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Evolving Rural Development Strategies in Algeria: Insights from Two Decades of Policy in Bordj Bou Arréridj, Algeria

Premisleki o politiki razvoja podeželja v zadnjih dveh desetletjih: primer Bordj Bou Arréridja v Alžiriji

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Evolving Rural Development Strategies in Algeria: Insights from Two Decades of Policy in Bordj Bou Arréridj, Algeria

Premisleki o politiki razvoja podeželja v zadnjih dveh desetletjih: primer Bordj Bou Arréridja v Alžiriji

Abstract

This study examines rural development policies and their territorial impact in Bordj Bou Arréridj, Algeria, between 2003 and 2025. Drawing on official financial records and local implementation data, the study examines public investment strategies, such as the Green Dam programme, agricultural revitalisation initiatives and infrastructure improvements. The analysis highlights the achievements, such as improved access, increased agricultural productivity and rural electrification, as well as the persistent challenges, including territorial disparities, governance issues and a lack of transparency. The study argues for a more integrated approach to rural planning, improved implementation monitoring, and stronger local stakeholder involvement to ensure long-term sustainability.

Keywords: Rural development, public policies, territorial planning, Algeria, governance

Izvleček

Izvleček Študija proučuje politike razvoja podeželja in njihov prostorski vpliv v alžirski provinci Bordj Bou Arréridju v obdobju od leta 2003 do leta 2025. na podlagi uradnih finančnih podatkov in podatkov o implementaciji na lokalni ravni študija proučuje strategije javnih naložb, na primer program Zeleni pregradni pas (angl. Green Dam), pobude za oživitev kmetijstva in izboljšanje infrastrukture. Analiza izpostavlja tako dosežke (npr. izboljšan dostop, povečana kmetijska produktivnost, elektrifikacija podeželja) kot tudi nenehne izzive (npr. prostorska neenakost, težave z upravljanjem, pomanjkljiva preglednost). Študija zagovarja celostni pristop k reševanju razvojne problematike podeželja, pozornejše spremljanje implementacije ukrepov in intenzivnejše vključevanje lokalnih deležnikov za zagotavljanje trajnostnega razvoja.

Ključne besede: razvoj podeželja, javne politike, prostorsko načrtovanje, alžirija, upravljanje

Introduction

Rural development has long been recognised as a cornerstone of national development, particularly in countries where rural populations constitute a large proportion of the total population and land is predominantly used for agriculture or natural resource extraction (Ellis & Biggs, 2001). Over the past three decades,

however, the discourse has evolved from a narrow focus on agricultural productivity to a more integrated vision encompassing environmental sustainability, social equity, territorial cohesion and participatory governance (OECD, 2006; van der Ploeg et al., 2000).

In developing countries, particularly in the Global South, rural development policies frequently face

structural challenges such as land degradation, climate vulnerability, inadequate infrastructure and limited institutional capacity (Ashley & Maxwell, 2001; Bebbington et al., 2004). Furthermore, the combination of territorial disparities between urban and rural areas and the effects of globalisation and neoliberal reforms has raised concerns about spatial justice and the effectiveness of state interventions (Rodríguez-Pose, 2013; Scott & Storper, 2003).

Algeria, located in North Africa, covers approximately 2.38 million km², with a rural population accounting for around 25–30% of the total population and agricultural land representing about 17–18% of its territory (Diaf, 2023). The shift from centralised planning to market-oriented development in the early 2000s coincided with a renewed focus on rural revitalisation and territorial equity. This policy transition led to the launch of major national programmes, such as the Plan National de Développement Agricole et Rural (PNDAR) and the Sustainable Rural Development Strategy (SRDS), introduced in 2003 and 2008 respectively. These strategies aimed to address the decline of rural areas, foster local initiative, promote sustainable agriculture and reverse rural depopulation through infrastructure investment and natural resource management (Bessaoud, 2006; Madani, 2015).

Despite substantial financial resources and political engagement, the implementation and impact of these programmes remain uneven and poorly documented on a regional scale. To understand how these national strategies translate into actual change in rural areas, we need localised case studies combining spatial analysis and policy evaluation (Long, 2001; Woods, 2011). This research uses Bordj Bou Arréridj, a wilaya in eastern Algeria, as a case study to evaluate the effects of rural development initiatives between 2003 and 2025. By analysing funding structures, project types, territorial disparities and institutional dynamics, the study will contribute to academic literature on rural development and to the practical challenges of implementing sustainable and inclusive territorial policies in the Maghreb context (Northwest Africa).

Study Area: The Wilaya of Bordj Bou Arréridj

The wilaya of Bordj Bou Arréridj is located in the eastern high plateaus of Algeria and serves as a strategic crossroads between the country's eastern and central regions. Established as a separate administrative unit during the 1984

territorial reorganisation, it is currently divided into ten administrative districts (dairas) and thirty-four municipalities. The province covers an area of around 3,920 km² and boasts diverse topography, including mountains, rolling hills and fertile plains.

Bordj Bou Arréridj is of significant economic importance due to its growing industrial and electronics manufacturing sectors, which attract national and international investment. The region's elevation ranges from 928 metres in the provincial capital to 1,500 metres in mountainous areas such as Tiklaait in the Bordj Ghardir district. Its proximity to the major wilayas of Sétif, Bouira, Béjaïa and M'Sila enhances its regional connectivity and logistical importance. The wilaya can be divided into three major geomorphological units:

- Mountainous regions are characterised by a range of steep slopes generally exceeding 12%, with gradients that may reach 25% or more in the most rugged areas. This includes forested mountainous zones such as the Beni Adel and Biban areas, which are also highly exposed to erosion processes.;
- Hills and foothill zones offering pasturelands and arable soils, but with fragile ecosystems and hydrological challenges.
- High plains, which are agriculturally productive and host most of the province's infrastructure but face rapid urban encroachment.

The region falls within the semi-arid climatic zone, experiencing cold, rainy winters and hot, dry summers. Precipitation varies with elevation, exceeding 1,000 mm annually in the northern mountains but dropping to approximately 380 mm in the foothills. Several surface water resources form part of the hydrographic network, including the Oued El-Ksob and Oued Bousselam watercourses, which supply the Ain Zada Dam, which has a storage capacity of 125 million cubic metres. The province also has six natural springs, three of which are thermal, as well as numerous underground aquifers. From a demographic perspective, Bordj Bou Arréridj has an average population density of 168 inhabitants per km², with significant disparities between rural and urban areas. Population densities in urban centres can reach several thousand inhabitants per km², compared to generally low densities in rural areas, often below 100 inhabitants per km². This spatial, ecological and socio-economic diversity makes Bordj Bou Arréridj an ideal site for evaluating the implementation and impact of rural development policies across different types of territory. The province has benefited

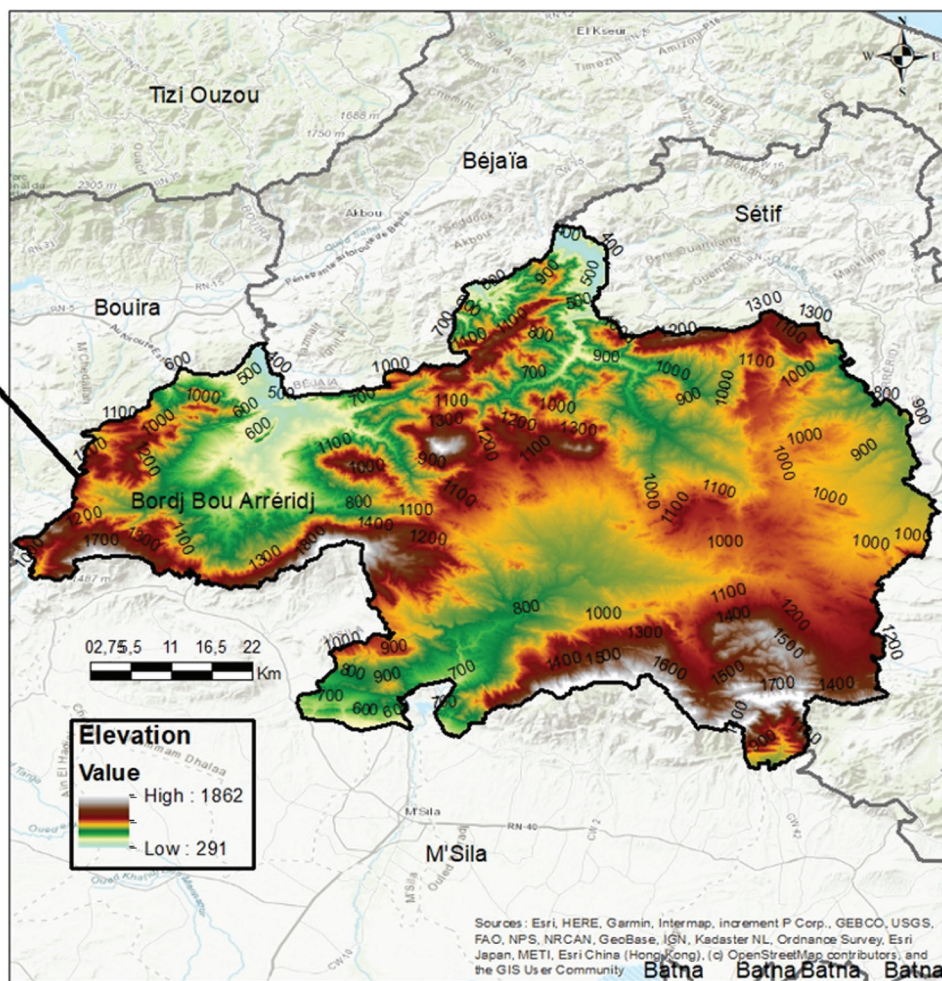
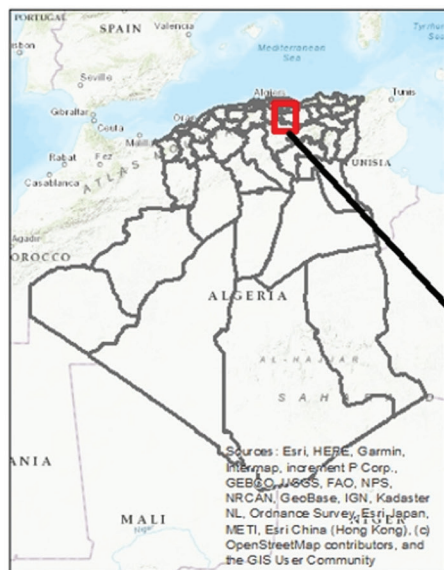


Figure 1: Relief of Bordj Bou Arreridj Provincej

Source: web site GADM + Digital Elevation Model + base map ArcGIS

from numerous public investments in rural infrastructure, agricultural modernisation, water access and reforestation, providing a valuable case study for assessing territorial equity and rural sustainability.

Rural Development Policies in Algeria: Historical and Strategic Framework

Since gaining independence in 1962, Algeria's rural development policies have evolved through alternating phases of centralised planning, structural adjustment and gradual liberalisation, reflecting broader shifts in the country's economic and political priorities. The centralised, state-led agricultural model of the post-independence decades came under challenge in the 1980s due to economic stagnation, rural depopulation and environmental degradation, prompting calls for reform (Bessaoud, 2006). In the early 2000s, Algeria began transitioning towards market-oriented, territorially integrated development, emphasising decentralisation, local initiative and greater private-sector involvement in agriculture and rural infrastructure. This

reorientation was realised through a series of major policy frameworks. The National Agricultural Development Plan (PNDA), launched in 2000, signalled a departure from collectivist approaches by supporting private farms, modernising production systems and promoting rational land use (Aghrout, 2004; Laoubi, 2012). Building on this, the National Agricultural and Rural Development Programme (PNDR), introduced in 2002, broadened the scope to include rural infrastructure, housing, and public services, paying particular attention to mountainous and marginalised regions. The Sustainable Rural Development Strategy (SDRD), adopted in 2003, aimed to address long-standing regional disparities and rural-urban migration by promoting comprehensive, participatory development. This strategy sought to enhance living standards, service provision, and food security by facilitating community-driven projects (Sahli, 2010). In 2008, the Rural and Agricultural Renewal Policy (PRAR), under the Agricultural Orientation Law, explicitly integrated environmental sustainability with economic objectives. It combined an agricultural axis focused on productivity and strategic crops

with a rural axis dedicated to natural resource preservation, anti-desertification measures, and infrastructure reinforcement. In order to implement these policies, the government set up a range of financial instruments, including the Development Fund for Mountain and Forest Zones (FDRMVTC), the Fund for Combating Desertification and Protecting Soils (FLCDDPS), the Fund for Forest Protection and Environmental Engineering (FSAEPEA) and the National Fund for Rural Development (FNDR). These mechanisms have financed various projects, including reforestation, rural road construction, pasture restoration, well drilling, electrification and income-generating activities. The latter include targeted programmes for rural women and youth entrepreneurship. Despite the scale of investment, challenges remain, including pronounced territorial disparities, with remote mountain areas often underserved; limited decentralisation; weak inter-institutional coordination; inconsistent monitoring systems; and a lack of independent impact evaluations. Furthermore, the persistence of a top-down planning culture has, in some cases, hindered genuine community participation, reducing local ownership and limiting adaptation to territorial specifics (Bessaoud, 2013; Madani, 2015). These structural limitations highlight the importance of localised, evidence-based evaluations of rural policy outcomes, as demonstrated by the present study focusing on the Wilaya of Bordj Bou Arréridj.

Methodology

This study uses a mixed-methods research design, combining quantitative data analysis with qualitative interpretation, to evaluate rural development interventions in the Wilaya of Bordj Bou Arréridj between 2003 and 2025. The quantitative analysis is primarily based on detailed project and financial data collected from the Forest Conservation Authority (Direction des Forêts de la Ville). These data include: (i) the classification of rural development projects by type (e.g. rural and forest roads, water infrastructure, reforestation, agroforestry, and support for livestock and beekeeping); (ii) financial allocations by funding mechanism (FDRMVTC, FLCDDPS, FSAEPEA and FNDR); (iii) the temporal distribution of investments (annual funding between 2003 and 2025); and (iv) physical outputs, such as roads constructed, wells, water basins and agroproductive units distributed. These data were used to identify trends in public investment, sectoral priorities and shifts in rural development strategies over time, as presented in Table 1 and the associated charts. Demographic and socio-economic indicators were obtained from

the National Office of Statistics (ONS), including population density, age structure, rural–urban distribution and employment by sector. These variables were used to contextualise development needs and highlight territorial disparities within the wilaya. Climate data were sourced from the National Meteorological Institute (INM) and include annual precipitation and temperature records for the period 2000–2024. These data were used to characterise the region's semi-arid climate and explain the strong emphasis on water management, soil protection and reforestation programmes. A territorial analytical approach was employed to evaluate spatial disparities in project distribution. The wilaya was divided into three main ecological zones (mountainous areas, foothills and high plains) and the allocation of investments and project types across these zones was analysed. This approach operationalises the concept of spatial justice (Rodríguez-Pose, 2013; Scott & Storper, 2003) by comparing the intensity and nature of public investment in territories that differ in terms of their ecology and socio-economics. Additionally, a qualitative analysis of policy frameworks and rural development strategies was conducted based on existing literature (Ellis & Biggs, 2001; Bessaoud, 2006). These references were used to interpret the evolution of rural development approaches in Algeria, particularly the shift from infrastructure-based interventions (2003–2010) towards integrated strategies that combine environmental sustainability, agricultural productivity and income diversification (after 2017).

Results and Analysis

This section presents the key findings on rural development interventions in Bordj Bou Arréridj between 2003 and 2025. The focus is on financial allocations, project types, territorial distribution and socio-economic outcomes. Table 1 illustrates how the data were analysed to identify temporal trends, funding priorities and spatial disparities in project implementation.

Between 2003 and 2018, rural development in the wilaya was financed through four major funds: The FDRMVTC (for mountainous and forest areas), the FLCDDPS (for soil protection and desertification), the FSAEPEA (for environmental and forest management) and the FNDR (the National Rural Development Fund). The total financial envelope mobilised across these mechanisms reached 2.71 billion DZD over the 15-year period. The FDRMVTC accounted for the largest share of this, at 73.5%, highlighting a strong emphasis on developing forest and mountain areas. The FLCDDPS and FSAEPEA played a lesser role, particularly between 2009

Table 1. Funding Allocation by Program and Project Type in Bordj Bou Arréridj (2003–2025)

Period	Project Type	Volume / Indicators ¹	Funding (approx.)
2003–2018	Forest & mountain development (FDRMVTC)	≈ 73.5% of total funding ² ; 874 km roads	≈ 2.72 billion DZD ≈ 17–18 millions €
	Water access & soil protection	293 wells, 268 basins, 20,675 m ³ erosion works	Includes FLCDDPS & FSAEPEA
	Agroproductive units: Crop production (cereals, vegetables, fruits) Livestock farming (cattle, sheep, poultry) Apiculture (honey production) Agro-processing activities (e.g., dairy, olive oil, packaging) Small-scale or family farming systems	1,185 units modular livestock/ honey production ³	Supported via FSAEPEA
	Agroforestry	8,477 ha reforested	Shared funding sources
2018–2025	Infrastructure & sustainable agriculture	180 km roads; 520 ha fruit trees; 600 ha forest	1.59 billion DZD (2023) ≈ 10.0 – 10.6 million € (approx.)
	Renewable energy & entrepreneurship	20 solar units; 164 farms; 900 beekeepers	>100 million DZD
2024–2025	Rural housing & demographic stabilization	5,000 + units delivered ⁴ ; reducing outmigration	Local & national subsidies

Source: directorate of forest and agriculture, 2024.

and 2013 when project diversification (e.g. water access and erosion control) intensified. Chart 1 below shows a breakdown of funding over time and reveals that 2010 and 2012 were peak years for investment, with over 450 million DZD (approximately 2.8–3.0 million euros) allocated in 2010 and over 530 million DZD (approximately 3.3–3.5 million euros) in 2012. This reflects a national push for infrastructure and environmental programmes during that period. However, a clear decline in funding is observable after 2014, possibly due to fiscal constraints and shifting policy priorities.

The types of rural development interventions implemented in Bordj Bou Arréridj during the review period reflect a broad, strategic response to infrastructural and ecological needs. At the same time, considerable efforts were directed towards improving water

management infrastructure, which is a critical priority in semi-arid regions. The province saw the construction of 293 shallow wells and 268 water basins, as well as several installations for providing drinking water and for irrigation. These interventions aimed to support household needs and the resilience of rural agricultural communities. Environmental protection was also addressed through soil and erosion control projects. Around 38,000 cubic metres of watercourses were corrected and 20,675 cubic metres of anti-erosion structures were installed to mitigate land degradation, particularly in mountainous and sloping areas prone to erosion, as shown in Figure 3. To complement these efforts, the government promoted apiculture and small livestock farming to support rural livelihoods. Between 2009 and 2012, 1,185 modular units (ready-to-use, prefabricated

1 The indicators reported in this table refer primarily to projects effectively implemented (realized outputs) during the respective periods. However, in some cases, the figures may also include projects that were approved and funded but not fully completed at the time of reporting, due to data limitations in official sources.

2 The total allocated funding amounts to approximately 2.72 billion DZD, of which about 73.5% was utilized for forest and mountain development activities, including the construction of approximately 874 km of roads.

3 Units modular livestock / honey production refers to small, flexible production units designed for livestock rearing or beekeeping, which can be easily installed, expanded, or adapted to support rural income-generating activities

4 **unit:** refers to one complete rural housing dwelling

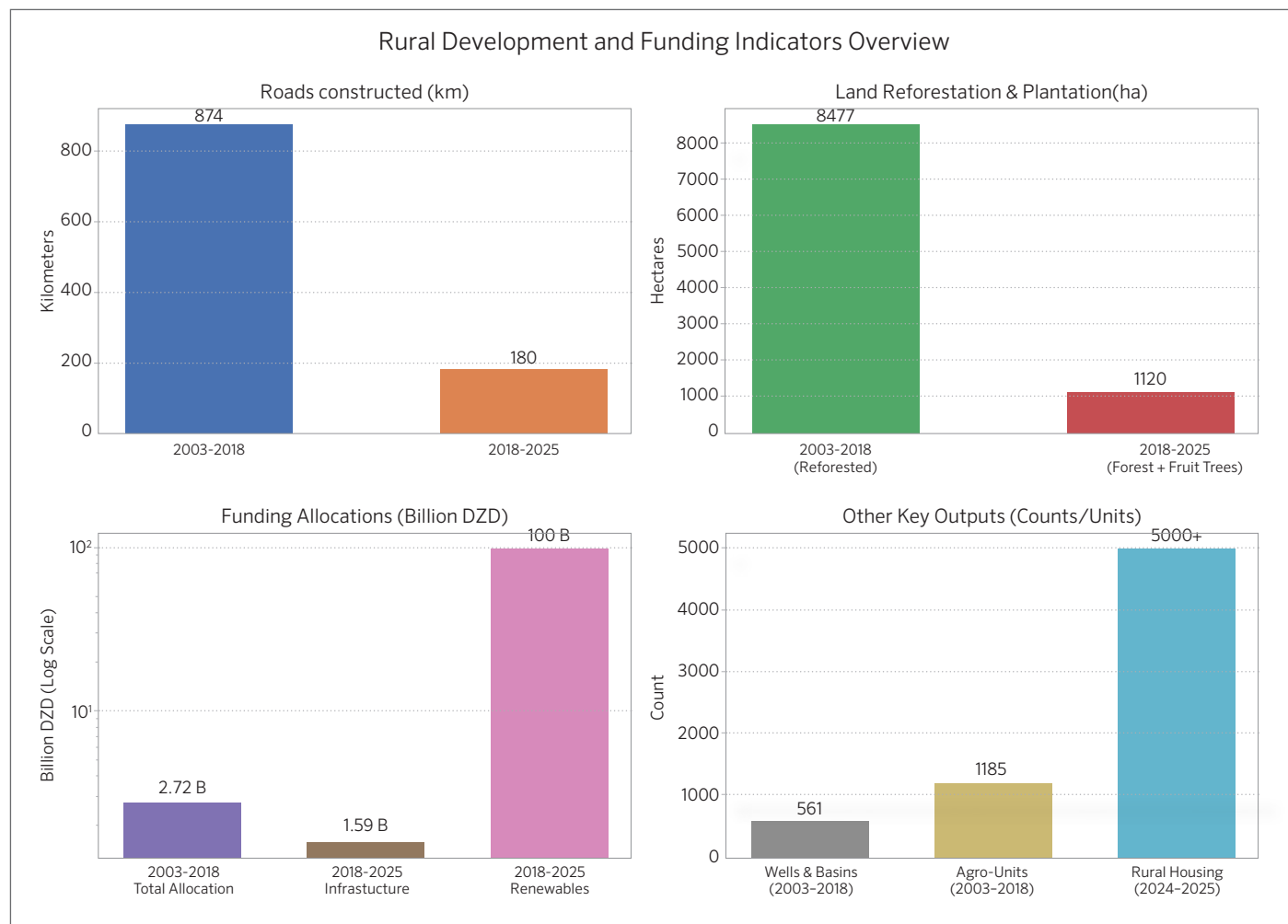


Figure 2: Distribution of funding by year (2003-2025)

Source: Authors compilation based on data from the directorate of rural development of Bordj Bou Arreridj

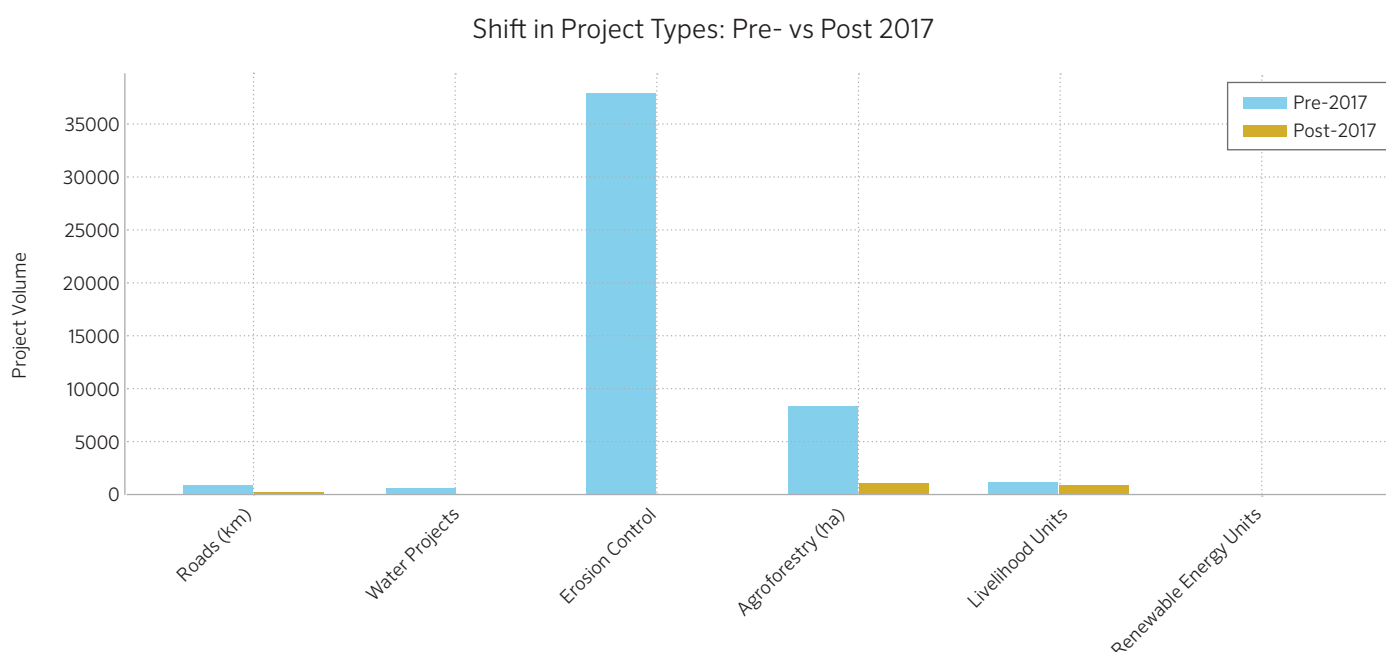


Figure 3: Shift in project types: pre- post 2017

Source: Authors compilation based on data from the directorate of rural development of Bordj Bou Arreridj

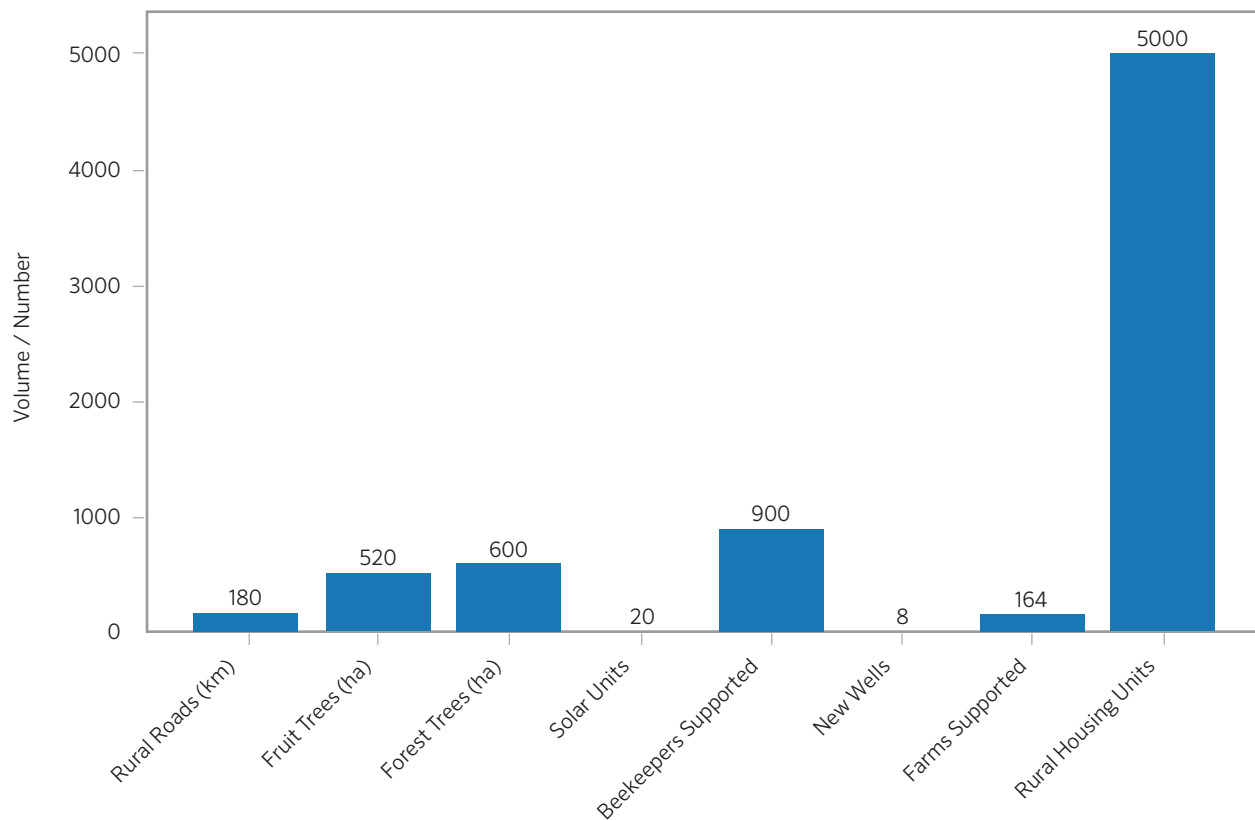


Fig. 3. Post- 2017 rural development projects in the study area

Source: Authors compilation based on data from the directorate of rural development of Bordj Bou Arreridj

production facilities, such as beehives and small livestock shelters) were distributed to beekeepers and small livestock producers. This initiative aimed to diversify rural incomes and encourage entrepreneurship. In addition, agroforestry initiatives played a prominent role in environmental restoration and economic productivity.

As part of the reforestation program, 8,477 hectares of fruit and olive trees were planted across the wilaya. This agroforestry push sought to combine environmental conservation with long-term agricultural investment. Collectively, these figures underscore a phased approach in the region's rural policy: an initial focus on infrastructure and water security, followed by a gradual diversification toward productive, environmental, and income-generating activities. The evolving nature of these interventions reflects not only shifts in policy priorities but also growing recognition of the complexity of rural transformation. The projects were deployed unevenly across the wilaya's three major ecological zones. Mountainous areas received the bulk of forest and soil protection funding, while plains and foothills saw most of the agricultural and water-based investments. However, disparities persist

in access to services, particularly in isolated municipalities.

The results of this study reveal several key patterns that shape the rural development landscape in Bordj Bou Arreridj. First, the overwhelming dominance of the FDRMVTC as a funding source during the early implementation phases indicates a pronounced institutional bias toward forestry and environmental rehabilitation. This emphasis prioritized reforestation, erosion control, and road infrastructure in mountainous zones, often at the expense of broader livelihood diversification or socioeconomic empowerment. Second, the post-2009 period marked a noticeable shift toward project diversification, with the introduction of programs targeting water access, agricultural support, and rural services. This evolution reflects a gradual maturation of rural policy frameworks, although the absence of systematic long-term monitoring mechanisms continues to hinder comprehensive evaluations of impact and sustainability. From 2017 onward, the nature of rural interventions evolved further to incorporate pillars of sustainable agriculture, renewable energy access, and improved water management suggesting a more integrated and strategic approach to rural revitalization.

However, despite this progress, persistent challenges remain. Notably, the study reveals enduring gaps in transparency regarding project allocation and implementation, reflected in the limited availability of publicly accessible data on funding distribution, unclear criteria for project selection, and weak communication between local authorities and rural communities. In addition, marked territorial inequities persist in the distribution of funding and services across the wilaya of Bordj Bou Arréridj Province. Moreover, the limited integration of local governance structures into program design and delivery continues to constrain participatory development, reinforcing a top-down model that risks undermining long-term sustainability and local ownership by rural communities and local stakeholders.

Discussion

Territorial Inequities and Governance Gaps in Rural Policy Implementation

The results reinforce longstanding critiques of Algeria's rural development model: significant investment has been deployed in infrastructure, environmental restoration, and basic services, but the economic and participatory dimensions remain underdeveloped (Hichem, 2023; Kertous, 2024). According to Adair et al. (2022), nearly half of public agricultural and rural investment continues to be directed toward agricultural business and infrastructure, while rural development programs themselves constitute a smaller share of the actual budget (Pinstrup-Andersen, 2006; Patel, 2014; Aragie, 2021). This mirrors our finding that FDRMVTVC accounted for roughly 73.5% of the 2003–2018 funding, heavily focused on roads and reforestation rather than livelihood diversification.

Furthermore, the absence of rigorous, locally grounded impact evaluation creates a critical governance gap (Funk et al, 2018; Schultz, 2024). Theoretical frameworks affirm that sustainable rural transformation hinges on combining inclusive governance with evidence-based planning (Duran-Diaz, 2023). Local decision-making processes remain largely top-down and paternalistic, reflective of national trends where decentralization efforts have been slow to materialize (Bardhan, 2006; Moir, 2013; Duran-Diaz, 2023).

Adopting a more integrative vision after 2017 seen in investments in solar energy, apiculture, strategic crop support, and rural housing aligns with global best practices in sustainable rural development (Ellis & Biggs, 2001; FAO, 2017). Notably, the shift to targeting diverse forms of

economic empowerment, energy access, and resilience-building reflects emerging policy shifts in the Global South aimed at holistic rural transformation. Significant challenges persist. Spatial imbalances in project distribution continue; mountainous municipalities still receive fewer livelihood projects, despite their ecological vulnerability (Lazreg, 2024; Hallouz, 2025). This pattern reflects documented territorial inequities in other Algerian regions (e.g., Ouarsenis, Sétif) where remote areas remain marginalized despite funding efforts (Lacheheb, 2024).

At the international level, rural development literature emphasizes that poverty alleviation depends on the interaction between ecological resilience and productive diversification (Radosavljevic et al., 2020). In Bordj Bou Arréridj, however, infrastructure investments continue to outpace efforts to develop nutrient-rich agro-ecosystems—i.e., systems that sustain soil fertility and support diversified, high-value agricultural production or renewable energy initiatives. This imbalance is particularly important given the strong dependence of rural households on hydrocarbon-based subsidies, including fuel, electricity, and irrigation support, which reduce production costs but reinforce long-term reliance on fossil resources.

Moreover, the Algerian Green Dam initiative, aimed at restoring degraded lands at the national scale, is reflected in local reforestation efforts targeting thousands of hectares. However, its limited transparency and standardized implementation approach have raised concerns regarding stakeholder participation, species diversity, and climate adaptation (Benhizia et al., 2021).

From an internalization standpoint, this study reframes the Algerian case within global discourses on territorial equity, rural governance, and sustainable development. By grounding national plans in local data and territory-specific analysis, the article contributes to understanding how macro-level strategies resonate (or fail) at the regional scale. In doing so, it positions Bordj Bou Arréridj as a microcosm for examining broader dynamics of rural policy implementation in a middle-income country of the Global South. Importantly, this research highlights that while infrastructure and environmental capital are prerequisites, they are not sufficient conditions for inclusive rural transformation. Sustainable outcomes require better governance, local empowerment, integrated planning, and continuous evaluation (Roselan, 2000; Hellin et al., 2006; Hawkins, 2012; Ioppolo et al., 2016).

Conclusion

The research examined the evolution of rural development strategies in Bordj Bou Arréridj, Algeria, from 2003 to 2025, highlighting both the achievements and limitations of policy implementation at the subnational level. The results demonstrate a clear progression from infrastructure- and environment-centered interventions dominated by the FDRMVC forestry and mountain development fund to a more diversified portfolio of projects after 2017, including sustainable agriculture, renewable energy, water security, and livelihood support. This shift reflects a partial alignment with international best practices advocating for integrated and multisector rural development (Jacob, 2018; Koopmans et al., 2018).

Nevertheless, the findings also reveal persistent territorial inequities, governance shortcomings, and limited mechanisms for participatory planning. Such constraints are consistent with national-level assessments showing that Algeria's rural policy often remains highly centralized, with insufficient feedback loops between local needs and policy design (Ferrah, 2013; Fellahi, 2021; Saidi et al., 2024). The concentration of early investments in forestry and road construction improved physical connectivity and ecological restoration but did not fully translate into inclusive economic transformation.

From an international perspective, the case of Bordj Bou Arréridj mirrors a broader challenge in rural development: the tension between visible, short-term infrastructure gains and the slower, more complex process of building resilient local economies. Looking forward, policy makers should prioritize territorial equity frameworks, expand the use of impact evaluation tools, and integrate climate-resilient into rural planning. The experience of Bordj Bou Arréridj offers both a cautionary tale and a roadmap: substantial investments can transform landscapes and connectivity, but without deepening local participation and economic empowerment, their long-term transformative potential will remain limited.

References

- Ashley, C. & Maxwell, S. (2001). Rethinking rural development. *Development policy review*, 19(4), 395-425.
- Aghrout, A. (2004). Algeria's Agriculture: Policy Reforms and Achievements. *Algeria in Transition*, 126-143.
- Aragie, E. & Balié, J. (2021). Public spending on agricultural productivity and rural commercialization: A comparison of impacts using an economy-wide approach. *Development Policy Review*, 39, 021-041.
- Bardhan, P. & Mookherjee, D. (Eds.). (2006). *Decentralization and local governance in developing countries: A comparative perspective*. MIT press.
- Bebbington, A. J., Hickey, S. & Mitlin, D. C. (Eds.). (2008). *Can NGOs make a difference? The challenge of development alternatives*. Bloomsbury Publishing.
- Benhizia, R., Kouba, Y., Szabó, G., Négyesi, G. & Ata, B. (2021). Monitoring the spatiotemporal evolution of the Green Dam in Djelfa Province, Algeria. *Sustainability*, 13(14), 7953.
- Bessaoud, O. (2006). La stratégie de développement rural en Algérie. *Options méditerranéennes, série A*, 71, 79-89.
- Bessaoud, O., Pellissier, J. P., Rolland, J. P. & Khechimi, W. (2019). *Rapport de synthèse sur l'agriculture en Algérie* (Doctoral dissertation, CIHEAM-IAMM).
- Crosta, N., Davies, A. & Maguire, K. (2006). The new rural paradigm: policies and governance.
- Durán-Díaz, P. (2023). Sustainable land governance for water-energy-food systems: A framework for rural and peri-urban revitalisation. *Land*, 12(10), 1828.
- Ellis, F. & Biggs, S. (2001). Evolving themes in rural development 1950s-2000s. *Development policy review*, 19(4), 437-448.
- Fellahi, A. (2021). *Rural youth outmigration choices in light of government development policies in Algeria* (Doctoral dissertation, Universitäts-und Landesbibliothek Bonn).
- Ferrah, A. & Oubelli, M. A. (2013). Algeria analysis of food, agriculture and water research and innovation priorities, needs and capacities. *Algerian Ministry of Agriculture and National Institute of National Agronomic Research in Algeria, Wafira project*.
- Food and Agriculture Organization of the United Nations. (2017). *The future of food and agriculture: Trends and challenges*. Fao.
- Funk, E., Groß, L., Leininger, J. & von Schiller, A. (2018). *Lessons learnt from impact-oriented accompanying research: Potentials and limitations to rigorously assessing the impact of governance programmes* (No. 28/2018). Discussion Paper.
- Hichem, K. (2023). Development Security in Algeria: Reality, Challenges, and Perspective. *Security & strategic affairs*, 1(1), 14-34.
- Hallouz, F. & Meddi, M. (2025). Advancements in Multi-Criteria Decision-Making Models: A New Paradigm for Monitoring Flood Risks in Algeria. In *Progress in Multicriteria Decision Making Models: A New Paradigm to Monitor Hazards* (pp. 481-505). Cham: Springer Nature Switzerland.
- Helling, A. L., Berthet, R. S. & Warren, D. (2005). *Linking community empowerment, decentralized governance, and public service provision through a local development framework* (Vol. 535). Washington, DC: World Bank.
- Hawkins, C. V. & Wang, X. (2012). Sustainable development governance: Citizen participation and support networks in local sustainability initiatives. *Public Works Management & Policy*, 17(1), 7-29.

- Ioppolo, G., Cucurachi, S., Salomone, R., Saija, G. & Shi, L. (2016). Sustainable local development and environmental governance: A strategic planning experience. *Sustainability*, 8(2), 180.
- Jacob, W. J. (2018). Integrated rural development from a historical and global perspective. *Asian Education and Development Studies*, 7(4), 438-452.
- Kertous, M., Maliki, S., Saad, M. B., Saad, R. B. & Benghalem, A. (2024). *Water subsidies, desalination, and sustainable resource management : insights from algeria* (Doctoral dissertation, Plan bleu pour l'environnement et le développement).
- Koopmans, M. E., Rogge, E., Mettepenningen, E., Knickel, K. & Šūmane, S. (2018). The role of multi-actor governance in aligning farm modernization and sustainable rural development. *Journal of rural studies*, 59, 252-262.
- Lacheheb, D. E. Z. (2024). *Towards Urban Renewal: Densification challenges in Pericentral Neighborhoods of Setif, Algeria* (Doctoral dissertation).
- Laoubi, K. & Yamao, M. (2012). The challenge of agriculture in Algeria: are policies effective. *Bulletin of Agricultural and Fisheries Economics*, 12(1), 65-73.
- Lazereg, M., Bouzid, A., Boudedja, K. & Kheffache, H. (2024). Future Scenarios of the Algerian Food System Against Natural Vulnerabilities and Water Challenges. In *Integration of Core Sustainable Development Goals in Rural Areas: Current Practices of Water, Energy, Food, Climate Change, and Ecosystems* (pp. 161-183). Cham: Springer Nature Switzerland.
- Long, N. (2003). *Development sociology: actor perspectives*. Routledge.
- Moir, E. & Leyshon, M. (2013). The design of decision-making: participatory budgeting and the production of localism. *Local Environment*, 18(9), 1002-1023.
- OECD. (2006). The new rural paradigm: Policies and governance.
- Patel, A. (2014). Infrastructure for agriculture & rural development in India need for A Comprehensive Program & Adequate investment. *Retrieved*, 1, 13.
- Pinstrup-Andersen, P. & Shimokawa, S. (2006). Rural infrastructure and agricultural development. *World Bank*.
- Ploeg, J. V. D., Renting, H., Brunori, G., Knickel, K., Mannion, J., Marsden, T. & Ventura, F. (2000). Rural development: from practices and policies towards theory.
- Rodríguez-Pose, A. (2013). Do institutions matter for regional development? *Regional studies*, 47(7), 1034-1047.
- Roseland, M. (2000). Sustainable community development: integrating environmental, economic, and social objectives. *Progress in planning*, 54(2), 73-132.
- Saidi, F. A., Saidi, I. & Molnár, E. (2024). Industrial production networks and small towns: A case study from Algeria. *Urban Science*, 8(4), 180.
- Sahli, Z. (2010). Agriculture and Rural Development in Algeria. Status, Risks and Challenges. *Bulletin of the University of Agricultural Sciences & Veterinary Medicine Cluj-Napoca. Horticulture*, 67(2).
- Schultz, S., Beissmann, F., Zorbas, C., Yoong, S., Peeters, A. & Backholer, K. (2024). A realist impact evaluation of a tool to strengthen equity in local government policy-making. *International journal for equity in health*, 23(1), 179.
- Scott, A. & Storper, M. (2003). Regions, globalization, development. *Regional studies*, 37(6-7), 579-593.
- Sraïri, M. T., Ameur, F., Mekki, I. & Lejars, C. (2025). Les zones arides et marginales du sud du Maghreb: un vivier d'opportunités pour un développement humain et territorial équilibré. *Cahiers Agricultures*, 34, 21.
- Woods, M. (2011). *Rural*. Routledge