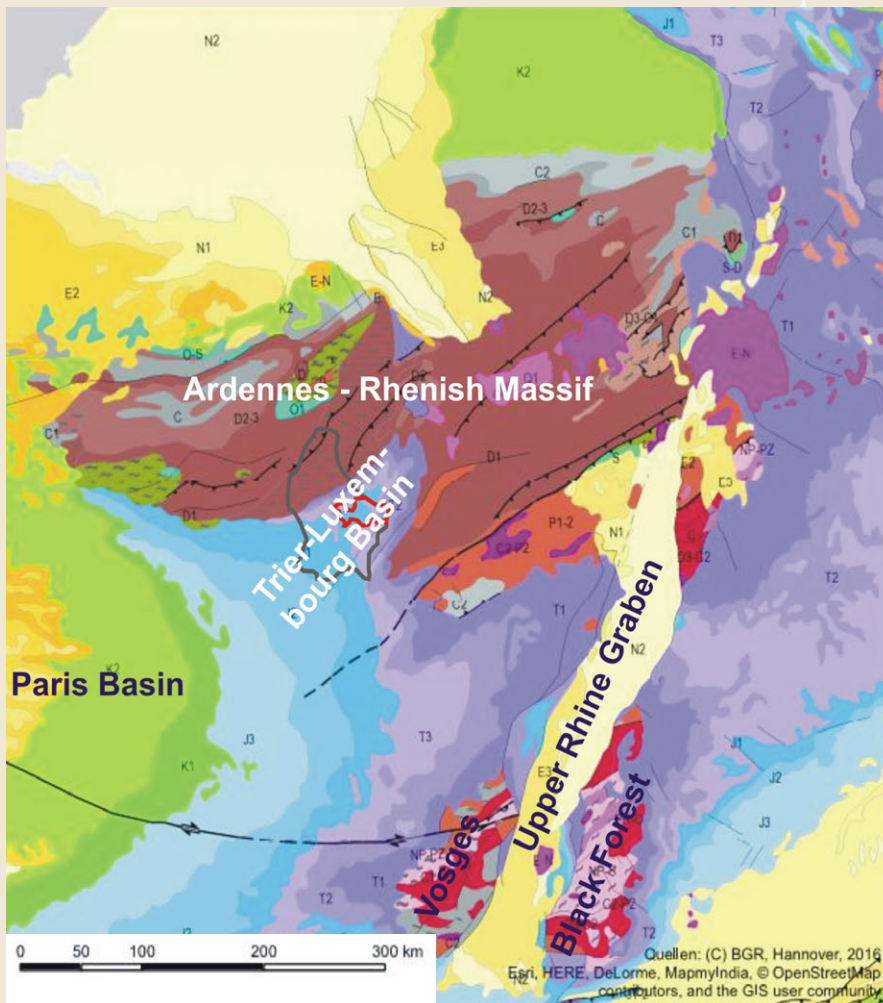
<sup>2</sup>: ORT-MPSL: Regional Tourism Organisation “Mullerthal – Luxembourg’s Little Switzerland”

## Location of the Mëllerdall Geopark



The Mëllerdall Geopark's surface is defined by 12 municipalities which also form the outer borders of the park. The river Sauer forms a natural border to Germany on the eastern and north-eastern side of the park.

## Location on the geological map



The Mëllerdall Geopark is situated in the centre of the Trier-Luxembourg Basin, a synclinal structure of Mesozoic Rocks on the north-eastern rim of the Paris Basin, extending into the Rhenish Massif.

Luxembourg is geologically divided into a southern half, called “Guttland” (“good land”) and a northern half, called “Éislek”, which is a part of the Ardennes – Rhenish Massif area. The Mëllerdall Geopark is located in the north-eastern part of Guttland, the border of the Éislek is around 10 km to the North.

The youngest sediments of the region are characterized by the Luxembourg Sandstone, a sandy facies of Lower Liassic age (a sandstone with calcareous cement) which is a lenticular body embedded into a clayey and marly<sup>3</sup> “Lorraine normal facies”.

### A3. Surface area, physical and human geography characteristics of the proposed Geopark

The **surface area** of the Mëllerdall Geopark is 256 km<sup>2</sup>, which is about 1/10 of the country’s total surface area. The area of the Park has a permanent population of about 23,000 inhabitants (4.5 % of the population of the country). Seasonal tourism however, especially during high season (July and August) increases the area’s population by a fivefold.

The **largest town** and centre of the region with 5,500 inhabitants is **Echternach**. It is also the oldest town of Luxembourg, founded in 698 by Saint Willibrord, a Northumbrian missionary, who established the famous Abbey of Echternach, where his remains are buried and where monks developed one of the most important scriptoria in the Frankish Empire.

<sup>3</sup>: “marly” and “marl” are used in the sense of (like a) “marlstone”, an indurated marine deposit



The **Dancing Procession of Echternach** is founded on the cult of Saint Willibrord. It is a religious event, deeply rooted in regional traditions and is expressed through prayer, song and dance. Nowadays, the procession is supported by the civil and religious authorities and attracts an average of 13,000 participants each year from Luxembourg and the neighbouring regions. In 2010, the procession was included in the Representative List of the Intangible Cultural Heritage of Humanity of UNESCO.

In 1886, thanks to the invention of the lead accumulator by the Luxembourgish engineer Henri Tudor (1859 - 1928) **Echternach was amongst the first cities in the world to have electrical light.**

The Mëlldall Geopark is part of the **cuesta landscape of the Luxembourg Guttland**, the southern part of Luxembourg (the name "Guttland" referring to the climatic and soil-conditions, which are favourable for agriculture). It is formed by sediments of Triassic and Jurassic age and is characterized by three geomorphological units, roughly differentiated into:

- » the plateaus of the Luxembourg Sandstone Formation and the dolomites, extending to altitudes slightly above 400 m and deeply incised by rivers and creeks,
- » gently undulating hillsides in marly substrate and
- » the major valleys of the rivers Sauer and Alzette.

The **lowest point** of the Geopark, with an altitude of about 140 m, is located in the south-east of the area, in the Sauer valley. The rivers Alzette, White Ernz and Black Ernz are tributaries of the river Sauer. The whole area is part of the drainage basin of the Moselle river.

The **annual mean temperatures** in the region are 8 - 9.5 °C, with 17 °C in the summer and 0 °C in the winter in mild positions. Annual precipitation is about 700 - 800 mm. The climate is characterized by transitional conditions from atlantic to continental and is favourable for agriculture.

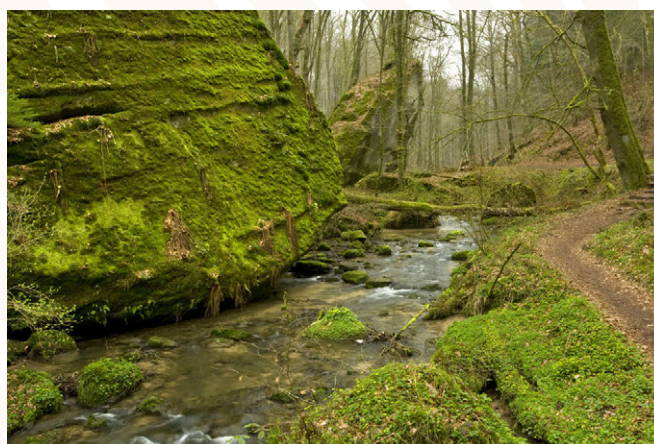
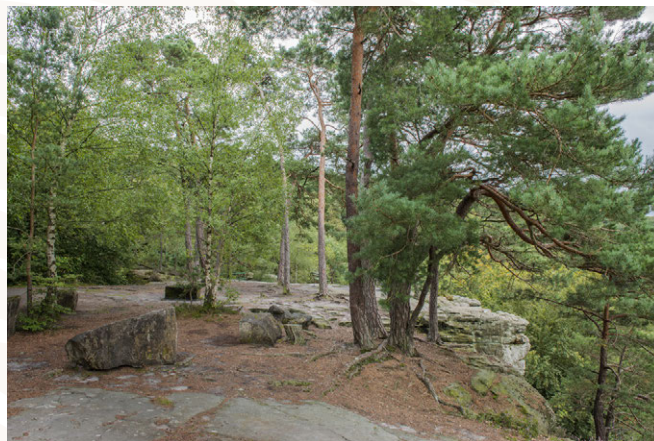
The Luxembourg **Sandstone Formation** is the most important aquifer in terms of **drinking water supply**, with a long-term continuous discharge



and excellent filtering capacities. Water from dolomitic layers of the Muschelkalk is used to a minor extent. Smaller groundwater reservoirs in limestone, dolomite and sandstone layers often run dry during the summer months, while small rivers on marly substrate run only periodically after precipitation events.

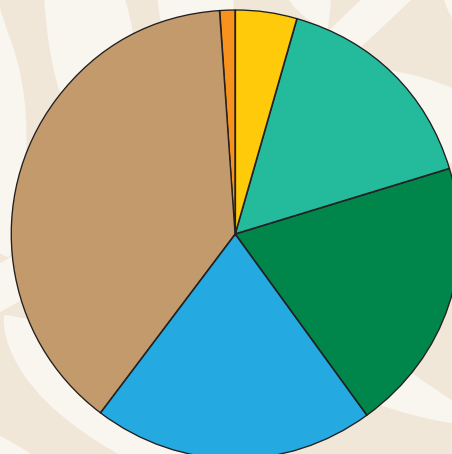
The Möllerdall Geopark is a **rural area**. Land use changes depending on topography and soil types and changes depending on the substrate. The plains, plateaus and shallow slopes with fertile soils on marly or dolomitic substrate are mostly used for agriculture. Meadow orchards are typical elements of this historically grown cultural landscape. The steep slopes, mainly constituted by dolomites or sandstone, are covered by wood, mainly deciduous and mixed forests (*Melico-* and *Luzulo-Fagetum*, on regolith also *Tilio-Aceretum*). *Ilex aquifolium* is proof of the atlantic climatic conditions in the valleys. *Pinus sylvestris* is present on the sandy, easily parched edges of the plateaus. While *Pinus sylvestris* might be autochthonous, as are *Juniperus communis* and *Taxus baccata*, other conifers are of anthropogenic origin.

The region is highly regarded for its **botanical specifics**. Extreme microclimatic conditions along the high rock faces and in narrow gorges which tend to mimic the oceanic climate of the European Atlantic fringe, favour the occurrence of a great variety of ferns and mosses worth protecting. Some of these have one of their rare incidences in Continental Europe here (e.g. *Hymenophyllum tunbrigense* and *Trichomanes speciosum*).



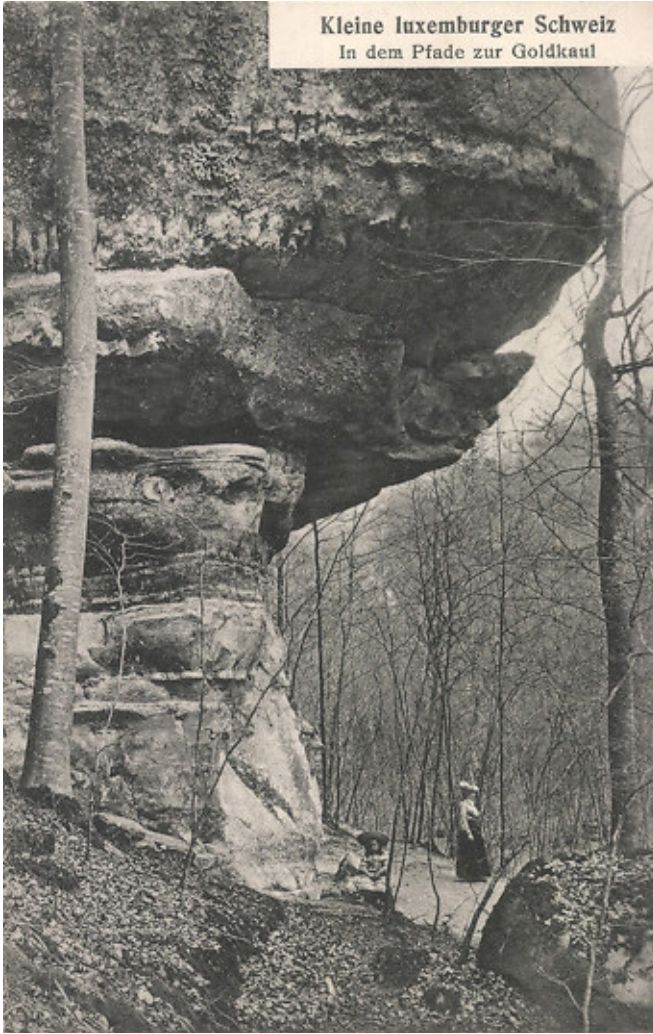
### Land use

- artificial surfaces (4.5 %)
- arable land (16 %)
- pastures (20 %)
- heterogenous agricultural areas (20.5 %)
- forests (39 %)
- water bodies (< 1%)



Database:  
Corine Landcover

Kleine luxemburger Schweiz  
In dem Pfade zur Goldkaul



The **natural resources** of the Geopark region have been used by man since prehistoric times. Archaeological findings show the Mëlldall to be an important archive of the early history of Luxembourg. The oldest human skeleton in Luxembourg was found in the area, in the valley of the Black Ernz. In ancient times, geomorphological forms like ledges, rock overhangs, caves and open joints have been used as temporary settlement areas, shelter and burial grounds. Remnants of a Roman villa and some medieval castles are present and can be visited in the area as well. Today, the main settlement areas are plateaus and hillsides, as well as the valleys of the rivers Sauer and White Ernz, which are used mainly for agriculture. Natural resources like water and building stones have been exploited by man since his early days, and today the region is nearly self-sufficient in its supply of drinking-water from groundwater. Some water is even exported to neighbouring municipalities.

The **touristic tradition** dates back to the late 19<sup>th</sup> century and is mainly based on the picturesque landscapes and is still highly active today. Activities such as hiking and rock climbing take place on well signposted trails and in defined areas.

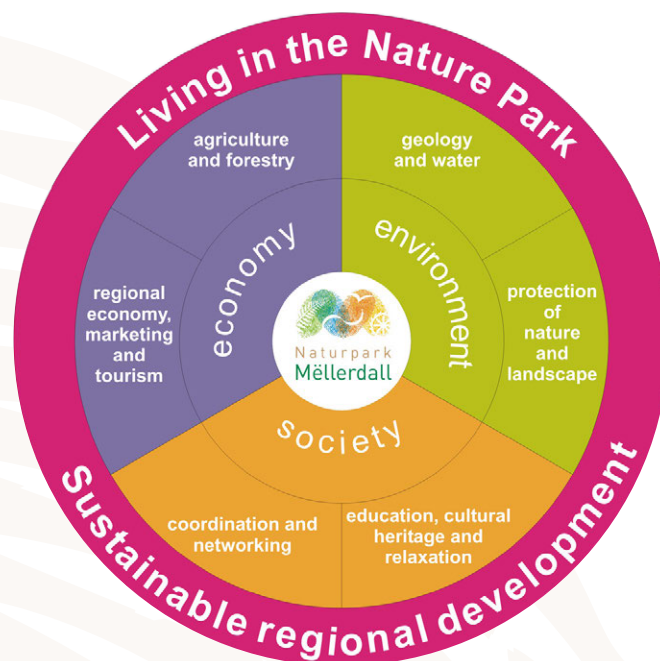




## A4. Organization in charge and management structure (description, function and organogram) of the proposed Geopark

The Nature Park Mëllerdall is in charge of the management of the Mëllerdall Geopark since 2016. Since 2011, the activities of the Geopark were managed and coordinated by the Geology working group. This group comprised of members of a number of scientific, administrative and touristic organizations. Members of this group have carried out a large number of projects, that were partly managed by the RIM<sup>4</sup> and co-financed by LEADER.

The Nature Park Mëllerdall is a recognized body under national legislation (Law of 10<sup>th</sup> August 1993 on Nature Parks). It was established by the by-law of 17<sup>th</sup> March 2016 (Règlement grand-ducal du 17 mars 2016 portant déclaration du Parc naturel du "Mëllerdall").



According to Luxembourg law, a Nature Park is an instrument of **regional planning and focuses on regional sustainable development** and therefore

shares common goals with the Geopark.

The objectives as defined in legislation are:

- » preservation and restauration of its high-value natural and cultural heritage;
- » protection of air, water and soil quality;
- » promotion and orientation of economic and sociocultural development and improvement of employment possibilities and local quality of life;
- » promotion and orientation of touristic and leisure activities.

The active involvement of the national and municipal government in the Nature Park and the Geopark ensures the preservation and further development of the specific characteristics of the region.

Based on the specialized knowledge of the staff and the structural framework of the park, the Nature Park Mëllerdall is an important platform for networking and for offering various services in the region. It creates considerable and sustainable synergies between different actors.

The overall concept of the Nature Park Mëllerdall has been developed in a **bottom-up approach** by local people, municipalities and national institutions. The concept is defined in a master plan, the so called "étude détaillée", which is valid for a period of 10 years.

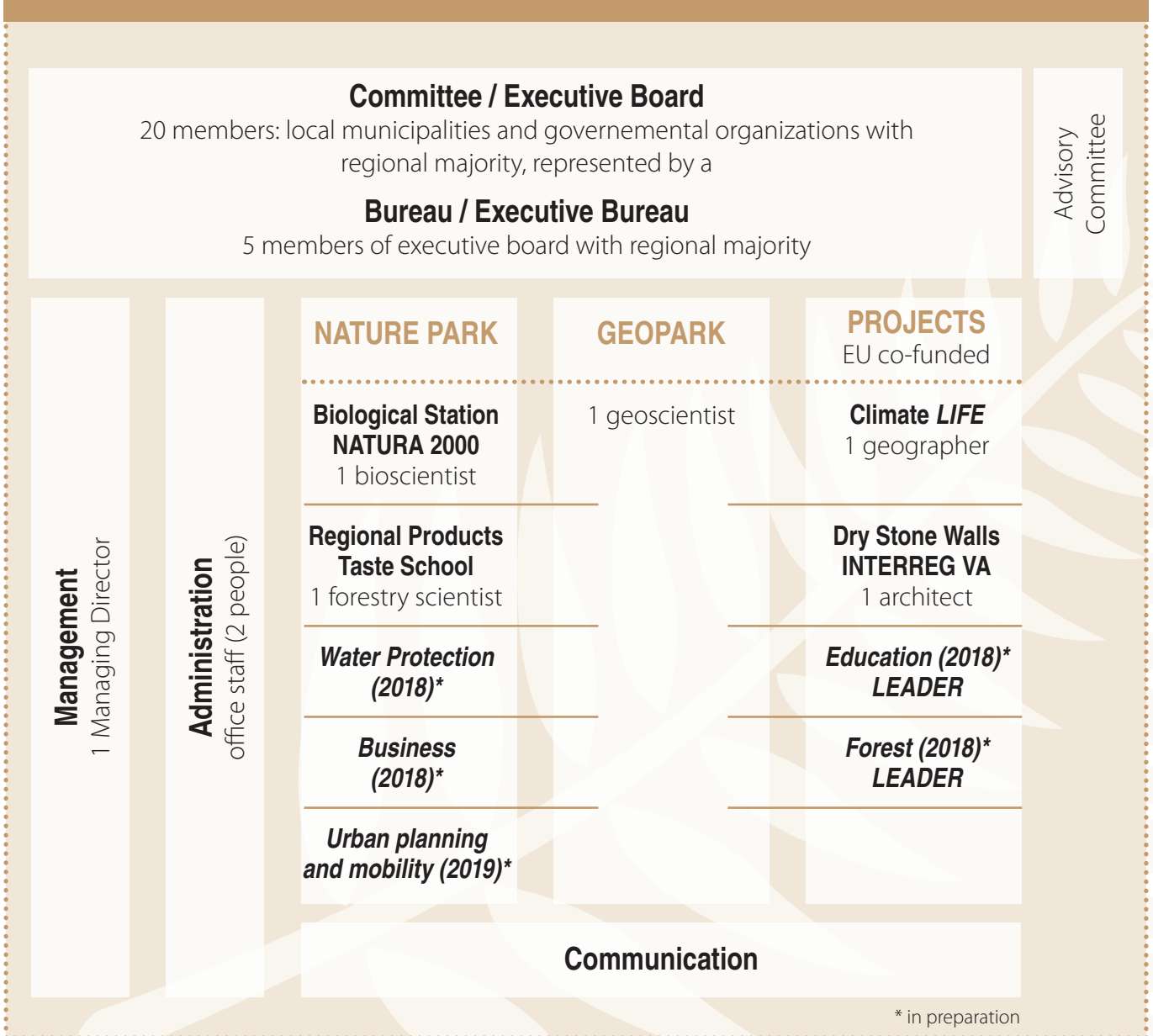
### The guiding themes are

- » Development and promotion of regional products
- » Promotion of the use of regional timber,
- » Self-sufficiency in drinking water
- » Diversity of landscapes
- » Transfer of knowledge
- » Preserving a livable region for all creatures and inhabitants.

A **special master plan** and a **plan of action** for the topic "**Geology**" has been developed with their main goals being the strengthening of regional identity through improving knowledge of the region, raising awareness on the value of landscapes, as well as strengthening of tourism and regional development. The park's guiding motto is: "You only see what you know".

<sup>4</sup>: RIM: "Regional Initiative Mëllerdall", a non-profit association and a predecessor organization of the Nature Park, founded to improve regional development

## The Mëllerdall Geopark is integrated in the structure of the Nature Park as follows:



The committee includes one administrative member from each of the 12 municipalities and one member from the following governmental bodies:

- » Ministry of Sustainable Development and Infrastructure (Spatial Planning, Environment, Water Management, Nature- and Forest management)
- » Ministry of Agriculture, Viticulture and Consumer Protection
- » Ministry of Culture
- » Ministry of Home Affairs
- » Ministry of the Economy, Tourism

The work of the Executive Committee is supported by an Advisory Committee comprising delegates from social, economic, ecological, touristic and cultural organizations, as well as the local population.

The Geopark cooperates with various stakeholders in order to reach the objectives:

- » The **Geology working group** unites various regional stakeholders, members of municipalities, ministries, administrations, associations and citizens. It accompanies the Mëllerdall Geopark through initiating projects and assuring their follow-up, as well as assisting with their implementation. The group meets at least 4 times a year.
- » The **scientific committee** of the Mëllerdall Geopark unites partners of national and international scientific institutions. It consists of the following members: the Geological Survey of Luxembourg (SGL), the National Water Management



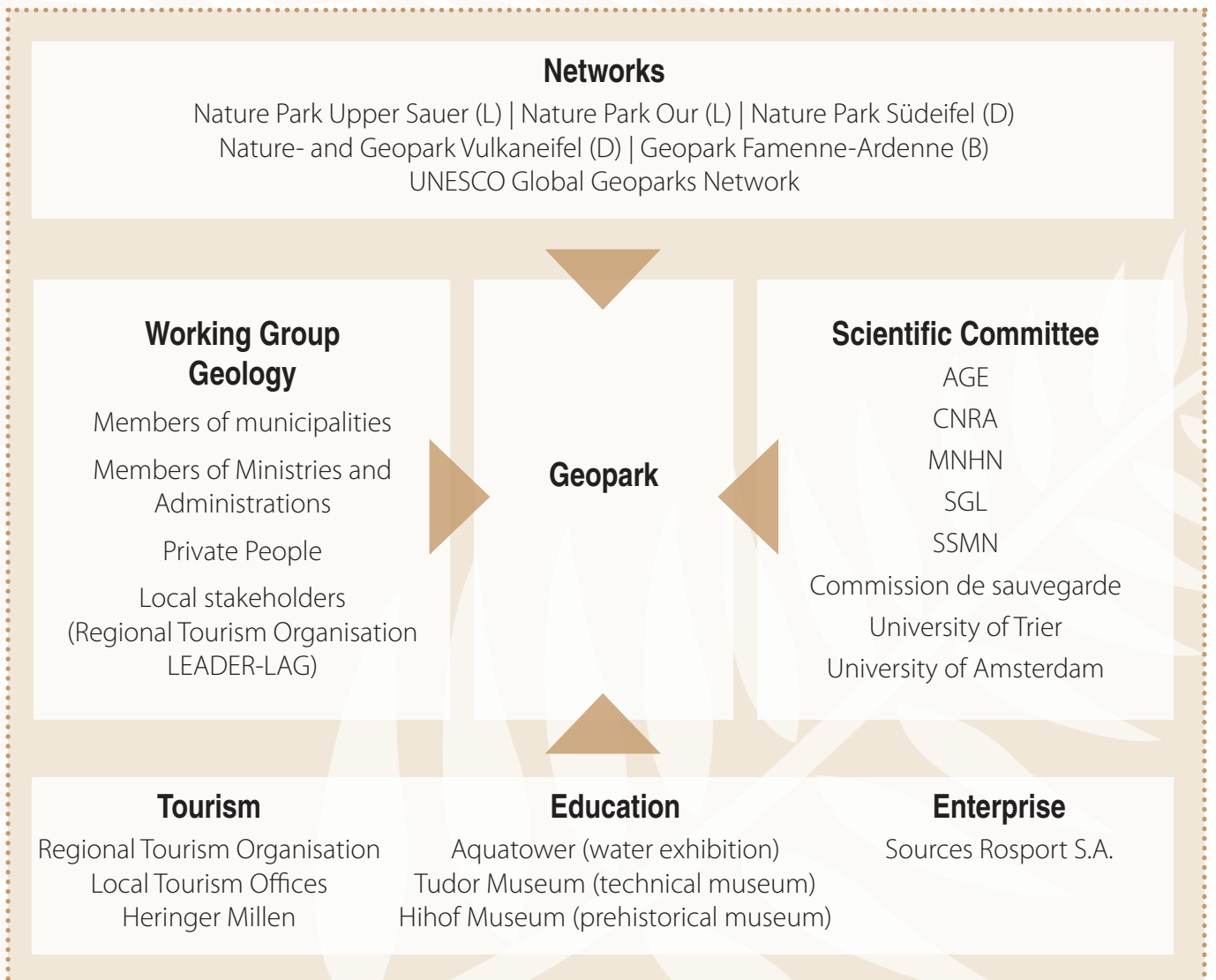
Agency (AGE), the Museum of Natural History (MNHN), the National Archaeological Research Centre (CNRA), the National Service of Sites and Monuments (SSMN), the Commission for the protection of the sandstone landscape (Commission de sauvegarde de la "Petite-Suisse" et de la région du grès de Luxembourg), the University of Trier (D) and the University of Amsterdam (NL). The committee comes together at least two times per year.

» **Tourism:** The Regional Tourism Organisation and local tourist offices assist in the promotion of the Mëllerdall Geopark through the display of leaflets and brochures.

» **Education:** Different museums and schools are integrated in the concepts of the Geopark. Their role is to raise young people's awareness of their region and the sustainable handling of the environment.

» **Enterprises:** Some enterprises that are related to geology cooperate with the Geopark.

» **Networks:** Cooperation and networking with other Nature Parks and Geoparks helps with enhancing the work of the Geopark.





The **budget of the Mëllerdall Geopark** is decided on an annual basis by the Committee. The Nature- and Geopark's income consists mainly of contributions from member municipalities and of the Luxembourgish government. Additionally, some income is generated through services and interests as well as through donations and bequests.

The staff of the Nature Park and Geopark is co-financed (between 50 % and 80 %) by the Ministry of Sustainable Development and Infrastructure. The Ministry is also financing an important part of the management fees. The co-financing is formally determined by specific conventions between the Ministry and the Nature Park structure. Further projects concerning the Nature Park and the Geopark are annually paid by the Ministry of Sustainable Development and Infrastructure.

Furthermore, the Nature Park and Geopark are, together with international partners, involved in different sustainability projects that are co-financed by the European Union (INTERREG VA, LEADER, LIFE) and by the government. Current projects include the INTERREG VA project on dry stone walls and the LIFE-IP project ZENAPA ("Zero Emission Nature Protection Areas"). These projects favour international networking among scientific institutions and other Nature- or Geoparks.

The Ministry of Sustainable Development and Infrastructure, in partnership with the three Luxembourgish Nature Parks, is currently working on the creation of a label for regional products. A specialized member of the staff is co-financed by these 4 partners in order to further develop and interconnect the network of regional farmers and producers.



## **A5. Application contact person (name, position, tel./fax, e-mail)**

### **Mëllerdall Geopark Geoscientist**

- » Dr. Birgit KAUSCH  
8, rue de l'Auberge  
L-6315 Beaufort

Phone: +352 26878291-26

E-Mail: birgit.kausch@naturpark-mellerdall.lu

### **Nature Park Mëllerdall Management Director**

- » Dr. Claude PETIT  
8, rue de l'Auberge  
L-6315 Beaufort

Phone: +352 26878291-23

E-Mail: claud.petit@naturpark-mellerdall.lu

### **Ministry of Sustainable Development and Infrastructure | Regional Development**

- » Juliette MATHIEU  
4, Place de l'Europe  
L-1499 Luxembourg

Phone : +352 2478 6940

E-Mail : liette.mathieu@mat.etat.lu

### **Nature Park Mëllerdall President of the Executive Board**

- » Camille HOFFMANN  
8, rue de l'Auberge  
L-6315 Beaufort

Phone: +352 26878291-22

E-Mail: choffmann@pt.lu

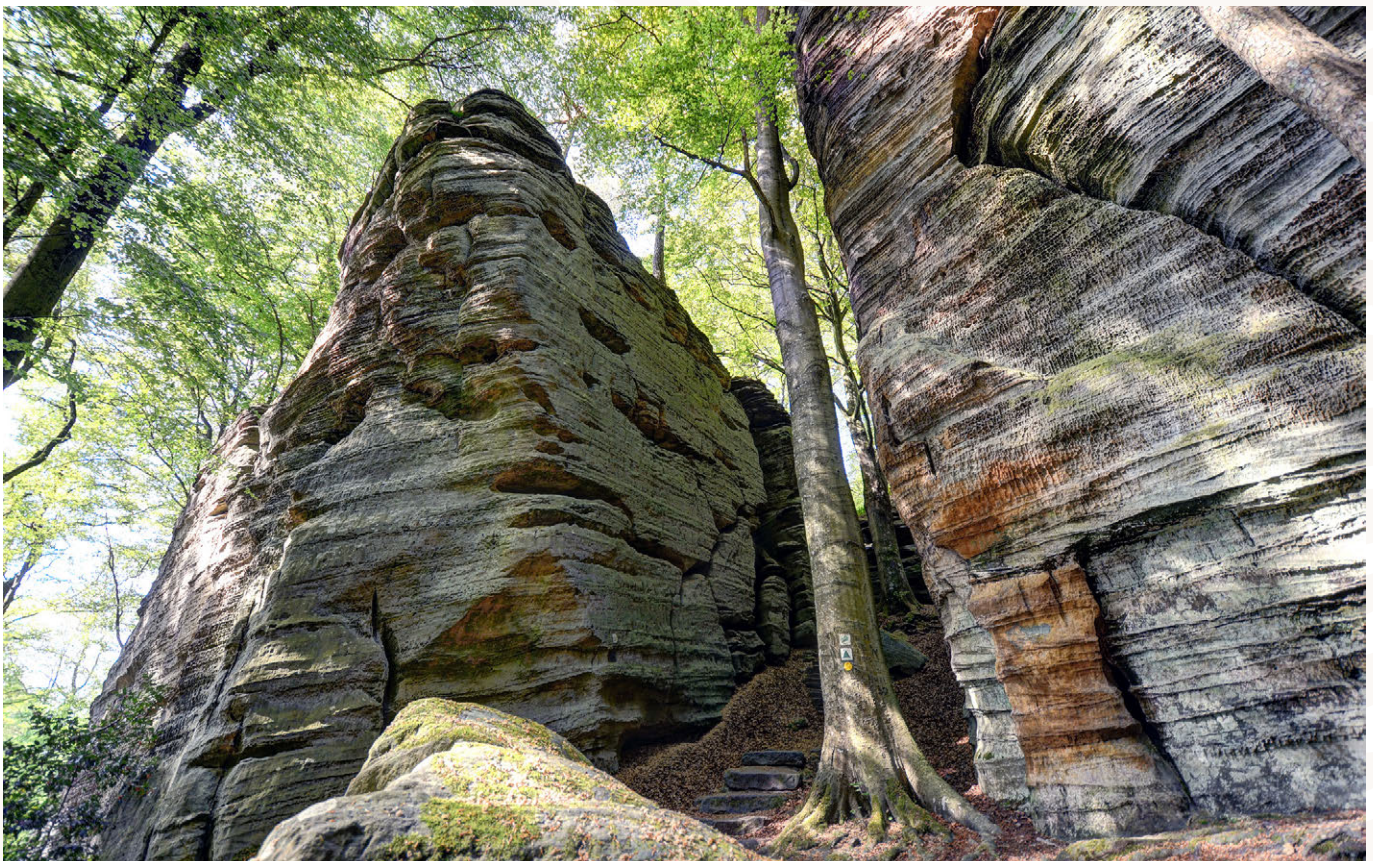
## E Interest and arguments for becoming a UNESCO Global Geopark

The region of the Mëllerdall Geopark is part of a particular small-scaled cuesta landscape formed in Mesozoic sediments. Plateaus in sandstone and dolomites, deeply dissected by rivers and creeks, alternate with gently undulating hillsides in marly substrate.

The sandstone landscape of the **Lower Jurassic Luxembourg Sandstone** in the centre of the synclinal structure is extraordinary for Western Europe. Two sandstone escarpments only 10 km apart rise more than 100 m above the hillsides, which consist of Triassic marls. The plateau of the Luxembourg Sandstone is deeply dissected by the epigenetical incision of rivers and creeks, exposing sandstone cliffs on the valley slopes. The high geodiversity is evident in diverse geological structures on the rock faces and geomorphological forms at the edges of the plateaus. These are an impressive testament of the geological and geomorphological history of the region and provide a textbook of sandstone formation, weathering, erosion and geomorphology, which is influenced by the alternation of hard and soft rocks with related forms and processes.

The rocks provide the basis for the evolution of the cultural landscape elements in the region since the stone-ages. They influence the close relationship between topography, groundwater, building stones, settlement activities, land use and the highly diversified flora and fauna with rare and worth protecting species. The sandstone formations with their typical erosion features, the dense canopy cover and the multiplicity of habitats, contribute to an extraordinary biodiversity. Exceptional microclimatic conditions at the vertical rock faces and in small and narrow open joints which tend to mimic the oceanic climate of the European Atlantic fringe offer life conditions for a **great number of rare and often relict species of ferns, mosses and lichens.**

Due to the long-term continuous discharge and excellent filtering capacities, the region of the Geopark is nearly self-sufficient in the supply of drinking water, and the rivers and creeks are valuable biotopes. Thus, the protection of the water quality is very important. Due to its bizarre rock formations, the region has touristically been promoted since the last quarter of the 19<sup>th</sup> century as „Luxembourg’s Little Switzer-



land". The rock formations are easily accessible via numerous hiking trails.

The Geopark allows to increase the value and promote the geo-heritage of the region and, within the management structure of the Nature Park and together with the partners of the Geopark, to sensitize local people and stakeholders as well as tourists to the rich natural and cultural heritage of the region. Structured offers for education on sustainable development for local pupils and people, the development of geo-tourism, the execution and support of projects of sustainable regional development and the inclusion of local enterprises are made possible thanks to the close cooperation of governmental, municipal and private stakeholders in the Geopark.

An increase of the awareness of the value of the heritage means a better general protection of the geo-heritage. This opens – on a higher administrative level – the opportunity to achieve a better legal protection for geo-heritage sites, e.g. by the designation of national monuments or protected areas of national interest. Numerous projects involving local people help in strengthening the regional identity.

Since guidelines for a national Geopark do not exist in Luxembourg, a membership in the UNESCO Global Geoparks network would help to structure the Park's own objectives and to learn from other's best practices. It would also raise the national and international value of the Mëllerdall Geopark and enhance the awareness of the different stakeholders (e.g. tourism, education, scientific community, government) of the necessity to protect Earth's geodiversity.

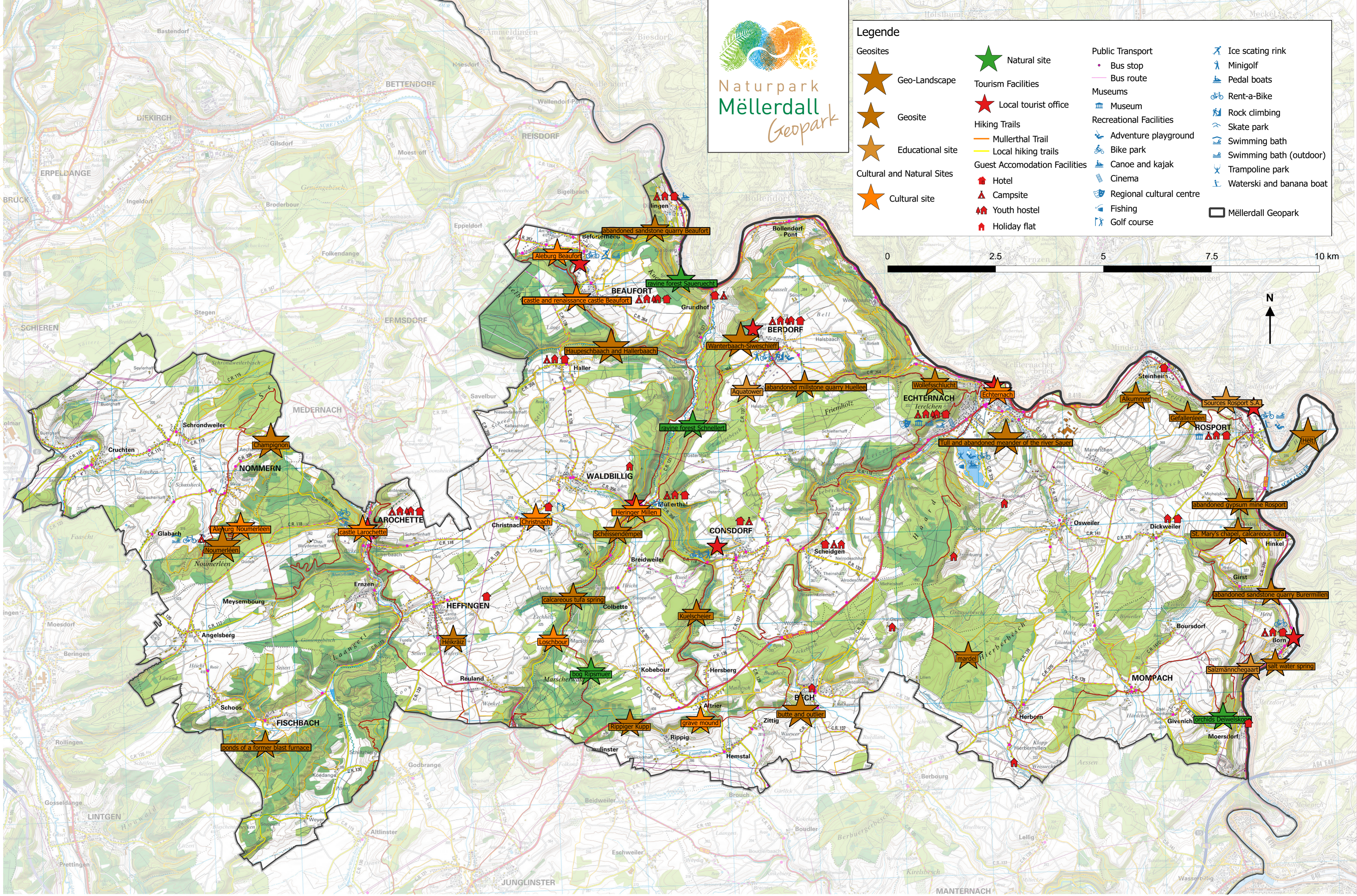
The status of UNESCO Global Geopark would be a final approval for the legally consolidated objectives of sustainable regional development of the Nature Park. It would allow to improve the transmission of the knowledge on earth's evolution and about the interactions of the ecosystems to our children. For Luxembourg, the recognition as a UNESCO Global Geopark would be the first environment-related UNESCO award of the country. The Luxembourgish government is very aware of the high importance of the 2030 Agenda for Sustainable Development. The objectives of the Nature Park Mëllerdall and the Mëllerdall Geopark resemble in many points to the 17 sustainability goals. Thanks to the efforts of all stakeholders, the region can actively help to reduce its footprint.





Legende

- |                                   |                                      |                                |                          |
|-----------------------------------|--------------------------------------|--------------------------------|--------------------------|
| <b>Geosites</b>                   | Natural site                         | <b>Public Transport</b>        | Ice skating rink         |
| Geo-Landscape                     | <b>Tourism Facilities</b>            | Bus stop                       | Pedal boats              |
| Geosite                           | Local tourist office                 | Bus route                      | Rent-a-Bike              |
| Educational site                  | <b>Hiking Trails</b>                 | Museum                         | Rock climbing            |
| <b>Cultural and Natural Sites</b> | Mullerthal Trail                     | <b>Recreational Facilities</b> | Skate park               |
| Cultural site                     | Local hiking trails                  | Adventure playground           | Swimming bath            |
|                                   | <b>Guest Accomodation Facilities</b> | Bike park                      | Swimming bath (outdoor)  |
|                                   | Hotel                                | Canoe and kajak                | Trampoline park          |
|                                   | Campsite                             | Cinema                         | Waterski and banana boat |
|                                   | Youth hostel                         | Fishing                        |                          |
|                                   | Holiday flat                         | Golf course                    |                          |
|                                   |                                      | Mëlldall Geopark               |                          |







Naturpark  
Mëllerdall  
Geopark



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère du Développement durable  
et des Infrastructures

Département de l'aménagement  
du territoire



**Editor:** Geopark Mëllerdall

**Texts:** Dr. Birgit Kausch | Juliette Mathieu | Working Group Geology: André Hartmann, Camille Hoffmann, Claude Petit, Fabienne Boes, Fernand Schmit, Françoise Bonert, Irma Krippes-Dahm, Jacques Krecké, Jean-Pierre Arend, Jos Schoellen, Linda Salentin, Marco Bermes, Pierre Wies, René Krippes, Robert Colbach, Robert Maquil, Robi Baden, Sandra Bertholet, Anette Peiter

**Proofread:** Matthias Kausch, Ann-Kathrin Wirth

**Illustrations:** Dr. Birgit Kausch, Wikipedia, Service Géologique du Luxembourg

## Impressum

**Pictures:** ORT MPSL: Raymond Clement, Joëlle Mathias, Thomas Bichler | Naturpark Mëllerdall: Pierre Haas, Uli Fielitz | Jos Nerançic | Dr. Birgit Kausch | LEADER LAG Mëllerdall | Jacques Krecké | Source Rosport | MNHA | Yves Krippel | Anna Voelske | FrameArt Media

**Design:** Ka Communications S.à r.l., Echternach

Document exists in digital form only. If you need to print this document, please use FSC recycled certified paper. Edited in November 2017.