

Research at the heart of global issues

Pastoralism: from the preservation of ecosystems to development



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AGRICULTURAL RESEARCH
FOR DEVELOPMENT

A way of life adapted to fragile ecosystems

Nomadic and transhumance herding of livestock provides the livelihood for more than 150 million people in arid and mountainous regions. The livestock systems are adapted to numerous climate-related shocks; the landscape is exposed to strong pressure in the Sahel from the challenge of maintaining pastoral activities in areas abandoned by rural populations; and the livelihoods of pastoral families need to be secured and their living conditions improved.

In the **Sahel**, the state, regional and local authorities, NGOs and networks expect the rearing of herbivore livestock to reduce the need to import expensive supplies of meat and milk, and to reward producers. It is also necessary to protect sensitive natural environments and to coexist with other activities, such as market gardening and food and feed production. According to the view of the pastoral society, flocks are considered to be a tool for production, the key to social status and provide a safeguard against all kinds of uncertainties.

In **South America**, where pastoralism sparked the colonisation of the land, this lifestyle is now competing with agribusiness boosted by international demand. There is a choice between taking the intensification route, with its worrying social and environmental externalities, and switching to marginal zones.

In the **medium and high mountainous regions of continental Europe**, especially in regional natural parks, livestock farming is expected to be a lever for maintaining the landscape and biodiversity, but also for the production of local specialities which stimulate local economic development.

Understanding multi-functionality for management of arid

Integrating pastoralism in the economy and development of territories

Working on pastoralism leads to the questioning of its economic functions (provision of local markets, urban and rural food security), its political and ecological functions (the promotion of arid regions, environmental services), its ethical functions (respect for life) and its social functions (support networks, crisis management, exchanges, transmission etc.).

- **What is the contribution of pastoralism to agricultural development?**
- **How can we improve the food security of rural and urban populations and at the same time reduce the dependence of States on imported animal products?**
- **How can we support pastoral societies' own collective resilience processes while improving the living conditions of populations?**
- **How can we support States in their political objectives of planning for their arid and mountainous regions while improving the living conditions of pastoral populations?**

Rethinking the interactions between pastoralism and the environment

Pastoralism is not exempt from the major controversies about the negative impacts of rearing livestock, such as the production of greenhouse gases and deforestation. However, the positive services provided by rangeland or meadow-based livestock systems are being increasingly highlighted: reservoirs of biodiversity, carbon sequestration, to which we could also add maintenance of the landscape. To reinforce these effects, it is useful:

- **To recognise and manage the interactions of different livestock species (bovines, ovines, camelids etc.) with the ecosystems.**
- **To identify the resilience factors of pastoral ecosystems, and their limits.**
- **To identify the conditions which encourage the protection of ecosystems and the security of populations' living conditions (land security, mobility rights, health and education services, market management etc.).**



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Research for the development of pastoral societies

Research being led by CIRAD and its partners uses ecological, technical and social sciences in the Sahel, Mediterranean, semi-arid and Latin American regions.

The aim is to create useful knowledge for decision makers on the constraints on life in arid regions and the issues facing locally organised production in order to strengthen food security for urban and pastoral populations and to preserve arid and semi-arid ecosystems.

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Protecting the place of the living and pastoral knowledge in development objectives

In pastoralism, the production of meat and milk is conducted according to livestock practices which respect both life and nature: knowledge of local resources, of biological rhythms and of feeding livestock.

- How can the herding of livestock in pastoral areas make best feed use of the diversity of vegetation available, including in difficult seasons?
- Which pastoral practices, guaranteeing quality and healthy production, could be transferred to more intensive animal production?
- How can the transmission of informal knowledge and know-how of herders and pastoralists be guaranteed and protected?

Increasing awareness in public policy

Marginalised by public policies in numerous countries, livestock farmers and pastoralists face a deterioration in their future prospects. This situation calls for sectoral policies and development guidelines to be set out by actors in both the private and public sectors.

- Does the development of pastoral communities depend only on policies to combat poverty?
- Humanitarian interventions, sectoral operations and integrated projects, tools, actors and development policies - do they respond, today, to the needs of our thinking in the long term?
- How can we secure the mobility of herds?
- What strategies can be suggested to support adaptations to climate change?

ECLiS Project > Benin, Niger, Mali, Senegal

[ANR, 2009-2012]

This project seeks to understand how livestock farming contributes to reducing the vulnerability of societies and agro-ecosystems in sub-Saharan West Africa. Research is based on adaptation strategies for societies and seeks to create tools and indicators for decision makers.

Abdrahmane Wane, awane@cirad.fr

eclis.get.obs-mip.fr/

Guide Elevage et pauvreté, Alive > Sub-Saharan Africa

[World Bank, FAO, 2007-...]

This guide and the tools created as part of the ALive platform are designed to support countries in sectoral analysis and the creation of policies and investments in favour of the poor, based on the growth potential of the livestock sector.

celine.dutilly-diane@cirad.fr

www.alive-online.org

Mouve Project > France, Senegal, Brazil, Uruguay, Mediterranean

[ANR, 2011-2013]

This project seeks to understand the conditions, possible forms and the implications of ecological intensification in rearing herbivores at the territorial scale. It aims to respond to growing production needs by putting ecosystems (their restoration and use for production) at the heart of this process.

christian.corniaux@cirad.fr

Prape Project > Benin, Burkina Faso, Mali, Senegal, Togo

[European Union and AFD, 2010-2013]

This project involves the creation and dissemination of a module for conducting training and learning in the sale of livestock in West Africa. The module is designed to help the principal actors involved in the production and marketing of livestock to reflect on the challenges they face, to debate the subject and to take informed decisions.

christian.corniaux@cirad.fr

SIPSA Project > Burkina Faso, Mali, Mauritania, Niger, Senegal, Chad

(MAE, FAO, 2007-2012)

The objective of the information system for pastoralism in the Sahel is to introduce a regional information and early warning system for crises and long-term trends in six countries of the CILSS region. The analyses combine historical biophysical and socio-economic databases with recent field surveys to support the creation of policies adapted to these changes.

ibra.toure@cirad.fr

www.fao.org/agriculture/lead/themes0/drylands/information0/fr/

Projet Elvulmed > Egypt, France

[ANR, 2011-2013]

The project seeks to analyse the role of livestock activities in reducing vulnerability at the farm and territorial scale in the face of global change, and to identify the key determinants in adaptive processes. It is based on two case studies, one in the northern Mediterranean (PACA region, France) and one in the southern Mediterranean (north-west coastal region of Egypt).

veronique.alary@cirad.fr

elvulmed.cirad.fr/



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Excellent and wide-ranging outputs

> CIRAD is a partner of **CILSS**, **WECARD**, **CATIE** and **CSIRO**.

> CIRAD was the founder of **OAM**, **Observatoire des agricultures du monde**, whose objective is to offer new conceptual and methodological foundations to help the implementation of the World Agriculture Watch initiative, led by the FAO.

> It provides numerous professional training and degree courses and organises, notably, the **EPSED Masters**, **Elevage des pays du Sud: environnement et développement**, and the **AAA Parc Masters**, **Productions animales en régions chaudes** with INRA and Montpellier SupAgro (contact: alexandre.ickowicz@cirad.fr).

> CIRAD researchers publish in **reference reviews** such as *Cahiers Agricultures*, *Sécher-*

esse, *Revue Tiers Monde*, *Journal of Income Distribution*, *Economies et sociétés*, *Agricultural Systems*, *Rangeland Journal*, *Livestock Production Science*, *Développement Durable et Territoires* etc.

> They organise **international conferences**, such as *Agir en Situation d'incertitude* (Montpellier, November 2010), and sessions on various subjects, such as *Livestock embedded in local development: a functional perspective to alleviate vulnerability of farming communities* at the International Rangeland Conference (IRC, Rosario, Argentina, April 2011).

> They are involved in national and international **expertise networks**: AFD, WFP, European Union, FAO, WISP.

> They publish **books and briefing papers**:

L'élevage, richesse des pauvres (eds: Duteurtre G., Faye B., Ed. Quae, 2009); *Pastoralisme en zone sèche – Le cas de l'Afrique subsaharienne* (eds: Toutain B., Marty A., Bourgeot A., Ickowicz A., Lhoste P., fiches thématiques CSFD No.9, 2012); *Un savoir-faire de bergers* (eds. Meuret M., Ed. Quae & Educagri, Versailles & Dijon, 2010); *Transformation des systèmes d'élevage extensifs dans les territoires ruraux* (eds. Gibon A., Ickowicz A., numéro thématique Cahiers Agricultures, 2010); *A paradigm shift in livestock management: from resource sufficiency to functional integrity* (June 28 and 29, 2008, Hohhot, China. Cardère édit., France).

> CIRAD publishes *Revue d'Elevage et de Médecine Vétérinaire des pays tropicaux*, a scientific review available on open access.

CIRAD's pastoralism research in numbers

More than **50 years of experience**

Around **20 researchers** in diverse disciplines: pastoral ecology, zootechnics (bovines, camelids, small ruminants), geography, economy, sociology, modelling etc.
UMR SELMET: CIRAD, INRA, SupAgro

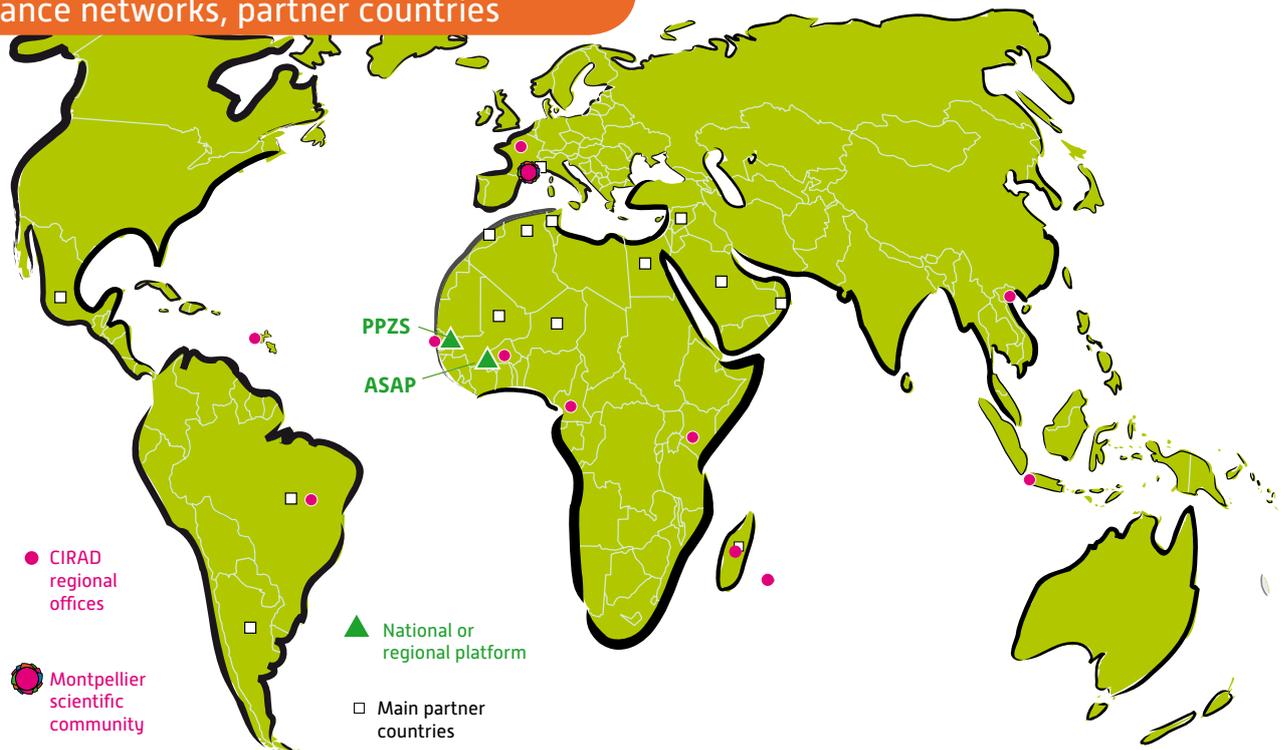
Two research and education in partnership centres (DP):

Pôle Pastoral Zones Sèches (PPZS) in Senegal (CIRAD, UCAD, CSE, ISRA) and Systèmes agrosylvopastoraux de l'Afrique de l'Ouest (ASAP) in Burkina Faso (CIRDES, Université de Bobo-Dioulasso, INERA, IER Sikasso)

Work involving almost **15 countries in arid regions**

15 regional projects in partnership

Observatories, regional research and surveillance networks, partner countries



Contacts

UMR SELMET, Livestock Systems and Animal Product Management
philippe.lecomte@cirad.fr
alexandre.ickowicz@cirad.fr

DP PPZS, Pôle pastoral zones sèches
Abdrhmane Wane, awane@cirad.fr

UPR GREEN, Management of Renewable Resources and Environment
martine.antona@cirad.fr