# Renewable energy production, nature conservation & grazing

## Agrecol Autumn Meeting 2023

29 Sept – 1 Oct 2023, Kyllburg, Eifel, Germany

## Gold rush in the energy sector

Currently, there is a real run on areas worldwide that could be used for constructing "ground-mounted systems" to generate solar energy. These are photovoltaic (PV) systems that are sited not on roofs or other buildings but in open fields. In Germany, permission has recently been given for them to be sited on arable land and grassland. In many cases, this is at the expense of the environment and the local people.

In Kyllburg, the 14 participants in the Agrecol meeting wanted to use examples from Germany and Africa to shed light on how generating renewable energy can be combined with protecting soil, water, air and biodiversity, as well as with producing high-quality food through pastoralism, and how this can be done in a socially just way. The focus of the presentations and discussions was therefore on social and ecological aspects of land use.

*Petra Kandel's sheep in agri-PV field; in background, another solar-energy unit and some wind turbines (Photo: Paul Mundy)*

As a supplement, there was a handout on selected technical aspects and the status quo of ground-mounted and agri-PV in Germany and internationally. In agri-APV, the solar panels are on higher mounts and the rows are further apart, so that the area can also be used to produce food from crops and livestock. If the modules occupy ≤ 15% of the area eligible for subsidies, the farmer can receive support from the European Union's Common Agricultural Policy (CAP) for the remaining 85% of the area. However, not all federal states in Germany offer this.

## Why can problems only be solved together? Which approaches are particularly promising – also in social terms?

In his introduction, Günther Czerkus, former chairman of the *Bundesverband Berufsschäfer e.V.* (Federal Association of Professional Shepherds), presented the approach of the *Verbandsgemeinde (VG) Südeifel* (South Eifel Association of Municipalities) – one of seven such associations in the Eifel District Bitburg-Prüm. This district has the most grassland, the highest number of livestock and the highest density of biogas plants in the State of Rhineland-Palatinate. Since this State is planning a 300% increase in electricity generation with PV, applications have been made for 1200 ha in Bitburg-Prüm District, for which landowners have often been offered very high lease prices (in some cases, over €2000/ha). Unfortunately, the government has not stipulated any framework conditions except that, for each hectare covered with PV, up to three hectares of compensatory land must be provided and ecologically improved.

In order to avoid rising lease prices and the associated competition and to minimise ecological damage, a public law institution – originally founded for the joint water/ wastewater works of the local communities in the VG – controls the construction of PV plants in the South Eifel. The 65 local communities that are members of this public law entity developed common criteria for the construction of PV units, such as the exclusion of nature conservation areas and of areas that are particularly suitable for food production (for details in German, see https://www.vg-suedeifel.de/Erneuerbare-Energien/).

Furthermore, the total number of areas allowed for PV units was limited to about 350 ha. Together with several wind-power, hydropower and biogas plants, the region fulfils far more than its state-level calculated target for renewable energy production. The areas were allocated to a few selected operators by tender, and the price was capped at €1000/ha for the landowners. Lease revenues above this amount go to the VG and are distributed to all participating local communities, even if they do not have any PV units in their area because of the restricted areas defined by the agreed criteria.

*Starting on Saturday morning*
(*Photo: Christine Martins*)

*Discussions in the plenary (Photo: Christine Martins)*

*Where do we go from here? (Photo: Christine Martins)*

According to Günther, the model of the South Eifel VG is optimal from an agricultural, social and ecological point of view and, meanwhile, it serves as a model also for other municipalities. The public law entity makes all conceivable information available to other regional authorities upon request. The short version already fills a thick binder. However, the current focus of everyone involved is on ensuring the functioning of the PV units as quickly as possible. Biodiversity is often not the first priority, but it must also be remembered that plant species richness is not created at the push of a button; unfortunately, it often takes up to ten years to develop.

## Solar grazing: two examples from practice in Germany

On Saturday, we visited as a group two fenced-in agri-PV systems that are grazed with sheep, the first in Wittlich District and the second in Bitburg-Prüm District, South Eifel VG.

| **Markus Dietz, Landscheid** | **Petra Kandels, Berscheid** |
|---|---|
| Former gravel pit; site used by Markus for grazing since 12 years, PV unit for about 7 years. Operator of PV unit is also owner of the land. | PV unit since 2022; was previously grassland. Operator is a large company with several PV units in the area on leased land; would have liked to graze all PV areas, but cannot find more shepherds. |
| 7 ha, 470 ewes | 17 ha, 100 sheep (including lambs) |
| Short-term impact grazing with entire flock 2–3x/year for one week: sheep bite everything down; afterwards, vegetation can regrow. Somewhat higher vegetation protects better against erosion, especially during heavy rains. | Continuous grazing, with areas allocated to animals in portions by fencing: uniform grazing favours the growing conditions for light germinators and less competitive plants. |
| Full-time shepherd with income mainly from landscape maintenance and meat sales; income from PV grazing low; this plays a subordinate role; more important is that "parking" the herd in the fenced unit allows the shepherd to take short vacations and to visit events. | Has been keeping sheep for only 3 years; income from PV grazing higher than Markus and important for her enterprise; her main income so far came from full-time job, but she wants to make solar grazing the mainstay in the future, since good compatibility with family. She wants to use another 50 ha of land of the same PV operator, half for grazing and half for mulching. |
| Contract indefinite, no liability for damage, therefore does not need liability insurance, no follow-up maintenance, thus low cost. | Contract 5 years, sheep owner is liable for damage, needs own liability insurance, follow-up maintenance obligatory. |
| Distances between rows of panels 3–4 m, below them poor visibility. Herding with dogs not possible, because sheep notice dogs too late and panic. | Row spacing 3–4 m. Panels slightly larger than in Landscheid; little vegetation underneath and relatively good visibility. Sheep accustomed to PV unit; can be rounded up better with dog. |
| Shepherd's right of co-determination high to make PV unit suitable for sheep in terms of panels, wiring, etc. However, no wolf-proof fence and digging barrier. | Wiring and solar panels designed for grazing by sheep; otherwise, shepherd's say low; operator doesn't want wolf-proof fence and digging barrier, although shepherd could get funding for it. |

*Visiting the PV unit in Landscheid with Markus Diez. Last grazing was 4–5 weeks ago (Photo: Christine Martins)*

*Under the panels at the upper end of the field; the preferred resting places of the sheep are clearly visible; under other panels, there is partly higher vegetation (Photo: Christine Martins)*

*Introduction to sheep farming by Petra Kandels (Photo: Christine Martins)*

*Petra attracting her sheep (Photo: Paul Mundy)*

## Further points

- PV is both a curse and a blessing for shepherds: it creates competition for land, but can also promote the quality of life of shepherds (vacation, family-friendly work). It is also suitable for career changers.
- Income for shepherds up to 600 €/ha, depending on the terms of the contract (Watch out: for contracts that make graziers liable for damage, you need a good insurance; you have to calculate the cost of it!).
- Win–win for both parties: livestock owners get feed and weather protection for their animals; they are on site daily and can report problems promptly to PV-unit operators.
- Grazing by sheep can significantly increase biodiversity in the PV unit. However, this is often more expensive than other maintenance measures (mulching by a company, robotic mowing).

- Mulching reduces biodiversity and destroys insects, but will increase in the future as it is usually cheaper and easier to do than grazing.
- Many PV operators do not care about ecology. The main thing is that the unit is cheap and no trees and bushes grow that shade the panels. In newer units, the row spacing is often only two meters. Initially, nothing grows under the panels, so there is a risk of erosion, especially on slopes. Therefore, specification (or agreement) on framework conditions and management requirements of the municipalities is important.
- PV units that are to be grazed by sheep should meet special requirements, e.g. secured lower edge of the panels (risk of breakage or injury), above-ground height of the panels at least 90 cm, underground installation of the cables. A wolf-proof fence would be ideal. Herd guard dogs are less suitable, since PV maintenance staff must have safe access to the unit at all times.
- Horses and goats are not suitable for grazing solar parks with horizontal (slanted) panels: goats climb on the panels, and the risk of injury is too high for horses.

PV is more land-efficient than biogas. According to a study by the German Federal Environment Agency, one hectare of PV with new modules can generate almost 40 times more electricity than one hectare of renewable raw materials in a biogas plant (pp.59–60 in *Umweltverträgliche Standortsteuerung von Solar-Freiflächenanlagen*).

## Observations on the margins

*Markus also keeps donkeys, but cannot take them with him when he wanders with his sheep, since donkeys quickly become fat on a high-protein diet. They rather need lean pastures. On the right in the picture is a compost heap based on wool, to which the same amount of sheep manure was gradually mixed over the course of three years (Photo: Reinhild Schepers).*

*In Germany, the wool price is presently so low that it does not even cover the shearing costs. Therefore, shepherds are looking for new uses of wool. This composting of wool is the shepherd's own experiment. A close-up of the compost shows how rich the mixture is with earthworms (Photo: Christine Martins).*

## Case study from Africa: Climate justice in land use for renewable energy and pastoralism in northern Kenya

Ann Waters-Bayer presented a desk study she did with Hussein Tadicha Wario for the Heinrich Böll Foundation (https://tinyurl.com/greenEnergyPastoralism), supplemented by Hussein's field research in northern Kenya funded by the University of Leicester.

The global rush for land to produce green energy is also taking place overseas. In Africa, the projects are often financed by companies from Europe. This is also the case in Kenya, which wants to produce 100% of its electricity from green energy by 2030(!). Investors are particularly focused on "low-potential areas," which outsiders often regard as unused but which are the source of livelihood for pastoralists and other local communities. Areas where solar or wind farms are to be built are demarcated or fenced in. This deprives pastoralists of their ancestral grazing grounds and reduces the mobility of their livestock and of wildlife. Conflicts even to the extent of destroying installations are self-programmed.

Two examples from northern and southern Kenya illustrate how investors proceeded and what needs to happen so that the local people will support and benefit from the project.

1. **Lake Turkana Wind Power Project:** Construction started in 2014, 60,000 ha leased by the government were demarcated although only 16,000 ha used for turbines; went into operation in 2019. Set up without Free, Prior and Informed Consent (FPIC) of the local people; no compensation. Affected pastoralists filed suit in court (Kenyan Environment and Land Court, Meru) in 2014. In 2021, the court ruled that the land-acquisition process was illegal; the county government and investors were to "regularise" land acquisition within one year, but the deadline expired without anything happening. In 2023, the Kenya High Court confirmed the earlier judgment.
2. **Kipeto Wind Power Project:** Planning for the project, which went into operation in 2021, had begun in 1993. At first, the operator had talked only to community leaders. However, the Maasai pastoralists, who in this case own the land (their legally registered group ranch had been subdivided among the families in the group), opposed the project. After lengthy negotiations, the parties agreed on regular payments to the Maasai landowners and to the community, as well as other benefits for the community, such as renovation of the local health centre.

## How could "dark green" energy (combining power generation, grazing and conservation) be promoted also in other countries in a socially acceptable way?

***Discussion points and recommendations:***

- **Raise awareness** of the finite nature of resources and the need to consider energy, ecology, nutrition and social sustainability simultaneously.
- **Enable multipurpose land use:** Fencing off wind farms is often the precursor to large-scale land grabbing. Is it even necessary? Authorities should allow multiple uses of land.

- **Promote North–South and South–North and South–South and North–North exchanges:** What aspects should be considered and what could be replicated?
- **Transparency in the planning process:** Affected communities and stakeholders should be involved in good time (FPIC) and have a say in the planning process (see also https://tinyurl.com/RenewableEnergyAndIP).
- **Impartial mediation in the implementation of planning processes:** Facilitators of the preparations, consultants for environmental impact studies and certifiers of energy projects should not be hired by the companies, but should come from impartial local or international non-governmental organisations (caution: too much involvement from the North risks the impression of neo-colonialism!)
- **Technology selection:** What fits and allows multipurpose land use?
- **Benefits from the projects:** The local people should also benefit from the energy (e.g. through lease payments, sharing revenues from energy generated, local power supply).
- **Promote information exchange among stakeholders:** e.g. through films, visits, documentation of "good practices" in local language and adapted to other target groups.
- **Seek out and make good practices known:** Example of "good practice" in Mongolia: here, portable solar panels and small wind turbines were first made available for herders to take with them on the move; only then was alternative energy generation started on a larger scale for urban populations.
- **Seek transferable solutions or principles from other sectors:** e.g., mining, natural parks.
- **Lobbying in the North** and support of affected people in the South against unlawful practices of investors (e.g. lobbying based on "follow-the-money" approach).

Rebecca Peters has put together a database of existing and planned wind, solar and hydro-power projects in Africa (https://tinyurl.com/DatabankSolarRPeters).

### *Recommendations for Agrecol for the dark green energy and social sustainability sector*

- **Focus on micro level:** promote direct exchange, e.g. through Zoom meetings.
- **Networking** to seek further experience (e.g. India).
- **Collaboration with other organisations** for North–South exchange.
- **Compile document on "good practices" and recommendations** together with other organisations (e.g. Heinrich Böll Foundation, Bread for the World, Misereor, Forum Environment and Development). The text should be concise and illustrated with photos and graphics.

## IYRP 2026: International Year of Rangelands &Pastoralists

At the end, Ann briefly introduced the International Year of Rangelands and Pastoralists (IYRP; www.iyrp.info), proclaimed by the United Nations General Assembly in March 2022 for the year 2026. The Government of Mongolia had made the proposal. The preparations are coordinated by an International Support Group (ISG) and several regional groups. Some of these are very active (such as in West Africa, South Asia, the Arctic, North America, Central Asia and Mongolia); in other regions, relatively little is happening so far. There are several thematic subgroups, e.g. on issues of water, land rights, biodiversity and gender.

Maryam Niamir, co-chair of the ISG, had proposed monthly thematic focus areas for the IYRP that can be adapted regionally. It is unclear to what extent FAO, which will lead the implementation of the IYRP in 2026, will take these into account. As a foretaste: at the launch event for the International Year of Camelids for 2024, representatives of "high-tech" camel husbandry were most vocal.

The IYRP Regional Support Group in Europe is coordinated by two pastoralist representatives and one representative from an organisation supporting pastoralism. So far, mainly Albania, Portugal and Spain have organised IYRP events. In Germany, unfortunately, no organisation has yet been found that would like to coordinate the preparations and initiate activities.

*Group photo with shepherds*
*(Photo: Christine Martins)*

*Many thanks to Günther! And to Markus and Petra!*
*(Photo: Christine Martins)*

*Report: Evelyn Mathias, Christine Martins, Günther Czerkus and Ann Waters-Bayer*

## Programme und participants

| Time | Activity |
|---|---|
| **Friday, 29 Sept.** | |
| from 15:00 | Arrival, coffee/tea |
| 16:00–16:45 | Introductions of participants |
| 16:45–18:00 | Introduction to topic: Why can problems only be solved together? Which approaches are particularly promising – also in social terms? Approach of South Eifel Association of Communities (Günther Czerkus) |
| 18:30–19:30 | Supper |
| 19:30– | Agrecol information round & informal get-together |
| **Saturday, 30 Sept.** | |
| | Breakfast |
| 9:00–9:30 | Introduction to different types of grazing under photovoltaic (PV) systems |
| 9:30–12:15 | Visit to PV grazing (Markus Dietz, Landscheid) / Questions &discussion |
| 12:15–13:15 | Drive to 2nd site / Lunch |
| 13:30–15:00 | Visit to PV grazing (Petra Kandels, Berscheid) / Questions& discussion<br>Drive back to Kyllburg |
| 16:00–18:00 | Case study from Africa: Climate justice in land use for renewable energy and pastoralism in northern Kenya (Ann Waters-Bayer) – presentation & discussions, while drinking coffee/tea |
| 18:00–19:00 | Supper |
| 19:00–20:30 | Groupwork: analysis / presentation of results |
| 20:30– | Informal get-together |
| **Sunday, 1 Oct.** | |
| | Breakfast |
| 9:00–10:30 | International dimension: How could “dark green” energy (combining power generation, grazing & conservation) be promoted also in other countries? How can international exchange on this – also among herders – be strengthened? |
| 10:30–10:45 | Coffee/tea break |
| 10:45–11:45 | IYRP (International Year of Rangelands & Pastoralists) 2026 – short presentation (Ann Waters-Bayer) How can herders be better involved in IYRP activities? What can we do as Agrecol in this regard? |
| 12:00– | Lunch / Departure |

**Participants:** Wolfgang Bayer, Günther Czerkus (except Sunday), Wolfgang Gutmann, Erich Lutz, Christine Martins, Evelyn Mathias, Paul Mundy, Rebecca Peters, Sybille Pich, Reinhild Schepers, Berthold Schrimpf, Senai Sereke, Ann Waters-Bayer and Miriam Winzer