



Sustainable Development Goals (SDGS) In Rural Context within a Rural Development Policy in North-eastern Algeria

Case of the Wilaya of Guelma

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Abstract

The decline in the rural population is a universal phenomenon, and Algeria has experienced excessive migration of its rural population since independence. At the same time, in 2015, UN member states adopted the 2030 Agenda for Sustainable Development. These goals target all aspects of development, including vulnerable rural areas. To tackle the problem of rural depopulation, Algeria has introduced a number of policies and strategies to develop rural areas, including the Rural Renewal Policy (PRR) launched in 2006. This study in Algeria examines the alignment or coherence of the objectives and actions of the RRP with the Sustainable Development Goals (SDGs), by comparing the two objectives. The reconciliation was carried out on the basis of existing documentation, supplemented by a case study of the wilaya of Guelma, located to the north-east of Algeria. In addition, further information was gathered through a household survey in rural areas. By combining cluster and proportional sampling, we obtained a sample of 108 households and the surveys were carried out in May and June 2022. The results reveal that the objectives of the PRR are aligned with the SDGs, but the application at Guelma level through the Integrated Rural Development Proximity Projects (PPDRI), the PRR's operational tool, has not taken all the SDGs into consideration. In particular SDG 3 and 4, which are dealt with in other structures. At the same time, the household surveys revealed shortcomings, particularly with regard to SDG 5 on the empowerment of women and SDG 11 on the quality of employment. These findings can help stakeholders in future interventions.

Keywords

Algeria, PRR, Rural Development, SDGS, Guelma

1. Introduction

In 2015, UN member states, including Algeria, adopted the 2030 Agenda for Sustainable Development. These goals have been developed to encompass all aspects of development, covering vulnerable rural areas too.

The 17 Goals (SDGs), with 169 targets, are essentially aimed at combating poverty (SDG 1) and hunger (SDG 2), improving living conditions (Huerta-Estevez, 2022), income equality (Herath, 2019) and equitable access to quality education (UN, 2015). In addition, women's empowerment (Bhukta, 2020) and combating climate change and protecting the environment (Shakoor & Ahmed, 2023; Singh et al., 2024).

Rural areas are at the heart of the SDGs. They are characterised by a lack of employment, poverty and unequal development (Bolohan & Stefan, 2023), and are consequently described as areas of sustainable development (Sjaf et al., 2021) essential for achieving the SDGs. (Liu et al., 2024) At the same time, the development of rural infrastructures improves the quality of life, promotes economic growth and supports food security. (Ain et al., 2025), which is related to more than one of the SDGs.

At this level, sustainable development depends essentially on the availability of natural resources and the residential sustainability of villages. (Liu et al., 2024).

In the Algerian context, the depopulation of rural areas is a major challenge to be overcome. The rural population currently represents only 25% of the population, with a growth rate of -0.48% in 2023 (World Bank, 2025).

This decline is attributed to the deterioration in living conditions and infrastructure, the spread of poverty and unemployment, and the marginalisation and isolation of rural areas.

To tackle this phenomenon, Algeria has launched a number of policy programmes, notably the Rural Renewal Policy (PRR) in 2006.

The PRR, a bottom-up participatory policy (Chenoune et al., 2017), aims through its PPDRI operational tools to improve living conditions for the population, revitalise rural areas and diversify economic activities. (Kalarasse & Foufou, 2024), strengthen infrastructure, and put an end to the rural exodus.

In addition, between 2009 and 2018, 11 982 PPDRI were launched in Algeria, with a launch rate of 98%. One million rural households were affected by the PPDRI, in 1400 Communes and 51 550 beneficiaries according to UN Algeria (2019).

This article examines the alignment of the PRR's objectives and actions with the SDGs, by comparing the two objectives. The comparison was refined by means of an in-depth study in the rural setting of the wilaya of Guelma, in north-eastern Algeria. We are therefore trying to answer two questions:

Do the objectives of the PRR converge with the SDGs?

Have the RRP's objectives been translated into PPDRI actions that have contributed to the achievement of some of the SDG targets at the rural level?

2. Materials and Methods

2.1 Study Area

The Wilaya of Guelma is located in north-east Algeria. It covers an area of 3,686.84 km² and will have a population of 583,881 in 2023. It is administratively subdivided into 34 Communes, 44% of which are rural. Guelma's climate is subhumid in the north and centre and semi-arid in the south.

The relief is very heterogeneous, with dense forest cover accounting for around 32% of its total surface area. Agriculture is the main activity in Guelma, accounting for 72% of the wilaya's agricultural area in 2022. Cereals are the predominant crop in Guelma, followed by arboriculture, particularly olive trees, and market garden crops. There is also a significant livestock industry.

The rural population of Guelma represented 17% when the PPDRI was launched in 2009, but this percentage differs from one commune to another, with 90% in Ain Sandal and 2% in Héliopolis.

2.2 Data collection

To achieve our research objectives, we combined several methods of data and information collection, namely: literature, reports and documentation from the United Nations and countries involved in the SDGs, and all documentation related to our research topic.

- Data retrieved from administrations and institutions, in particular the Guelma Forest Conservancy as the leader of these projects,
- Combinations of free interviews with stakeholders involved in the PPDRI,
- Primary data collected from rural households in the rural areas where the PPDRI are being implemented.

The household surveys were carried out in May and June 2022, while the administrative surveys were carried out in November 2021.

In order to obtain representative samples, we chose two types of sampling: the first was cluster sampling to select the Communes with the highest number of actions, while the second was size-proportional sampling to identify the size of our household sample. This approach led us to obtain 108 (Fig.1) completed questionnaires spread over 07 Communes.

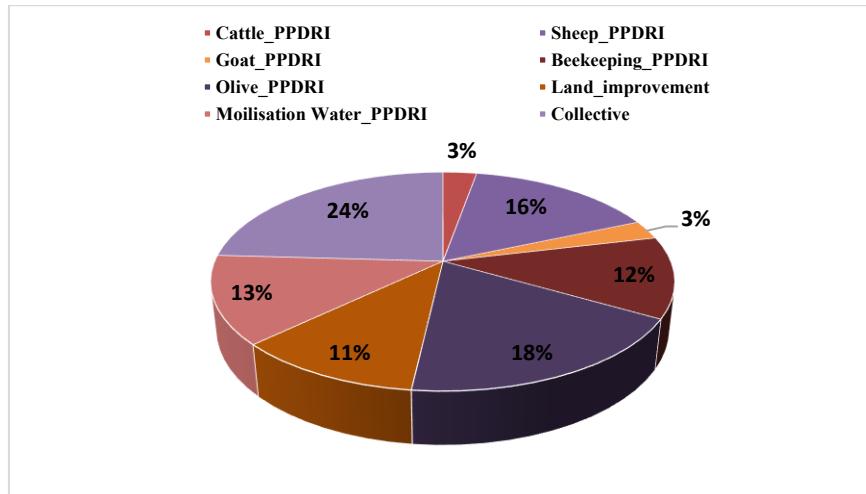


Fig. 1 Sample composition by PPDRI action

2.3 Method Used for Evaluation

We opted for a comparison between the objectives of the RRP as a whole, the PPDRI actions in rural Guelma on the one hand and the SDGs on the other.

To complete the information, we used the results of household surveys to deepen our understanding of policies in a local context. The evaluation criteria chosen seem to be the most relevant to the reality of Guelma's rural areas, in addition to their relevance to the SDGs,

Table 1 Household Survey Criteria

Critère	Scale
Age of head of household	1: < 60 year 2: > 60 year
Sex of beneficiary of action.	1 : Man 2 : Woman
Educational level of head of household	1: < high school 2: > High school
Stability of household income	1 : Stable, 2 : Unstable
Land ownership	1 : Yes ,,,,,,, 2 : No
type of house	1: Rural habitat. 2: Private property
Housing situation.	1 : Well maintained 2: Precarious
Income source	1. farming activity; 2. Non farming activity 3. mixed business
Job creation	1 : Yes ,,,,,,, 2 : No
Improved level of living	1 : Yes ,,,,,,, 2 : No

3. Results and Discussion

The actions PPDRI carried out in the study area can be grouped into:

Economic diversification actions: These are individual actions, i.e. the creation of small sheep, goat, cattle and bee-keeping units, the planting of olive trees, land improvement and land clearing,

Actions to mobilise water resources: Construction of water ponds, sinking and development of wells, catchment of springs.

Actions to improve infrastructure and open up the region: Roads, rural and forest tracks, schools, playgrounds, etc,

Environmental protection actions: Reforestation, restocking, torrential correction, bank stabilisation.

In this part of the study, we have divided the results into two main sections, one to check the alignment between the SDGs and the PRR objectives, and the other devoted to the results of the household surveys.

3.1 Analysis of SDGs and Target Objectifs & PRR and PPDRIs Actions

From 2009 to 2020, Guelma benefited from 122 Projects, comprising 840 actions, with only 508 actions completed. What's more, these actions have reached 8944 rural households in 33 Communes according to Forest Conservatory of Guelma DATA in 2022.

This section consists of a comparison between the SDGs and the PRR objectives, based on the various documents and data drawn up by the United Nations and the PRR objectives. (Table 2).

Table 2 Alignment of the SDGS with the Objectives of the PRR. (FAO,2014 ; MADR, 2004; MADR: 2006; MADR 2010; UN, 2025, Forest Conservatory of Guelma data)

	SDGs	Policy objectives
SDG 1	1 No poverty 1.1 ; 1.3 ; 1.4 ; 1.5 ; 1.b. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Access to financial resources/ Revitalising rural areas. Diversification of economic activities (farming, crafts, tourism, etc.)
SDG 2	2.3 2.4 2.5.a	Improved income, employment and living standards for the population through access to economic, natural, cultural and social resources. Sustainable strengthening of national food security.
SDG 3	3. Access to healthcare.	Improving living conditions for local residents.
SDG 4	4. Ensure inclusive and equitable quality education	Improving living conditions for local residents.
SDG 5	5. Gender equality: achieving gender equality by empowering women and girls.	Involvement of rural women in activities other than farming.
SDG 6	6. Access to safe water and sanitation: guaranteeing access to water and sanitation for all. (6.1 et 6.6)	Access to water resources.
SDG 8	8. Access to decent employment 8.3 ; 8.5	Improving employment conditions.
SDG 9	9. Innovation and infrastructure 9.1	Improving access and living conditions
SDG 10	10. Reducing inequalities: reducing inequalities between and within countries. 10.2	Equilibrated and harmonious development of rural areas. Ensuring a equitable standard of living for communities.

SDG 11	11. Make cities and human settlements inclusive, safe, resilient and sustainable. 11.7. a	Improving living conditions. Opening up, building housing, building schools, health centre.
SDG 12	12. Ensure sustainable consumption and production patterns 12.8	Diversification of economic activities: crafts, services, tourism. Promoting local products.
SDG13	13. Take urgent action to combat climate change and its Repercussions 13.1 , 13.2	Protecting natural resources
SDG15	15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, 15.1; 15.2	Protecting and developing natural resources (forests, steppe, oases, mountains,,,,).
SDG17	17 Partnerships for world objectives. 17.9	Partnership with international institutions for training and project evaluation. And the participation of the rural population in all stages of the projects (bottom-up policy).

We have found that the objectives of the RRP (based on the NRDS) and the PPDRI's actions are in harmony with the SDGs and in accordance with the various targets. Nevertheless, some of these objectives have not been implemented at local level in the rural areas of Guelma.

Moreover, one objective and one action can contribute to several of the SDGs, which demonstrates interactivity and interdependence between the SDGs and coherence between the different objectives of the PRR, specially:

SDG1: The PPDRI are financed by national funds, which corresponds to microfinance (small size of projects), and the bank involved is the BADR: Agricultural and Rural Development Bank. In fact, the financing is provided through the supply of animals and olive trees.

SDG 2: Diversification of economic activities (crafts, tourism) in addition to agricultural activities: creation of livestock units: (1625 units were created between 2009 and 2018 distributed in sheep, goat and cattle farming, beekeeping) land improvement, olive tree plantations. (2082 hectares of olive trees have been planted under the PPDRI)

These actions contribute to more than one SDG, specifically ensuring food security, increasing agricultural production and raising the incomes of local residents.

Collective actions aim to improve rural infrastructure and combat climatic hazards. (2.4).

SDG 3 and SDG 4: only one school extension project has been carried out in Guelma as part of the PRR, in addition to the presence of treatment rooms in certain villages as part of various interventions in rural areas.

SDG 5: Women's participation in these projects is very limited, with only a few bee-keeping activities and olive tree plantations. This mistrust is attributed to the traditions of the rural areas of Guelma. In 2018, 30 women benefited from a small beekeeping unit out of 397 beneficiaries, i.e. a percentage of 7.55%.

SDG6: Actions to mobilise water, not only provides access to drinking water but also helps to improve agricultural production by using it for watering and even irrigation (ponds) (SDG 2.3). In Guelma, the average rate of achievement of these actions is around 88%.

SDG 7: In Guelma, no initiatives were planned for renewals energy. However, in some other regions, the production of solar and wind energy has been implemented. The PPDRI relies on the presence of an energy source, essentially the national rural electrification programme. It should be noted that access to electricity for Algeria's rural population will reach 100% by 2023 from all sources, and the share of renewable energy in electrification will be less than 1% by 2022, according to World Bank statistics (2025). This is in concordance with Del Arco and colleagues (2021), who confirm that access to modern energy services is limited in rural areas worldwide.

SDG 8: Employment has been promoted through the granting of individual projects and the improvement of infrastructure, particularly roads, which is also in line with SDG 9;

SDG 9: Construction and development of roads, tracks to revitalise rural areas, schools, playgrounds, construction of housing, rural electrification,

SDG 10: Strengthening infrastructure and creating economic activities. The actions are also aligned with SDG 2, SDG 4, SDG 5 and SDG 6.

SDG 11: A major rural housing programme which provides state aid for self-build housing, particularly in rural and peri-urban areas.

SDG 12: Diversification of economic activities: crafts, services, tourism, promotion of local products, also converges with SDG 2.

SDG 13: Actions to protect soil against erosion and flooding are planned, especially in fragile and vulnerable areas (torrential correction and bank stabilisation). A very important program

SDG 15: Part of the national reforestation plan has been implemented as part of the PPDRI, i.e. reforestation and restocking of rural areas with the aim of protecting natural resources and creating jobs (SDG 2.3),

SDG 17: Partnership between Algeria and UNDP (United Nations Development Programme), through the Human Capacity Building and Technical Assistance Programme (PRCHAT) launched between 2012 and 2016, and financed by UNDP, for the implementation of Rural Renewal. This collaboration and support is in line with point 17.9.

It should be noted that the UNDP invested \$ 944.074 million between 1990 and 2016 in various development projects in Algeria (Alao & Alola, 2022).

Finally, two SDGs have not been taken into consideration due to the lack of correspondence with the reality of the objectives of the RRP, the PPDRI and the region as well.

Indeed, Guelma is not concerned by SDG 14, which concerns coastal cities. There is no information on the relationship between SDG 16 and rural development policies.

These findings corroborate the work of Breuer *et al.* (2019) and Allen *et al.* (2018), which confirm the complexity, interdependence and interconnectedness of the SDGs and their targets.

3.2 Results of Household Surveys

In this section of the results, we have chosen a few criteria to complete our information on the contribution of PPDRI actions to achieving the SDG objectives.

The survey revealed that 39.80% of those interviewed were over 60, while all the respondents were men and lived in the villages as their main residence. In addition, 63% of local residents live in rural housing. Other household characteristics are summarised in Figure 2;

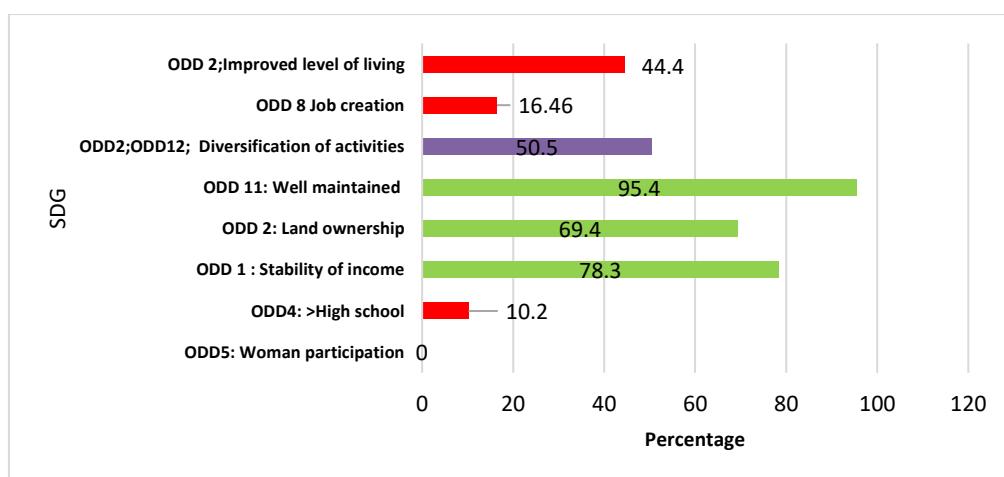


Fig. 2 Results of households' survey

According to the results of our survey, and looking back at the objectives of the PPDRI and the SDGs, we have shown that only one indicator linked to SDG 11 has almost been achieved, in direct relation to the well-being of households (the state of the house).

Four indicators need to be addressed as soon as possible: strengthening the role of rural women, education, job creation and improving living conditions.

All the actions carried out as part of the PPDRI are agricultural in nature, and far from the expectations of rural women, who could be involved in craft activities such as pottery, weaving, embroidery and sewing. In addition, the customs of the region do not allow women access to the various projects.

The projects proposed, in particular livestock farming activities, are small-scale and do not allow for the creation of permanent, quality jobs. (SDG 8)

The age of the respondents is relatively high, which explains the lack of access to secondary education (SDG 4). It should be noted that school transport is one of the mainstays of efforts to achieve secondary and even intermediate education.

The deterioration in the living conditions and standard of living of rural households in Guelma (SDG 2; SDG 3; SDG 4; SDG 9) in relation to the PPDRI is mainly due to the deterioration of the infrastructure built in this context over time, and the loss of individual projects.

Agriculture continues to be the only source of income for almost 50% of households, which poses a threat to rural households in the face of economic crises and climatic hazards (SDG 2 and SDG 12).

The habitats of respondents are well maintained and in good condition, which contributes to the well-being of the population.

4. Conclusion

The SDGs are essential for a prosperous, more equitable and sustainable future for the planet. The results showed that the SDGs were at the heart of the RRP. Almost all of the SDGs were present in the RRP policy, with the exception of SDG 7 and SDG 14.

Nevertheless, there have been shortcomings in the implementation of the policy in Guelma. These include the failure to address SDGs 3, 4 and 5.

The household surveys revealed other realities linked to the SDGs, essentially the modest number of jobs created by the projects, and the deterioration in the living conditions and standard of living of households, which must be a priority. On the other hand, diversification of activities and access to land resources need to be strengthened.

To manage this situation and optimise future actions, it is recommended that we focus on certain aspects that we suggest should be incorporated into future policies;

1. The empowerment of rural women in the study area is more than a necessity. Involving women and giving them a share of the budgets and projects dedicated to this category and proposing actions in line with their wishes as women.
2. Encourage households to adopt non-agricultural activities alongside farming to increase their resilience in the face of economic crises and the impact of climate change.
3. Transformation to clean energy is a challenge that needs to be taken up not only to protect the environment, but also to make energy transport more cost-effective, given that rural areas are vast and houses are far apart.
4. This study in Algeria needs to be extended to the country's rural areas, to map out these areas and make it easier to take decisions and prioritise action in areas that are vulnerable in terms of the SDGs. In addition, more representative and reliable indicators corresponding to the local and rural context need to be established,

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Declaration of Conflict

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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