

Smart Village Digest

Sustainable and Prosperous Communities



ABOUT THIS ISSUE

Two regions, one vision for thriving rural communities.

In this issue, we travel from the terraced rice-fish paddies of Ziro Valley in Arunachal Pradesh, India, to the rural landscapes of the European Union — exploring how centuries-old Indigenous wisdom and forward-looking policy both chart pathways toward sustainable, self-reliant villages.

INDIGENOUS KNOWLEDGE & SUSTAINABLE FARMING

Ziro: Organic and Sustainable

By Meena Singh · Lower Subansiri District, Arunachal Pradesh, India



Terraced rice-fish paddies (Aji cultivation) in Ziro Valley — an integrated, centuries-old farming system unique to the Apatani people.

"We, Apatani people, are hard-working and peace-loving." These were the words of a member of the Zilla Parishad at our first meeting in Arunachal Pradesh, India. Sounds like a cliché? It is not. Stay a few days in Ziro, district headquarters of Lower Subansiri district, and find out for yourself. Ziro is home to the Apatanis, with a population now exceeding 13,000 — almost equally split between women and men. Our research into ways to develop Smart Villages and achieve the Sustainable Development Goals took us through Apatani land in Ziro, and each interaction was an eye-opener that left us thinking: how can a community collectively sustain a simple, content way of life for centuries?

An Apatani person's work day starts as early as 4:30 am and ends at 9:30–10 pm. As a visitor, even if you are up and ready for breakfast at 7:30 am, most people are nowhere to be seen — they are already in the fields, tending to agricultural or horticultural work. Children are away at school, and those outside agriculture are busy with other activities. Alongside work, there is a quiet but consistent engagement with community life: sports,

culture, and nature. Bird- or butterfly-watching for days out in nature is simply a way of life. Most homes have a loom, and women take up weaving traditional clothing once the day's work is done. The simplicity of the Apatanis is visible in their lifestyles, their minimalist homes, and the harmony in which they live with nature. Conversations on almost any topic reveal deep insight and a peaceful, harmonious way of thinking. Yes — Apatanis really are hard-working and peace-loving people.

The ethnic group that inhabits this land is often referred to as a "tribe" — a Western social construct. The word originates from the Latin *tribus*, denoting the administrative and voting units of ancient Rome. Colonial expansion gave "tribe" a negative connotation: a people considered more primitive than their Euro-American colonisers, whose own idea of human development was a progression toward "higher" forms of social, economic and political organisation — toward becoming "civilised". Tribes, in this view, were a lower form of life that had not evolved and needed a colonial saviour to redeem them;

the words "savage" and "barbarian" carried the same logic, projecting "evolution" as a trajectory from savagery to civilisation. While Western social science has since moved on through the field of anthropology, many people still associate the word "tribe" with backwardness — and for the Apatanis, images of women with nose plugs and facial tattoos continue to reinforce that association. Walking through the villages and paddy fields during our visit, we hardly saw this custom at all; many older women working in the fields had neither nose plugs nor facial tattoos. There is much to learn from the Apatani way of living — once the colonial lens is removed, these communities have a great deal to teach the world about living sustainably in the 21st century.

A glimpse into Apatani sustainable practices

So what makes their way of life sustainable? All of Ziro is organic. The Apatanis are a progressive agricultural community that has never relied on shifting cultivation — also known as slash-and-burn or *jhum* farming — in which land is cleared of trees and vegetation, often by burning, cultivated for a few years, and then left fallow to recover. In the Apatani view, shifting agriculture causes deforestation and harms nature. Instead, their sedentary farming method enriches the soil organically through the laborious, periodic application of natural manure — a system that delivers sustainable yields year after year. By retaining their forests, they also benefit from the natural cycle of leaves falling, composting, and washing down the slopes onto farmland during the rains.

"Rice–fish farming, an ancient legacy referred to as Aji cultivation, makes Ziro Valley stand apart from every other Indigenous area in northeastern India."

The practice of terraced wet-rice cultivation is attributed to Abotani, believed to be the earliest ancestor of the Apatani people, and the system has been perfected over

countless generations. Rice–fish farming — an ancient legacy known as *Aji* cultivation — makes Ziro Valley stand apart from every other Indigenous area in the northeastern states of India. Almost 50% of Apatani land is under highly developed rice–fish cultivation, with the remainder mostly forest. It is an efficient, environmentally friendly and productive system, built on the biotic interaction and mutual dependence of rice and fish, and on natural resources — land, water and fish — combined with generations of Indigenous knowledge.

Farmers dig small pits in each paddy terrace and stock them with young fish. During the rainy season, when the terraces are submerged, the fish move out from the pits into the flooded paddies; when water becomes scarce, they retreat back into the pits. Rice and fish help each other thrive — oxygen levels rise, fish waste fertilises the rice, and the system helps prevent soil degradation and infestations of aquatic insects. Finger millet is grown along the bunds, which are reinforced with bamboo to stop water loss and soil erosion. The result is a fully integrated ecosystem — linked irrigation, wet terraces, fish pits, raised millet dykes and bamboo borders — that optimises the use of water, enriches the soil, avoids chemicals entirely, and produces low-cost, nutrient-rich food.

Agriculture in Ziro is not only organic but genuinely sustainable: it draws only on resources available within the local ecosystem, while preserving the area's rich biodiversity. Behind these traditional practices lies a love of the land, a deep respect for nature, and an absence of greed — values shared by Indigenous communities the world over. The Apatanis are rich not only in mind but in body, nourished by uncontaminated food and water. A meal in Ziro needs no spices to mask the taste of chemicals, because the vegetables carry their own natural flavours. After visiting Ziro, one has to wonder — who is truly progressive and prosperous: urban consumers, or people like the Apatanis, when most of us in cities do not even have reliable access to basic, chemical-free, nutritious food?

13,000+

Apatani population in Ziro,
nearly equal women and
men

~50%

of Apatani land under rice–
fish (*Aji*) cultivation

4:30am

typical start of the Apatani
working day

0

chemical inputs — entirely
organic, manure-based soil
enrichment

***“Who is truly progressive and prosperous —
urban consumers, or people like the
Apatanis, when most of us in cities do not
even have reliable access to basic, chemical-
free, nutritious food?”***

POLICY & LONG-TERM VISION

European Union Vision for Rural Areas

A combined effort of the European Commission, the European Network for Rural Development & National Rural Networks

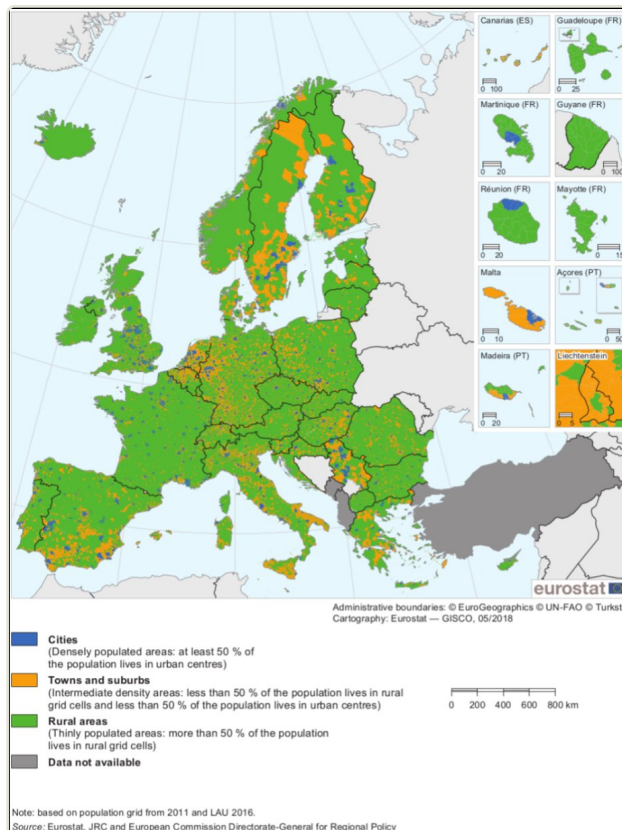
"Our rural areas are the fabric of our society and the heartbeat of our economy. The diversity of landscape, culture and heritage is one of Europe's most defining and remarkable features. They are a core part of our identity and our economic potential. We will cherish and preserve our rural areas and invest in their future."

— President of the European Commission, on launching the Long-Term Vision for Rural Areas, 2019

Network for Rural Development (ENRD) and National Rural Networks. The statement above is a clear recognition of the important role rural areas play in Europe's economy — and reflects the wider picture of how urbanisation varies across the continent.

The EC and ENRD recognise that rural diversity will always exist, and that development will continue to vary from place to place — but the vision insists that every community must have the opportunity to reach its potential. The Long-Term Vision aims to create equal opportunities for all rural areas while respecting that communities will remain diverse. Its objective is to empower people in rural communities to move from adversity toward a thriving future, with focus not only on the land itself but equally on its people.

The Long-Term Vision for Rural Areas is a combined effort of the European Commission (EC), the European



Degree of urbanisation across the EU: cities (blue), towns and suburbs (orange), and rural, thinly-populated areas (green). Source: Eurostat, JRC & European Commission Directorate-General for Regional Policy.

Digital technology and infrastructure are central to building the future of rural areas. About 29% of the EU's population lived in rural and peripheral areas in 2018, and these areas have lagged behind in connectivity — digital skills among rural adults remain lower than in towns and cities. Europe's digital future strategy aims to include these populations through human-centric digital technologies, lifelong learning opportunities, interoperable data platforms and services, digital solutions for climate impact, and digital innovation ecosystems — reducing the rural–urban digital divide while enhancing global competitiveness. The Smart Villages Project EUSALP, designed for the Alpine space, prioritises exactly this kind of smart transformation of mountain, rural and peripheral areas.

The European Green Deal

The Commission also gives high priority to the European Green Deal (EGD), which sets out a parallel set of priorities for rural Europe — from healthy, localised food systems to renewable energy and cultural heritage. Many of these ideas are already taking shape on the ground.

The success of the EGD and of sustainability more broadly lies in communities themselves owning the green agenda — delivering solutions customised to their own unique needs.

European rural areas face the same pressures as rural areas elsewhere in the world: outmigration, depopulation, ageing populations, and limited access to infrastructure, services and markets. Smaller, dispersed populations do not provide the economies of scale needed to attract public and private services, even essential ones, and the quality and quantity of basic services such as education and health have deteriorated over the years. COVID-19 both exposed these vulnerabilities and added to long-standing challenges — but the experience of remote work during the pandemic also revealed an opportunity: rural areas' low population density, space and quality of environment make them attractive destinations for relocation from crowded cities. Many villages across Europe are following this path. The Smart Working Village of Santa Fiora sul Monte Amiata, in the Tuscan mountains of Italy, is a leading example — equipped with ultra-fast broadband and a package of facilities, information and incentives to attract teleworkers to live and work there.

European Green Deal — Rural Priorities

Healthy, sustainable food. Moving food from a commodity to a common good — localised supply chains, small-scale processing, and less waste connecting rural and urban areas.

Cultural heritage. Promoting local produce and cuisines that give each rural region its own distinct identity.

Reclaiming nature. Tackling pollution at its source to restore ecosystems — clean water, carbon storage, and real health benefits from cleaner air.

Renewable energy. A 3,000-person Italian Alps community now meets 80% of its power and heating needs from hydro, wind, solar and farm-biogas — among Italy's lowest energy prices.

The EC envisages location-specific strategies across European rural areas — diversifying people and economies, and fostering inclusiveness and empowerment. Rural areas can experience *social exclusion*: a lack of access to citizen rights such as healthcare or educational success, and a lack of integration through limited power or the ability to participate in decision-making. This can stem from

demography, remoteness, or limited access to education, healthcare and other services; cultural barriers can exclude women from agriculture, migrant labour may face unfair treatment, and a lack of mobility or affordable transport can exclude young and old alike from social and cultural life. Some remote villages in France have

addressed this through community-owned electric cars that residents can rent to travel further afield.

"Our existing models of resource use and consumption habits are threatening the planet's life support... beyond the environmental crisis, there are parallel crises relating to the social consequences of demographic change and deep-seated spatial and social inequalities."

— Bill Slee, researcher, ENRD Long-Term Vision for Rural Areas

10 Goals for EU Rural Areas by 2040

The Long-Term Vision sets out what Europe's rural areas should become over the next two decades.

- | | |
|--|--|
| <p>1 Attractive spaces with harmonious territorial development — places of opportunity offering local solutions to global challenges.</p> | <p>2 Well-governed communities using collaborative, place-based and participatory approaches with tailor-made policy mixes.</p> |
| <p>3 Food-secure providers of goods, services and renewable energy — retaining a fair share of the value they generate.</p> | <p>4 Dynamic communities focused on well-being, fairness, prosperity and mutual support.</p> |
| <p>5 Inclusive communities of inter-generational solidarity, fairness, renewal and equal opportunity for newcomers.</p> | <p>6 Flourishing sources of nature, contributing to climate neutrality and sustainable resource management.</p> |
| <p>7 Digitally empowered — equal access to emerging technologies and widespread digital literacy.</p> | <p>8 Entrepreneurial, innovative and skilled people co-creating technological, ecological and social progress.</p> |
| <p>9 Well-served by efficient, accessible, affordable public and private services — transport, education, health and care.</p> | <p>10 Places of diversity, making the most of each region's unique assets, talents and potential.</p> |