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EXTERNAL REPORT

MONITORING THE SDGs IN ANDALUSIA REGION

SPAIN

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Table of Contents

ABSTRACT

In the framework of the 'REGIONS2030 monitoring the SDGs in the EU regions - filling the data gaps' project supported by the European Parliament and implemented by the European Commission Joint Research Centre (JRC) in collaboration with DG REGIO and ESTAT, an analysis of a dataset to measure the SDGs at regional (NUTS2) level was performed for Andalucía. The work included checking data availability, fit between the indicators and the regional priorities, and the formulation of suggestions for new indicators. A competence-based classification of the indicators was also relevant, especially for a region like Andalucía with extensive powers and autonomy. After the analysis of the dataset, certain challenges emerged; general and indicator-specific issues were analysed; and recommendations of new perspectives and indicators to be considered were provided.

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EXECUTIVE SUMMARY

This report is part of the 'REGIONS2030 monitoring the SDGs in the EU regions - filling the data gaps' project sponsored by the European Commission Joint Research Centre (JRC). In the context of this project, the JRC has proposed a set of 83 indicators applicable for measuring the advance of the 2030 Agenda in European Regions, and chosen 10 pilot regions to assess them for availability, fit and coherence with the regions' policies. Andalucía sent a proposal to participate in the project, with the support of the Andalusian Institute of Statistics and Cartography (IECA) and the Andalusian International Cooperation Agency (AACID), and was selected as one of these pilot regions.

POLICY CONTEXT

Andalucía has had a long tradition in commitment with the 2030 Agenda, and several steps have been taken towards its implementation: the approval of the 'Andalusian Sustainable Development Strategy' in 2018, the creation of a Delegate Commission for the 2030 Agenda in 2021, or several smaller scale projects directed to monitor, create knowledge or increase policy coherence with the SDGs.

Beyond this commitment, Andalucía, as all other Spanish Regions, enjoys an important degree of administrative autonomy and power, including statistical competences. Therefore, a huge share of the impact and monitoring on the 2030 Agenda depends on its competences, partially or totally. Due to this implication, many regional entities have been involved and have actively collaborated with this project, despite the short time available, and a collaboration framework has been established including the author, the project promoters and these entities.

MAIN FINDINGS

The first part of the work required to elaborate this report was aimed to evaluate the proposed JRC dataset. The 83 indicators include all 17 SDGs and have been aligned with the 169 targets, covering 33,14% of them. This coverage has been found not enough, and a main goal during the research has been increasing the amount of targets included, via additional indicators.

As explained above, Andalucía has the competence on producing statistical information, and thus data availability for the proposed indicators is very high. Only 2 indicators could not be collected (or collected in an appropriate way), and 7 needed to be replaced by proxies (not only because of lack of data sources, but also in some cases for a better fit with Andalucía's priorities). This richness of data has also allowed the disaggregation of 15 indicators into more specific data.

The proposal to expand the indicator set has included 39 new indicators, adding up to 25 more SDG targets (total coverage 47,9%) in 13 SDGs. Some of these indicators include the use of geographical data and algorithms, and deal with matters that are critical for Andalucía like fisheries or tourism.

Another dimension has been introduced in the analysis: the Andalusian Government published in 2021 'The Andalusian Path on the 2030 Agenda', a report mapping all the activities in execution by the Regional Ministries and Entities towards the implementation of the SDGs. This research has been used as a base for aligning the indicators with the competences of the different Regional Ministries in Andalucía.

KEY CONCLUSIONS

Relevant challenges have been found after the analysis of the indicators, gaps and available data. There is a certain 'excess' in data availability, in principle an advantage but at the same time raising some difficulties to harmonise metadata and selecting the appropriate disaggregation without overwhelming the user. Some indicators proposed by the JRC couldn´t be perfectly defined, and the collaborative format of the project has been a perfect framework for the discussion of alternatives. The clear boundaries of the project have also created some challenges when data sources do not have exactly the same divisions.

RELATED AND FUTURE JRC WORK

Some recommendations have been made after the report that should be included in future efforts to create regional SDG datasets. All 169 targets were, in principle, subjects of study, but some authors find that not all

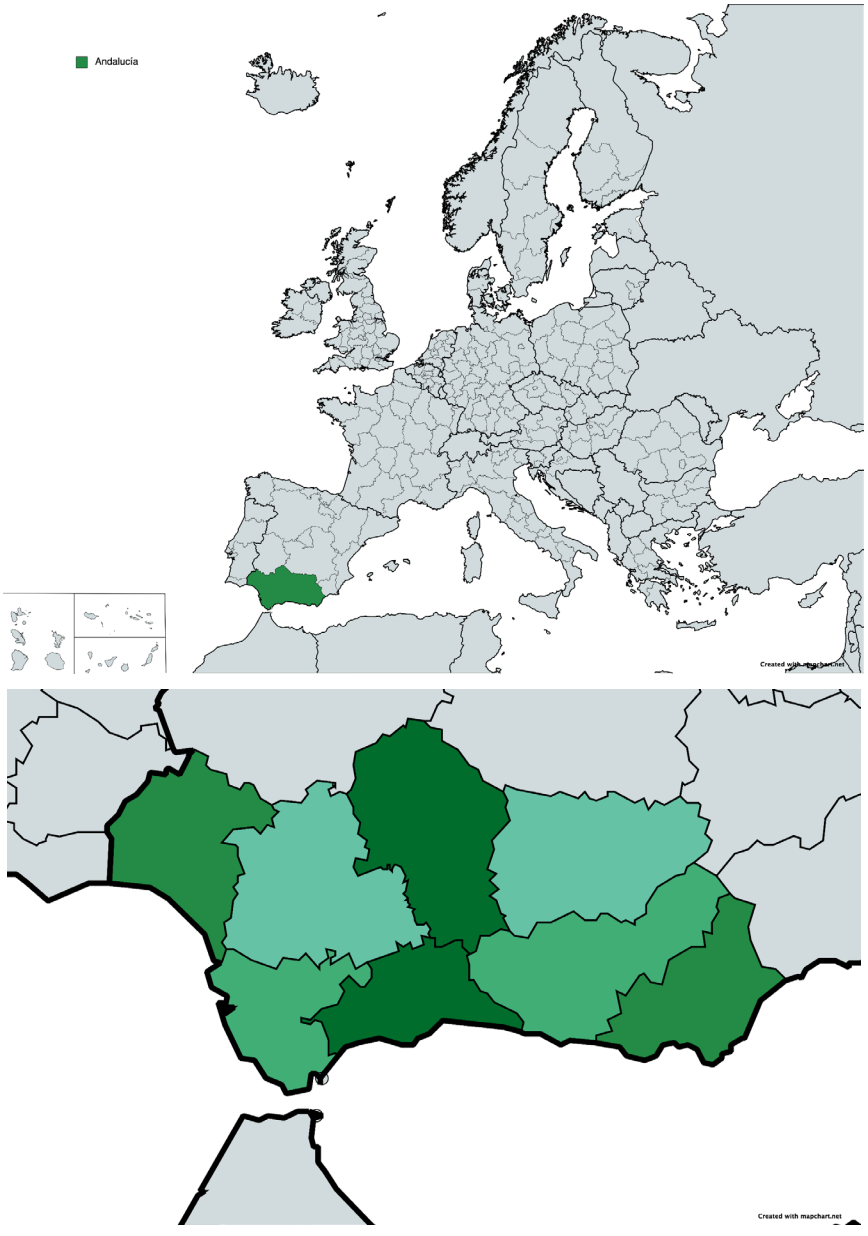
of them are applicable to all levels. Besides this context limitation, some of them seem to have been accomplished already in Europe and do not need general monitoring, only specific focus in certain contexts and communities. This perspective also makes clear that European priorities should be considered, as a variety of EU directives and other regulations already define evaluation indicators for policies related to the SDGs, that could be included in a dataset like this.

Some guidelines on how to aggregate data, or deal with geo-localized information would add to this project, as a high share of the most recent information for tracking SDG is created this way.

1. INTRODUCTION

Andalucía is a region situated in Southern Spain, administratively an Autonomous Community, divided into eight provinces (Almería, Granada, Jaén, Córdoba, Málaga, Sevilla, Cádiz and Huelva). It is the most populated (8.472.407 inhabitants in 2021), the second largest (87.599 km2) and the third one in GDP (160.747 M€) in the country. A predominantly agricultural area in the past, Andalucía main activities are currently in the service sector. The weight of tourism is particularly remarkable, estimated at 6,5 % of GDP in 2021.

Figure 1. Location of Andalusia



Source: mapchart.net

Spain is a very decentralised country that has, in variable degrees, devolved power to the Autonomous Communities, which, in turn, exercise their right to self-government within the limits set forth in the Spanish Constitution and their Statutes of Autonomy.

Spain is formed by 17 Autonomous Communities (corresponding to EU NUTS2) and 2 Autonomous Cities. Some of these Autonomous Communities (Andalucía among them) are recognised as Historic Nationalities. Andalucía earned this status under the Statute of Autonomy on December 20th 1981.

Andalucía exercises a wide range of devolved powers according to its Statute. These include Health, Education, Natural Environment, Agriculture, Land Organization or Social Assistance. Part of these powers are shared with subregional and local administrations, and with the National Government. Of particular interest for this project is that *"the Autonomous Community has exclusive competence over statistics for the purposes of the Community, statistical planning, and the creation, management and organisation of its own statistical system. The Autonomous Community of Andalucía shall participate and collaborate in the production of statistics of supra-autonomous scope*[1]*".*

Andalucía is one of the 10 pilot regions selected for the 'REGIONS2030 monitoring the SDGs in the EU regions - filling the data gaps' project sponsored by the European Commission Joint Research Centre (JRC). The Institute of Statistics and Cartography of Andalucía (*Instituto de Estadística y Cartografía de Andalucía*, IECA) and the Andalusian International Cooperation Agency (*Agencia Andaluza de Cooperación Internacional*, AACID) in partnership both expressed their interest in participating in this project with the aims, among others, to improve the regional and spatial perspective of the SDGs, and connect JRC's proposals with the Andalusian development cooperation activities in partner countries.

1.1 Andalucía and the Sustainable Development Goals

The region has had a long tradition on the implementation and commitment with the 2030 Agenda since its approval in 2015. A first step towards the adoption of the Agenda is the 'Andalusian Sustainable Development Strategy' (*Estrategia Andaluza de Desarrollo Sostenible*, EADS), which was approved in June 2018. This was a strategic plan by the Andalucía Government (*Junta de Andalucía*) designed to guide public and private policies towards a sustainable socio-economic development that considers economic prosperity, social inclusion, gender equality and environmental protection in an integrated way.

The guidelines in the Strategy defined 37 lines of action and 226 measures structured in priority areas. Besides, they are aligned with each one of the 17 SDGs. For its evaluation and follow-up, 46 indicators were defined and an evaluation calendar has been designed that includes biennial reports and intermediate evaluation. However, the EADS did not have an explicit SDG target alignment for its measures and indicators, remaining at goal level.

Figure 2. The Andalusian Sustainable Development Strategy

Source: Estrategia Andaluza de Desarrollo Sostenible (Andalusian Sustainable Development Strategy, 2018

[1] Andalusian Statute of Autonomy, art 76.3

The EADS is not the strategy currently setting Andalusian policy towards the implementation of the SDGs. In December 2021, a Delegate Commission for the 2030 Agenda was created in order to plan, promote and coordinate actions for the effective implementation of the 2030 Agenda, and the evaluation of their contribution to the achievement of the SDGs.

Previously to the Delegate appointment, in July 2021, the Government of Andalucía released 'The Andalusian Path on the 2030 Agenda' (*La Senda Andaluza en la Agenda 2030*), a thorough report mapping all the activities in execution by the Regional Ministries and Entities towards the implementation of the SDGs, sketching their contribution and including SDG targets aligned to each budgetary program.

The determination of this contribution is faced in two ways:

— Descending, by identifying each Entity's powers.

— Ascending, by aligning each strategic goal in every Budget Program with goals or targets within the Agenda, and successively aggregating them reaching in the end the Agency, Entity and Regional Ministry level.

Figure 3. SDG contribution of the Andalusian regional ministries

<table>
<tr><th>Criteria</th><th colspan="2">Contribution level</th></tr>
<tr><td>By competence</td><td colspan="2">Contribution by department</td></tr>
<tr><td rowspan="3">By aggregation level</td><td colspan="2">Contribution by department (consolidated)</td></tr>
<tr><td rowspan="2">Contribution by budgeted program</td><td>In department</td></tr>
<tr><td>In agencies and instrumental entities</td></tr>
<tr><td colspan="2">Contribution by strategic objective</td></tr>
</table>

Source: translated from 'The Andalusian Path on the 2030 Agenda'

The contribution per Strategic Goal is the basic unit of impact defined in this report. This contribution results from identifying what kind of impact (direct or indirect) each one of them has on each SDG.

The result of this report is a very heterogeneous set of factsheets where each entity is self-analyzing and disaggregating its impact, sometimes reaching the target level. The descending analysis is also useful, providing a link between SDGs (unfortunately only at goal level) and the actual powers for each Regional Ministry. It is also necessary to highlight that the referred budgetary programs have associated indicators (not presented in the report), usually oriented towards the measurement of effort performed by the Entity on each program specific objective therefore these are not SDG oriented indicators. Concurrently, Andalucía has conducted several activities regarding local monitoring of the SDGs reinforcing data ecosystems and institutional environment. Many of these have been done in the framework of the partnership of IECA and AACID with the United Nations Development Programme (UNDP), such as:

— Comparative study on local monitoring systems of the SDGs at local and regional level.

— Localisation support for municipalities.

— Study for the development of methodologies for geo-referenced calculation of Agenda 2030 indicators at local level.

However, the main effort by Andalucía in terms of regional SDG monitoring is the development of the Andalusian Sustainable Development Indicators System for the 2030 Agenda. Its aim is to establish a framework of statistical indicators, based on those established by the United Nations and by the Statistical Office of the European Union (Eurostat), in order to monitor the objectives and goals of the 2030 Agenda at Regional level. The system is currently composed of 276 indicators covering all the SDGs.

The development of regional SDG indicators in Spain is coordinated through a working group set up by the statistical bodies of the Autonomous Communities, in the form of a collaborative network with the aim of agreeing on the calculation methodology of the United Nations indicators for the Autonomous Communities, seeking alternatives to problems of territorialization or relevance and guaranteeing, in any case, comparability.

2. METHODOLOGY

2.1 Region Collaboration Framework

All the previous considerations suggest an active role of the partners IECA and AACID in the production of statistical information and institutional environment reinforcement, respectively. Thus, a close collaboration scheme has been established to work with them throughout the project.

Fortnightly meetings with IECA technical staff along the project have guaranteed continuous communication and exchange. IECA technical staff included a person involved in the Autonomous Communities SDG indicators working group, in order to benefit from insights on potential indicators being evaluated by that group.

Fortnightly goals:

- Evaluating relevance of original and suggested indicators.
- Provide knowledge on IECA internal data sources not known to the consultant.
- Refine or explore the methodologies for the original and the proposed indicators.
- Elaborate requests of additional information to other Entities and Statistical Units.

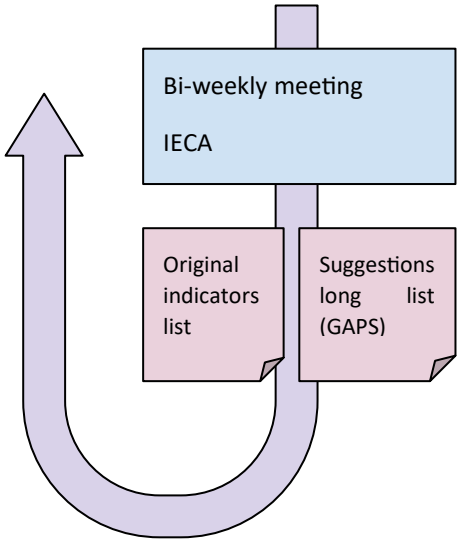
Two main documents have been used in the framework of these meetings:

The spreadsheet with the original proposal of indicators by the JRC, with several columns with the iterative discussion on methodology and relevance for the indicator.

A comprehensive list of SDG target gaps found in the original indicator set and potential indicators to cover them (see below more details on the elaboration of this list)

As a result of these regular meetings, communication has been established with other Entities (particularly with their Statistical Units), aiming to improve or expand the generation of data. The initial contact with such entities is established by IECA staff involved in the project, usually with an email sharing the initial indicators and the gaps to cover that are relevant for the Entity according to their powers and capabilities. The answer is a description of the available information with comments.

Figure 4. Periodic meeting and other entities collaboration workflow



Source: 'The Andalusian Path on the 2030 Agenda'

There are several Entities with such contact at different levels of advance:

- Regional Ministry of Agriculture, Fisheries, Water and Rural Development
- Andalusian Energy Agency
- Andalusian Agency of Agricultural and Fishing Management
- General Directorate of Fishing and Aquaculture
- Andalusian Environmental Information Network
- General Directorate of Land Use, Urban Planning and Urban Agenda

In general, this process follows an iterative development, as both documents are progressively refined.

2.1.1 Entities collaboration summary and outcomes

The Andalusian Statistical & Cartography System is widespread in regional administration through regional ministries' Statistical & Cartography units (SCU). Regional ministries were reached initially through SCU. Selection of regional ministries to contact was based on evaluation of data availability to fulfil the JRC indicator proposal. Thus, ministries in charge of agriculture and fisheries were initially contacted, followed by ministries in charge of energy, transport, housing and environment.

First contact communication included a brief presentation of REGIONS 2030 project and a shortlist of JRC proposed indicators related to regional ministry responsibilities. In these first communications we called for a twofold response:

1. Assistance in calculation of non available indicators.
2. Comments on JRC proposed indicators & suggestions about relevant indicators not included in the proposal.

Main Regional ministries contacted, indicators discussed, and conclusions are summarised hereunder:

2.1.1.1 Contacts & Indicators

Regional Ministry of Agriculture, Fisheries, Water and Rural Development

Goals 2, 6, 12, 14 and 15 - Zero hunger, Clean Water & Sanitation, Responsible Consumption & Production, Life below Water and Life on Land

Information constraints were detected for JRC Indicators related to water quality, land abandonment and organic farming. An initial discussion between IECA, SCU and the expert provided information sources for organic farming and useful information about topics suggested by the expert. Specifically SCU provided a source for data on local breeds being at risk of extinction, urban vegetable gardens location data and suggested research on crop insurance payments and climate change impact (Statistics Canada provides this data as climate change context_data)

Land Abandonment indicator naming was confusing as the information provided on Land Abandonment focuses on Agricultural Land Abandonment. In this regard, Agricultural Land Abandonment was not considered an issue in Andalucía by Agriculture counterparts, showing stability and slight increase of these areas in the last decade whereas land erosion or degradation due to severe conditions (water, fire...) was mentioned as a relevant issue for Life on Land.

Water quality indicators were discussed further with the head of regional planning & monitoring of ecological status of the waters Unit who pointed out the scope of regional powers in this regard. Regional administration is responsible for waters contained within regional borders whereas waters crossing regional borders are supervised by national powers. Therefore, regional impact on water quality could be monitored through regional waters quality indicators. Besides, additional estuarine and coastal water quality indicators were suggested reporting (ecological & chemical status), as these indicators are established by EU directives.

Additional indicators on Fisheries were discussed with the head of regional aquaculture, head of regional fisheries market and the head of regional organisation of fisheries activity. Regional power scope covers the aquaculture and seafood sector, therefore indicators about sustainable practices in both sectors were considered relevant. Besides the indicator on Maximum Sustainable Yield (MSY) fish populations was revisited, in terms of description and interpretation. In regard to indicator description, counterparts suggested providing

the share of traded fish in Andalucía under MSY management instead of the number of populations under MSY. In terms of interpretation, the higher the share the more sustainable the sector, as populations managed on Maximum sustainable yield guarantee sustainability and monitoring.

Andalusian Energy Agency (AEA)

Goal 7 - Affordable & Clean energy information gathering

No initial information constraints were detected for calculation of JRC proposed energy indicators, nevertheless IECA requested information for an additional indicator on energy efficiency investments, based on the experts' advice. The Energy Planning Unit and the SCU at AEA attended a meeting with IECA and the expert to discuss suitability of indicators proposed. The meeting proved to be very productive to understand what lies under regional responsibilities, and therefore what is achievable from regional powers in terms of energy market and consumption impact. This perspective provides a different approach towards indicators selection. Indicators usually report about the overall situation of a target or goal, whereas our counterparts were primarily focused on the part of the target/goal or domain that lies under regional ruling or governance, being that part of the target/domain the lever for regional SDG achievement. Thus, regional energy counterparts emphasised final energy intensity as a priority regional area whereas primary energy intensity is highly impacted by energy generation allocation determined by national energy policy. Therefore, renewable share in final consumption, promotion of energy efficiency & sustainability in final consumption, are areas under regional responsibility. In this regard AEA colleagues sent a proposal of Goal 7 relevant regional indicators, within Andalucía administration context (See ANNEX XX). Additionally, most of the indicators proposed follow EU directives or recommendations therefore, if regionally relevant, they could be available and comparable EU-wide.

Regional Ministry of Public Works, Territorial Articulation and Housing

Goals 1, 7, 11, 12, and 13 - No poverty, Affordable & Clean Energy, Sustainable Cities & Communities, Responsible Consumption & Production and Climate Action

No initial information constraints were identified for calculation of JRC proposed indicators in these areas. Nevertheless, indicators such as transport performance and daily accessibility were revisited in order to reflect regional administration scope. Regional ministry is responsible for Intermunicipal transport services & infrastructures therefore to measure accessibility and public transport performance, only intermunicipal services and travels can be leveraged. Complete information on Andalucía Intermunicipal public transport service level was requested and received in order to estimate a regional transport performance indicator, although indicator calculation is still to be developed. Additionally, Land Use, Infrastructure and Housing counterparts proposed relevant indicators related to sealed soil, housing conditions and needs (energy efficiency & accessibility), green areas and open air urban areas as well as public transport and bicycle use.

2.1.1.2 Takeaways

The interest and perspective towards regional levers/capacities over SDG goals have been recurrent across units and counterparts discussions. EU Directives, recommendations and legislations have also been a crossroad for relevant indicators identification and proposal from regional ministries counterparts.

Process & Outcomes of these contacts differed not only depending on the final contact person at the regional ministry but also on the methodological and context info available provided to the contact person.

2.2 Dataset Elaboration

2.2.1 Step 1 SDG target coverage analysis

As a main filter and criteria for further development or suggestion of new indicators, an analysis of the SDG targets covered by the initially proposed dataset has been done, by aligning each proposed indicator with one or several SDG targets, and comparing the aggregated coverage with other regional systems for benchmarking.

2.2.2 Step 2 Initial indicator set evaluation

The next step focused on the evaluation of the initial set data availability. As the elaboration of the proposed set already included a revision of the official global SDG indicators, the revision did not include a thorough analysis of the official indicators from the localization perspective. This perspective has been later applied to the generation of candidate suggested indicators. Instead, this step checked each indicator for availability, and focused on the feasibility of refining the calculation with data available from Andalusian sources, in the case these were not the primary source. Besides, all indicators in absolute values have been analysed in depth in order to be converted into a ratio-based indicator.

The result of this step is a subset of the original JRC proposed indicators considered feasible, with associated metadata.

2.2.3 Step 3 Data collection and database creation

Values have been collected for indicators included in the set developed through the previous steps, and a database was created, including metadata, time series (starting in 2015, but in some cases time series were expanded for some indicators where this is particularly meaningful due to their link to long-term strategies). Several indicators are available from different levels (European, National or Regional), but the Regional level has always been prioritized for collection, after assessing the possible differences between the levels. Time series data was also collected for all other regions in Spain, where data is available, in order to perform the statistical audit at the final stages of the project.

The result of this step is a database with all indicators data.

2.2.4 Step 4a Identification of alternative data sources

Indicators not labelled as feasible after previous steps have been analysed to assess if its calculation can be undertaken using data from IECA or other units or agencies. **At this step, other units have been contacted and involved in the process,** with the goal of onboarding them as data sources. Indicator suggestions by these units were also assessed.

The inclusion of the indicator in the regional level statistical institutions working group, or its availability from a national (INE) or European (Eurostat) source is considered also at this stage as a plus.

The result of this step is a subset (maximum coverage expected) of the original JRC proposed indicators considered feasible, with associated metadata.

2.2.5 Step 4b Identification of additional indicators

The SDG target coverage analysis in step 1 reveals several gaps that can be filled by new indicators. Thus, some sources with a target-oriented SDG assessment approach have been reviewed, in order to find a proposal of indicators suitable for its inclusion in this dataset. Most of them do not tackle the regional level though (they are mostly national or local), so they can only be used as inspiration to create or propose similar indicators related to the target:

— Official UN indicators (national/global)

— Andalusian SDG indicators system (regional): this has been used as the main source, as it already has a long list of calculated and valid indicators.

— New Urban Agenda indicators (local): UN-Habitat recently released the Global Urban Monitoring framework, endorsed by the UN Statistical Commission for monitoring the Sustainable Development Goals (SDGs), the New Urban Agenda (NUA) and other regional, national, and subnational urban programs. It is an evolution of the City Prosperity Index (CPI) and proposes several indicators for urban targets, some adopted from other frameworks, and new ones.

— European Handbook for SDG Voluntary Local Reviews (local): although it is focused on local measurement, many indicators can be relevant for superior levels or can be adapted.

— National Sustainable Development Reports (all levels): Sustainable Development Solutions Network (SDSN) publishes several global, continental, and subnational reports on the evolution of SDG indicators.

The approach has been creating a long list with candidate indicators collected among all these sources for the identified target gaps. These indicators have been reviewed following a similar process to the described in step 2, filtering first by data availability to construct them.

In parallel, besides the identification of data sources for the initial indicators, contacts with external Entities have also been used to evaluate the feasibility of these additional indicators, and help data collection. However, again the main source of data for the construction of additional indicators is IECA.

In this case, collaborating Entities have suggested some indicators that improved the assessment of already present targets. As these indicators often reflect better the policy priorities of Andalucía, they have been included when feasible, despite the redundancy in target coverage.

2.2.6 Step 5 Indicator set review

This is an iterative step, performed as new indicators are added or suggested. Each indicator has been assessed for relevance and fit with its target. **Feasible original indicators stay in the indicator set in order to maximize compatibility with other regions across Europe**, but additional ones can be added for the same SDG target if providing better information at the regional level.

In this step, other aspects of the indicator have been evaluated:

— Can the indicator be disaggregated to other sublevels (province, municipality, natural area...)? Does it provide extra information?

— Is the indicator comparable with other Spanish and/or European regions?

— Is the indicator already used in any region-level strategy or public policies evaluation process?

2.2.7 Step 6 Statistical audit

This operation needs to be done after all collection and validation work has been done. Therefore, this will be performed at a later stage. In coordination with the IECA staff, a statistical analysis of the data will be performed to better describe:

— Trends with baseline 2015 (this time frame can be expanded for some indicators when relevant).

— Benchmarking with other territories, taking advantage of the database including other regions' data.

— Correlation analysis:

  - Regional/national
  - Original/suggested indicators
  - Indicators computed at region level / built by aggregation

— Other statistical tests such as PCA or correlation within SDG or target

The JRC Statistical Audit of the Sustainable Development Goals Index and Dashboards is used as a source for relevant statistical tests.

3. ANALYSIS OF INDICATORS IN THE JRC PROPOSED INDICATOR SET

3.1 SDG target coverage analysis

Each JRC proposed indicator1 has been associated with only one target in the initial dataset. However, it is possible (and meaningful) to associate additional targets to each indicator (e.g., Indicator 'Victims in road accidents' has been originally assigned only to target 11.2, but is a primary indicator for 3.6 according to official sets too). The complete coverage analysis of the initial dataset is detailed in table 1.

Table 1. SDG coverage of the original dataset

SDG	Assessed targets (original assignation)	Assessed targets (extended)	Total targets	Coverage (original)	Coverage (extended)
1	3	4	7	42,86%	57,14%
2	3	3	8	37,50%	37,50%
3	5	6	13	38,46%	46,15%
4	5	5	10	50,00%	50,00%
5	4	4	9	44,44%	44,44%
6	2	2	8	25,00%	25,00%
7	3	3	5	60,00%	60,00%
8	6	6	12	50,00%	50,00%
9	2	3	8	25,00%	37,50%
10	2	2	10	20,00%	20,00%
11	4	4	10	40,00%	40,00%
12	3	3	11	27,27%	27,27%
13	1	1	5	20,00%	20,00%
14	2	2	10	20,00%	20,00%
15	2	2	12	16,67%	16,67%
16	3	3	12	25,00%	25,00%
17	3	3	19	15,79%	15,79%
TOTAL	**53**	**56**	**169**	**31,36%**	**33,14%**

Source: author's elaboration

One of the goals during this research was to significantly expand this coverage in terms of targets, based at the same time on the priorities and needs of the Andalusian Region.

There is not a clear perspective on how many targets should be included in such an Indicators System (as there is, for instance, at the urban level[2]). However, the Andalusian Regional Administration has extensive competences, and it makes sense that it could be related to most of the 169 targets. In order to provide a benchmark of the desired comprehensiveness of this target coverage, we have looked into currently existing Indicators Systems for monitoring the SDGs at regional level in Spain. Besides the obvious choice of the Andalusian Sustainable Development Indicators System for the 2030 Agenda, the Basque Country Indicators of the 2030 Agenda for Sustainable Development have been analysed the same way and compared, due to the long tradition and effectiveness of the Basque Country in monitoring and localising the SDGs within their policies.

The Andalusian system had 276 indicators (in April 2023), but not all have been assigned to specific targets. However, some of them could be assigned by the author after further analysis to targets for better comparison. The Basque system indicators are all assigned to a target. The result of this analysis is shown in table 2.

Table 2. Benchmarking of regional SDG systems

SDG	Assessed targets (Andalucía)	Assessed targets (Euskadi)	Total targets	Coverage Andalucía	Coverage Euskadi
1	4	5	7	57,14%	71,43%
2	4	3	8	50,00%	37,50%
3	12	12	13	92,31%	92,31%
4	8	8	10	80,00%	80,00%
5	5	7	9	55,56%	77,78%
6	4	4	8	50,00%	50,00%
7	4	3	5	80,00%	60,00%
8	8	8	12	66,67%	66,67%
9	6	5	8	75,00%	62,50%
10	4	4	10	40,00%	40,00%
11	6	4	10	60,00%	40,00%
12	4	4	11	36,36%	36,36%
13	2	2	5	40,00%	40,00%
14	3	1	10	30,00%	10,00%

[1] Vega Rapun, M., Stamos, I., Siragusa, A. and Proietti, P., *REGIONS2030 - European regional SDG indicators*, Publications Office of the European Union, Luxembourg, 2022, doi:10.2760/850788, JRC131581

[2] Siragusa, A., Proietti, P., Bertozzi, C., Coll Aliaga, E., Foracchia, S., Irving, A., Monni, S., Pacheco Oliveira, M. and Sisto, R., Building urban datasets for the SDGs.Six European cities monitoring the 2030 Agenda, Siragusa, A., Proietti, P. and Bertozzi, C. editor(s), EUR 30855 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-42050-7, doi:10.2760/510439, JRC126179.

15	4	3	12	33,33%	25,00%
16	5	6	12	41,67%	50,00%
17	4	6	19	21,05%	31,58%
TOTAL	**87**	**85**	**169**	**51,48%**	**50,30%**

Source: author's elaboration

This analysis points out that it is possible (and advisable) to increase the number of targets measured by a regional level system, with the desirable goal of reaching at least 50% of the 169 targets.

3.2 Data availability and metadata analysis

The following cases have been considered:

— Indicator has been already calculated by IECA and is part of the Andalucía SDG indicator set (or any other database in the regional scope).

— Indicator has not been calculated but can be easily done using variables existing in IECA catalogues.

— Indicator has not been calculated but can be done using alternative sources (both within Andalucía or nation-wide). In this case, a collaborative process with the partners is initiated in order to locate the best possible data source and methodology.

In terms of availability of the indicators by sources at different levels, and comparability, the result is shown in table 3.

Table 3. Availability of the original dataset

SDG	Original indicators	Available in Eurostat	Available in National Statistical Source (INE)	Available in Regional Statistical Source (IECA)	Available in other sources	Not available	Present in Andalucía SDG Indicators System	Comparable with other regions
1	4	3	3	4	0	0	4	3
2	4	1	1	3	4	0	2	3
3	5	4	2	4	3	0	3	4
4	7	7	2	4	3	0	3	5
5	7	0	4	3	4	0	2	6
6	4	0	1	2	2	0	2	3
7	4	0	0	0	4	0	1	4
8	10	8	8	5	1	0	5	8
9	5	2	3	4	1	0	4	4
10	2	0	2	1	0	0	0	2

11	9	2	3	4	3	3	1	5
12	3	0	0	0	3	0	0	0
13	4	1	1	1	4	0	1	2
14	3	0	1	1	2	0	0	3
15	4	1	1	4	1	0	2	2
16	4	0	1	1	4	0	1	4
17	4	1	1	2	1	0	2	2
TOTAL	**83**	**30**	**34**	**43**	**40**	**3**	**33**	**60**

Source: author's elaboration

Some of the original indicators have been collected and disaggregated into different subindicators in order to provide more detailed information (or, in some cases, due to low relevance or even availability of an aggregated indicator). Others could be specified by attaching additional ones that expands the knowledge regarding the target, better fit regional policies and describe additional phenomena.

Box 1. Example: Soil erosion

This indicator in SDG 15 has been reported disaggregated according to the intensity of erosion, according to the RUSLE model. Although it is possible to provide an aggregated value of the soil affected by erosion by adding all components (or with a RUSLE value above a certain threshold), it has been considered relevant to provide different ranges and split the indicator into 4 different sub-values.

Box 2. Example: Overweight rate

Data for this indicator is provided according to the originally proposed methodology. However, the Andalusian Government has a particular focus on the child dimension of obesity, and has a specific strategy to track this issue. Therefore, besides the general indicator, a more specific one focused on children 2-17 has been added.

The degree of availability of data and the depth of the statistical work in Andalucía enables converting many of the originally proposed indicators with absolute units (such as 'number of students' or 'ha of land') into pondered or relative ones (% compared to total persons in the appropriate age range, or the total surface in ha).

Even if an indicator has not been found to be a priority for Andalucía, or there is not a linked policy, it has not been discarded for its calculation. Only 3 indicators in SDG 11 have not been calculated due to lack of data availability, although there are 7 proxy indicators with different degrees of approximation to the original one, as shown in table 3..

All these conclusions and work done on the metadata are summarised in table 4.

Table 4. Disaggregation of the original dataset

SDG	Original indicators	Disaggregated into sub-indicators	Proxy indicators	Unit changed to pondered (relative)
1	4	0	1	0
2	4	1	0	3
3	5	1	0	3
4	7	3	0	1
5	7	2	0	1
6	4	0	1	0
7	4	2	0	0
8	10	1	0	0
9	5	0	0	1
10	2	0	0	0
11	9	1	1	1
12	3	0	1	0
13	4	1	0	0
14	3	0	1	1
15	4	3	2	0
16	4	0	0	1
17	4	0	0	1
TOTAL	**83**	**15**	**7**	**13**

Source: author's elaboration

3.3 Statistical analysis

This section aims to provide an in-depth explanation of the methodology chosen for determining the trends of the indicators in our research. The selection of appropriate criteria for trend identification is crucial to ensure reliable and meaningful results. In this study, we adopted a combination of the slope (or gradient) and the coefficient of determination (R2) as robust indicators for trend analysis.

The slope serves as a fundamental measure of the direction and steepness of a line fitted to the indicator data over time. We established a threshold of a slope greater than 0.8 for positive trends and a slope lower than -0.8 for negative trends. These thresholds were chosen to capture substantial changes in indicator values, indicating significant and meaningful trends. By incorporating the slope, we can identify the direction and magnitude of the trend, providing valuable insights into the underlying patterns. However, recognizing that the slope alone may not sufficiently demonstrate the reliability of the identified trends, we introduced the coefficient of determination, or R2, as an additional criterion. The R2 measures the goodness of fit of the

regression line to the data points. A value above 0.5 indicates a relatively strong correlation between the data and the regression line, enhancing the confidence in the identified trend.

By combining the slope and R2, we establish a comprehensive framework for trend selection. In order to reflect the results in a more interpretative and simple form, we represent the trends in 4 different ways (see table 5):

— ▬ No representative or significant trend.

—  The trend of the indicator is positive according to the objectives of the target to which it is aligned.

—  The trend of the indicator is negative according to the objectives of the target to which it is aligned.

—  The trend of the indicator is representative enough but does not have a robust pattern to conclude a positive or negative result.

This methodology ensures that only the most pronounced and statistically significant trends are considered. The utilisation of the slope enables us to identify substantial changes, while the inclusion of R2 enhances the validity of our findings by considering the quality of the regression line fit.

4. INDICATOR SET

The final dataset comprises 122 indicators: 83 of them are from the original dataset, and 39 are proposals. 73 indicators come from official sources, and 49 have been built from experimental methodologies. At least 16 indicators could be disaggregated into sub-indicators to provide more information.

Table 5 presents a summary of this dataset, specifying:

— Unit: some original indicators have been reformulated to be pondered. The unit will be marked with * if this is the case.

— Dataset: if the indicator is part of the original dataset, or is proposed as an additional one

— Type: Official or Experimental.

— Disaggregation: if the indicator includes sub-indicators or specifications (a slightly different indicator that better addresses Andalucía's priorities), and how many.

— Trend: As a convention, a green ascending arrow means the indicator evolves in the correct, positive way (regardless of the real value ascending or descending), according to the methodology explained in the previous section. Database in the Annex describes the correct direction of the indicator.

— Comments.

Table 5. Indicator set status

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
1	Material and social deprivation	%	Original	Official	No	→	
1	Persons living in households with very low work intensity	%	Original	Official	No	↗	
1	Persons at risk of poverty or social exclusion	%	Original	Official	No	↗	
1	Affected people due to disasters	x100000	Original	Experimental	No	→	Proxy
1	Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, new-borns, work-injury victims and the poor and the vulnerable	%	Additional	Official	No	↘	
1	Proportion of population living in households with access to basic services	%	Additional	Official	No	→	
2	Overweight rate	%	Original	Official	1	↑	

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
2	Gross Value Added (GVA) of agriculture, livestock and fishing	€/UTA*	Original	Official	No	—	
2	Productivity (Gross Value Added per worker) in agriculture, forestry and fishing	€/worker*	Original	Experimental	No	—	
2	Income in agriculture, forestry and fishing per Annual Work Units (AWU)	€/AWU	Additional	Official	No	—	
2	Organic farming: areas with different crops	%*	Original	Official	No	→	
2	Proportion of local breeds classified as being at risk of extinction	%	Additional	Experimental	No	—	
2	Food cost changes	Index	Additional	Official	No	—	
3	Infant mortality	x1000	Original	Official	No	—	
3	Deaths due to Covid-19	x100000*	Original	Official	No	—	
3	Hospital beds	x1000*	Original	Official	No	↓	
3	Self-reported unmet needs for medical examination	%	Original	Official	No	↓	
3	Health personnel	x1000*	Original	Official	4	↑	
3	Life expectancy at birth	years	Additional	Official	No	—	
3	Premature mortality rate	x100000	Additional	Official	No	→	
3	Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods	%	Additional	Official	No	—	
3	Daily smoking share of the population	%	Additional	Experimental	No	↑	
3	Proportion of the target population covered by all vaccines included in their national programme	%	Additional	Experimental	4	→	
4	Participation rates in selected		Original	Official	2	↓	

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
	education levels						
4	Pupils enrolled in early childhood education		Original	Official	No	↑	
4	Students enrolled in tertiary education		Original	Official	4	→	
4	Participation in education		Original	Official	No	↑	
4	Distribution of pupils and students enrolled in general and vocational programmes		Original	Official	4	↑	
4	Women 25-34 years old with higher education level		Original	Official	No	→	
4	Early leavers from education and training		Original	Official	No	↑	
5	Female achievement/disadvantage index		Original	Experimental	No	–	
5	Fatal victims of gender-based violence at the hands of their partners or ex partners		Original	Official	No	–	
5	Victims of violence against women		Original	Official	No	→	
5	Inactive population rate due to caregiving responsibilities		Original	Official	No	–	
5	Gender gap in part-time employment incidence		Original	Experimental	No	–	
5	Female research and development personnel		Original	Experimental	No	–	
5	Women in parliament and government		Original	Official	1	→	
6	Population served by safely managed drinking water supply services		Original	Official	No	–	Proxy
6	Water bodies that exceed a standardised quality rating		Original	Official		–	
6	Groundwater that exceed a standardised quality rating		Original	Official		–	

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
6	Population connected to wastewater with at least secondary treatment		Original	Official	No		
7	People affected by energy poverty		Original	Official	4		
7	Electricity production that comes from nuclear power		Original	Experimental	No		
7	Electricity production that comes from renewable sources		Original	Experimental	1		
7	Energy intensity		Original	Official	1		
7	Renewable energy share in gross final energy consumption						
7	Electric energy intensity		Additional	Offical	No		
8	GDP at current market prices		Original	Official	No		
8	GVA at basic prices		Original	Official	No		
8	Firm creation		Original	Experimental	No		
8	Economic activity		Original	Official	No		
8	Unemployment		Original	Official	No		
8	Employment		Original	Official	No		
8	Long-term unemployment (12 months and more)		Original	Official	No		
8	Compensation of employees		Original	Official	No		
8	Young people neither in employment nor in education and training		Original	Official	No		
8	Occupational accidents		Original	Official	1		
8	Total tourism revenues		Additional	Experimental	No		

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
8	Number of commercial bank offices		Additional	Experimental	No	→	
9	GVA of the industry with respect to the GVA of the total sectors (current price)		Original	Official	No	—	
9	Gross Domestic Expenditure on R&D		Original	Official	No	—	
9	R&D personnel and researchers		Original	Official	No	→	
9	Employment in high-technology manufacturing as a percentage of total manufacturing employment		Original	Experimental	No	→	
9	Patent applications to the EPO		Original	Official	No	—	
9	Employment dependency ratio by sector		Additional	Experimental	No	—	
9	Total industry GHG emissions per industry GDP		Additional	Official	No	↑	
9	Entrepreneurial activity index		Additional	Experimental	No	—	
9	White and Grey areas		Additional	Experimental	2	—	
10	Unemployment of people with disabilities		Original	Official	No	→	
10	Gini index of disposable income (after taxes and transfers)		Original	Experimental	No	↑	
10	Per capita growth rate of household expenditure of the poorest 40% of the population		Additional	Experimental	No	—	
10	Gender Inequality in lower incomes		Additional	Experimental	No	↓	
11	Households expenses dedicated to housing costs		Original	Experimental	No	—	
11	Stock of vehicles (passenger cars)		Original	Official	No	→	
11	Victims in road accidents		Original	Official	1	—	

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
11	Difference between built-up area growth rate and population growth rate		Original	Experimental	No		Proxy
11	PM2.5 Emissions		Original	Experimental	1		
11	PM2.5 Concentration		Additional	Experimental	No		
11	Household and commercial waste generation per inhabitant		Original	Official	No		
11	Urban population without green areas in their neighbourhood		Additional	Experimental	No		
12	Carbon footprint		Original	Official	No		
12	Food waste		Original	Official	No		Proxy
12	Hazardous Waste		Original	Official	No		
12	Selective waste collection		Additional	Official	No		
12	Local tourism intensity		Additional	Official	1		
13	PM10 Emissions		Original	Experimental	No		
13	Number of days when PM10 limits are exceeded		Additional	Experimental	No		
13	CO2 Emissions		Original	Experimental	No		
13	Greenhouse Gas Emissions		Original	Official	No		
13	Greenhouse Gas Emissions per unit of GDP		Additional	Official	No		
13	Greenhouse gas emissions compared to 1990		Additional	Official	No		
13	Greenhouse gas emissions compared to 2005		Additional	Official	No		
13	Cooling and heating degree days		Original	Official	1		

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
14	Estuarine with high/very high water quality		Original	Official	3	—	
14	Protected coastal area as a percentage of total coastal area		Original	Experimental	No	➤	Proxy
14	Coastal areas with good/very good water quality		Original	Official	3	—	
14	Fishing from stocks subject to sustainable yields		Additional	Experimental	No (possible)	—	
14	Commercialised aquaculture products as a proportion of total commercialised fishery products		Additional	Experimental	No	—	
15	Land Abandonment		Original	Experimental	No	—	Proxy
15	Forest area over total surface area		Original	Official	No	▲	
15	Terrestrial protected areas as a percentage of total area		Original	Experimental	No	▲	Proxy
15	Estimated soil erosion		Original	Experimental	4	—	
15	Proportion of forest area subject to sustainable management instruments		Additional	Official	No	—	
16	Extract from QGI an indicator on corruption		Original	Experimental	No	▼	
16	Transparency index		Original	Experimental	No	➤	
16	Participation in the last elections		Original	Official		▼	
16	Quality of Government Index		Original	Experimental	No	▼	
16	Crime Rate		Additional	Official	No	—	
16	Violence against children		Additional	Official	3	▼	
16	Unsentenced detainees as a proportion of overall prison population		Additional	Official	No	➤	

SDG	Indicator	Unit	Dataset	Type	Sub-indicators	Trend	Comments
16	Rate of money laundering and drug trafficking offences		Additional	Official	No		
17	Official Development Assistance		Original	Official	1		
17	PCT co-patent applications that are done with foreign regions		Original	Experimental	No		
17	Individuals who used the internet for interaction with public authorities		Original	Official	No		
17	Imports from developing countries		Original	Official	No		
17	Strength and autonomy of the municipal institution in budgetary terms		Additional	Experimental	No		
17	Volume of remittances (in United States dollars) as a proportion of total GDP		Additional	Official	No		

Source: author's elaboration

4.1 Original indicator set

4.1.1 Goal 1. End poverty in all its forms everywhere

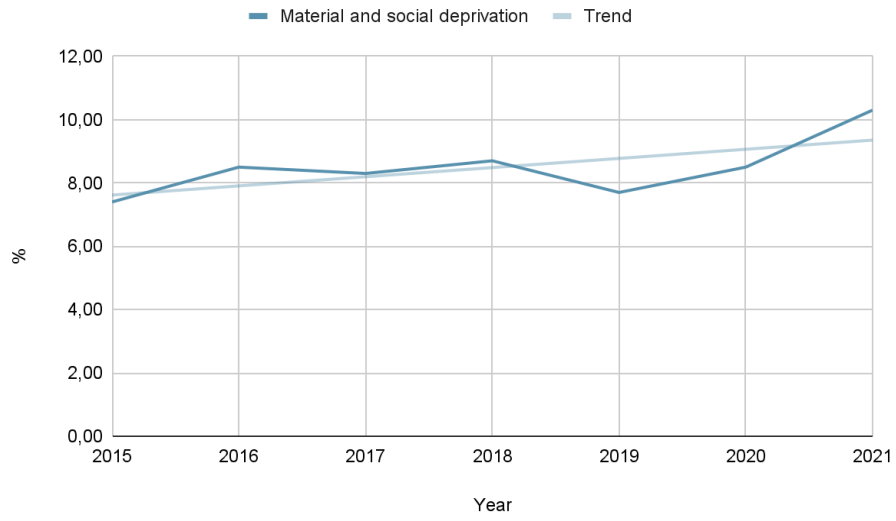
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day

1-1-1 Material and social deprivation

Data Description

Available sources			
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Competence shared with other Administration Levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2015-2021	Yes

Indicator evolution



Comments

There has been a slight gradual increase after 2019 in the number of people in severe material deprivation in the region. The possible reason behind this is the economic and social crisis caused by the COVID-19 pandemic, which has particularly affected the most vulnerable sectors of the population, such as precarious workers, the self-employed, young people or single-parent families. From the Andalusian 'Regional Ministry of Social Inclusion, Youth, Families and Equality', several measures are implemented to combat poverty and social exclusion. These include the minimum income for social insertion, which provides economic support and a personalised inclusion plan for families in poverty and the 'Andalusian Regional Strategy for Social Cohesion and Social Inclusion. Intervention in Disadvantaged Areas (ERACIS)', which seeks to improve the living conditions of disadvantaged people and territories.

1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions

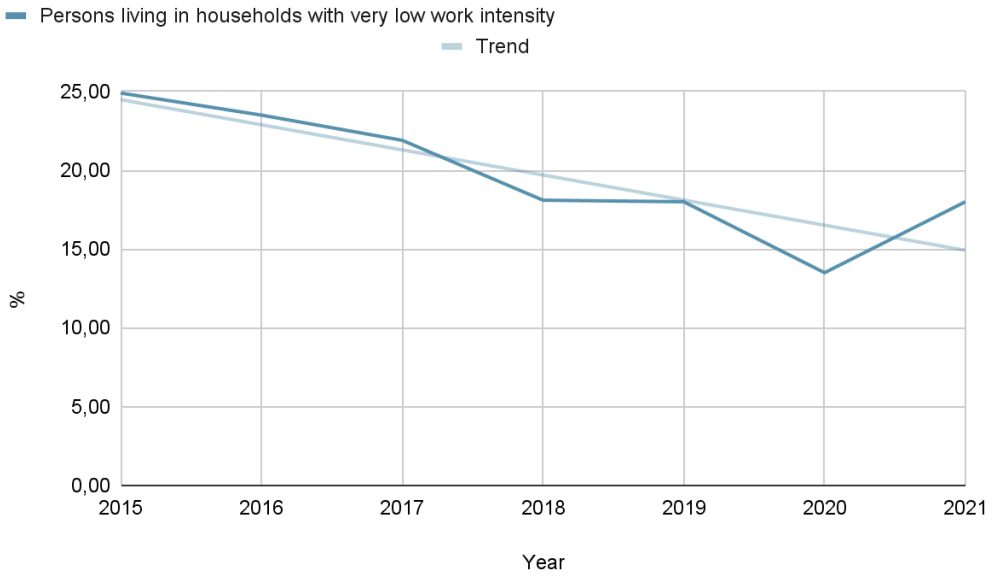
1-2-1 Persons living in households with very low work intensity

Data Description

Available sources	
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration Levels

Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2015-2021	Yes

Indicator evolution



Comments

The trend of the indicator in the period analysed is decreasing over time, falling until 2020. As can be seen, from 2016 the effect of the economic recovery and the increase in employment after the exit of the recession, which resulted in increased labour activity and occupation. COVID-19, the impact of the health and social crisis, led to a fall in employment and an increase in unemployment, but also a higher coverage of unemployment benefits and ERTEs, which prevented many people from entering a situation of very low work intensity, something that may be connected to the rebound of the indicator in 2021.

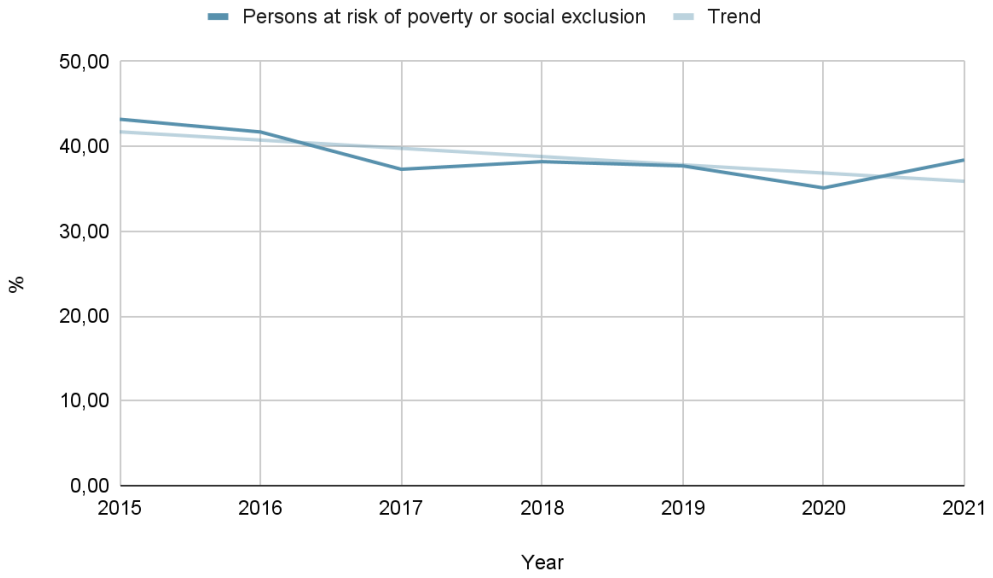
As in the previous indicator, the minimum income for social insertion and ERACIS are actions that have a significant impact on this indicator, but in addition, 'Community Social Services Training Plan 2023', which is a program aimed at professionals working in the care of individuals and families in situations of vulnerability or social risk.

1-2-2 Persons at risk of poverty or social exclusion

Data Description

Available sources			
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Competence shared with other Administration Levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2015-2021	Yes

Indicator evolution



Comments

The trend of the indicator is flat during the period analysed, and its value is inappropriate considering that it reveals a situation of inequality and suffering for more than a third of the Andalusian population, whose access to fundamental rights such as food, housing, health and education is limited. Moreover, this value has negative consequences for the economic and social development of the region, as it generates more poverty, more exclusion and less social cohesion.

All the above mentioned plans and actions have an impact on this variable: the minimum income, the ERTEs, the ERACIS, the 'Community Social Services Training Plan 2023'. Additionally, the operational plan 2022 for the development of the national strategy for the prevention and fight against poverty and social exclusion 2019-2023 includes the commitments assumed by Andalucía, with measures such as the reinforcement of the public social services system, the promotion of labour inclusion, the promotion of access to decent housing or the guarantee of basic social rights.

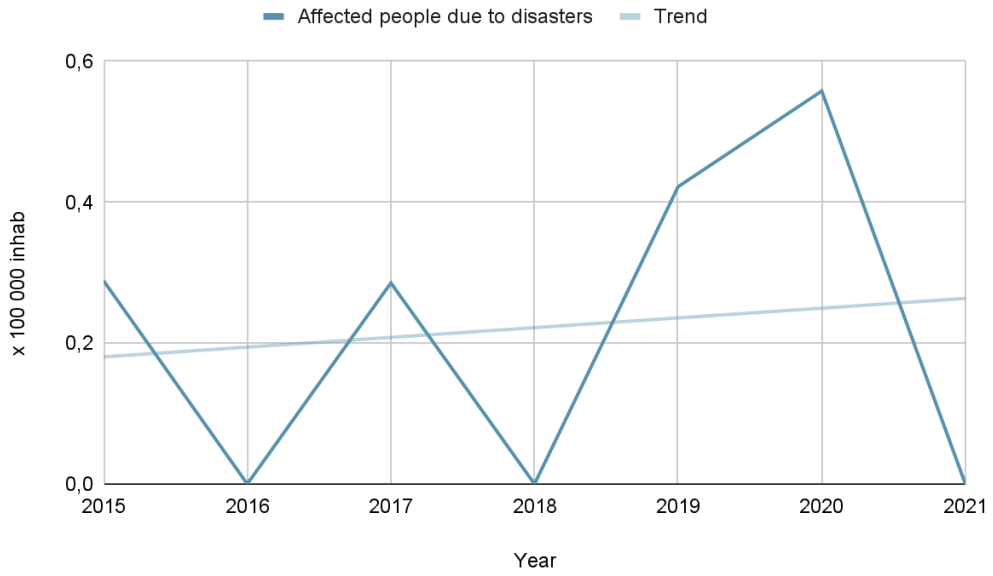
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

1-5-1 Affected people due to disasters

Data Description

Available sources			
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Competence shared with other Administration Levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2015-2021	Yes

Indicator evolution



Comments

This indicator is a proxy measuring casualties due to natural disasters. Data has been explored in order to build a more appropriate one according to the definition of the Indicator B1 in the Sendai Framework for Disaster Risk Reduction. A way to approach this calculation could be done by using data from the International Disasters Database, but the statistics in that source are grouped by event and not disaggregated among different geographical entities. There are several disasters registered in that database affecting South Eastern Spain, that include some Andalusian provinces but also parts of other regions.

The indicator shows a growing, but irregular and discontinuous trend. This is due to the data source registering only major events and fatal casualties. Therefore, some years without such events interrupt the series.

4.1.2 Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

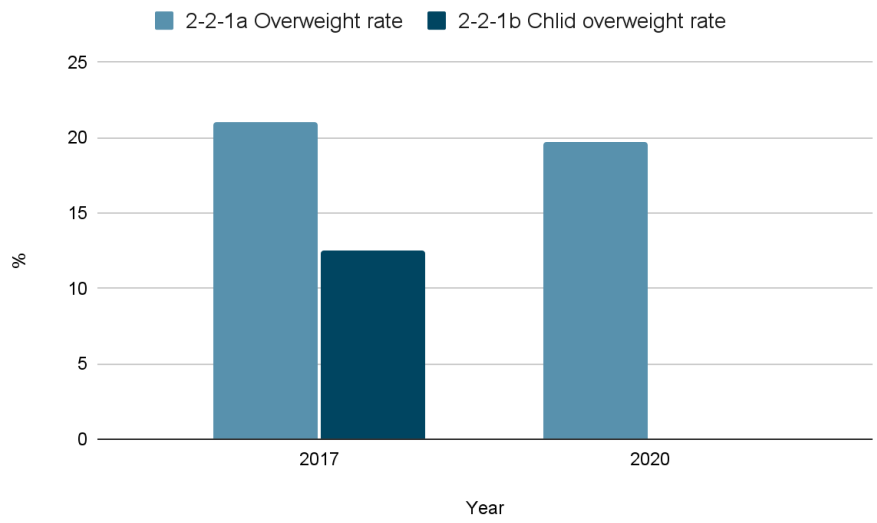
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

2-2-1 Overweight Rate

Data Description

Available sources			**MSSI**
Competences	Regional Ministry of Health and Consumption		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
MSSSI	%	1993-2020	Yes

Indicator evolution



Comments

Although general population overweight is also present, child overweight has been added to this indicator as, since 2007, the Andalusian Government implemented the Integral Plan of Children Obesity which is currently in force (but with no updated data later than 2017). This indicator is also present in the Andalusian SDG Indicators System.

The observed reduction in the value of the obesity ratio is good because it reflects an improvement in the nutritional status and physical and mental well-being of a significant part of the Andalusian population, which sees its risk of suffering from chronic diseases and serious complications reduced. Moreover, this value has positive consequences for the economic and social development of the region, as it generates more quality of life, more productivity and less health expenditure.

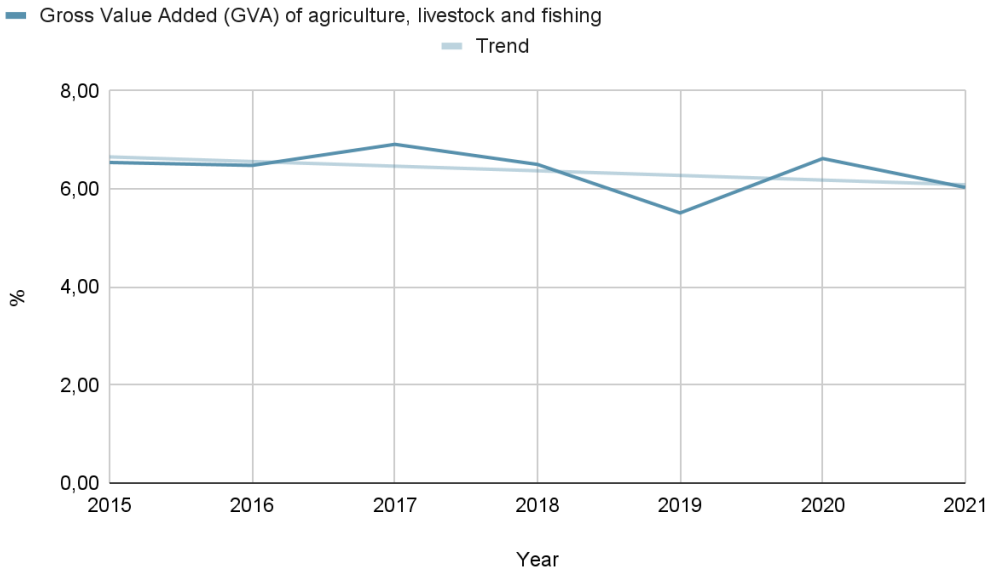
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

2-3-1 Gross Value Added (GVA) of agriculture, livestock and fishing

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MSSI**
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2015-2021	Yes

Indicator evolution



Comments

The flat trend of the indicator may be explained by a combination of factors, such as the sector's increasing involvement in innovation and technology, dependence on climate and external conditions for agricultural production and/or global competition in agricultural markets. In addition, the economic crisis and the COVID-19 pandemic as observed in 2020 may have aggravated these problems.

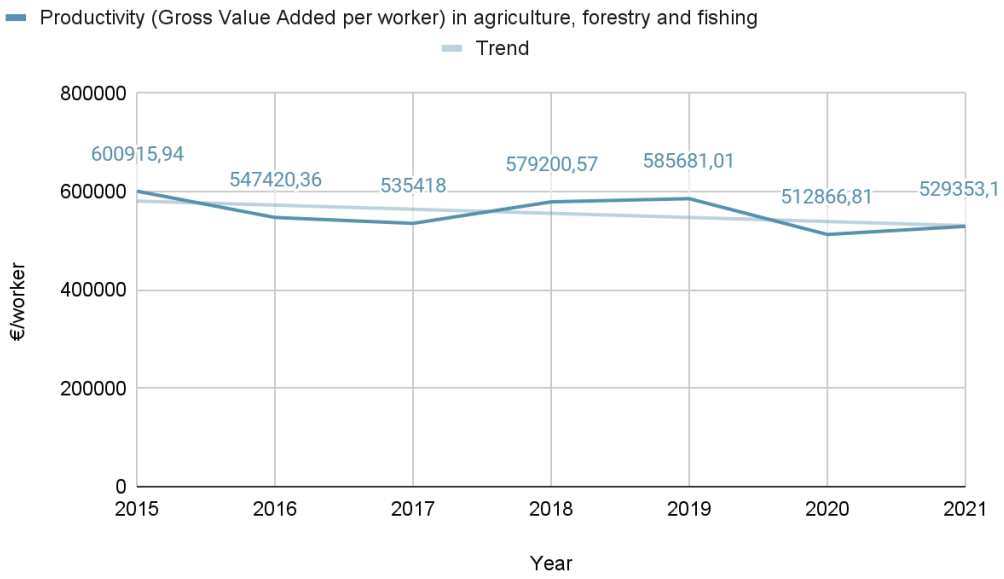
The 'Regional Ministry of Agriculture, Fisheries, Water and Rural Development' has the 'Strategic Plan for improving the competitiveness of the agricultural, livestock, fisheries and agro-industrial sector and rural development in Andalucía 2019- 2022' which has been promoting some positive aspects towards the indicator such as boosts to innovation, diversification, sustainable growth and support for young farmers. In addition, Andalucía is implementing the EU's LEADER program, which aims to develop rural areas through local strategies designed by action groups.

2-3-2 Productivity (Gross Value Added per worker) in agriculture, forestry and fishing

Data Description

Available sources			
	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos, **OECD**		
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA/INE	€/worker	2015-2021	Yes

Indicator evolution



Comments

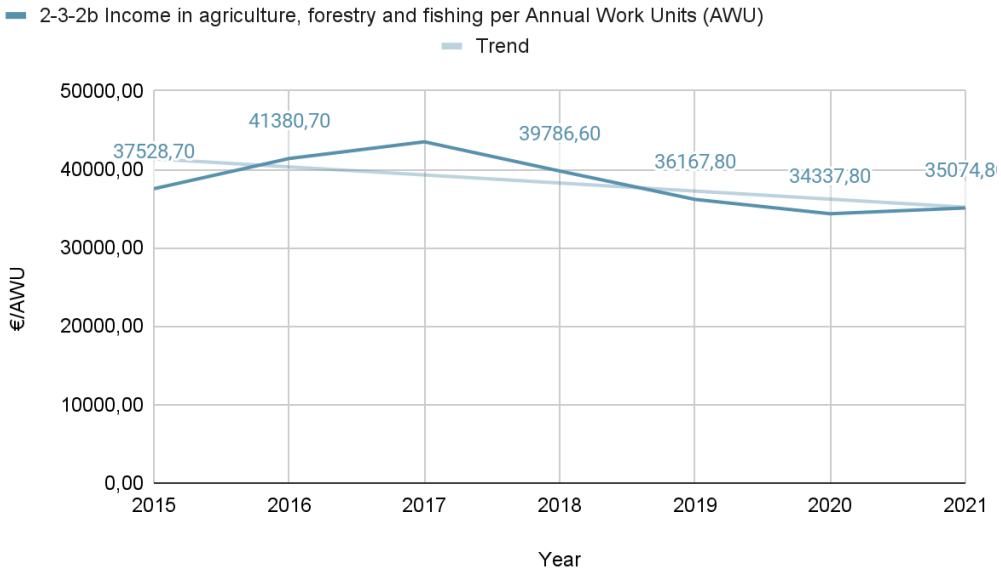
Findings in 2-3-1 are also applicable

2-3-2b Income in agriculture, forestry and fishing per Annual Work Units (AWU) - ADDITIONAL

Data Description

Available sources			
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	€/AWU	2000-2021	Yes

Indicator evolution



Comments

The indicator has been considered relevant because of the high rate of seasonality in agricultural work in Spain. Andalucía agricultural sector went through a major model shift in the last twenty years in terms of the type of crops, with intensive cultivation currently of great importance, which requires the use of more labour, and which due to the seasonality of campaigns, requires seasonal work in certain periods depending on the weather and the course of the harvests. This seasonality makes a huge difference in absolute value with the original indicator.

The trend is flat and with a similar behaviour to the previous indicators on agricultural economy. The Regional Administration has been carrying out important actions to provide the different territories with sufficient means in order to prevent temporary employment, and reduce the problems that lead to family uprooting, school failure, job uncertainty, irregular hiring

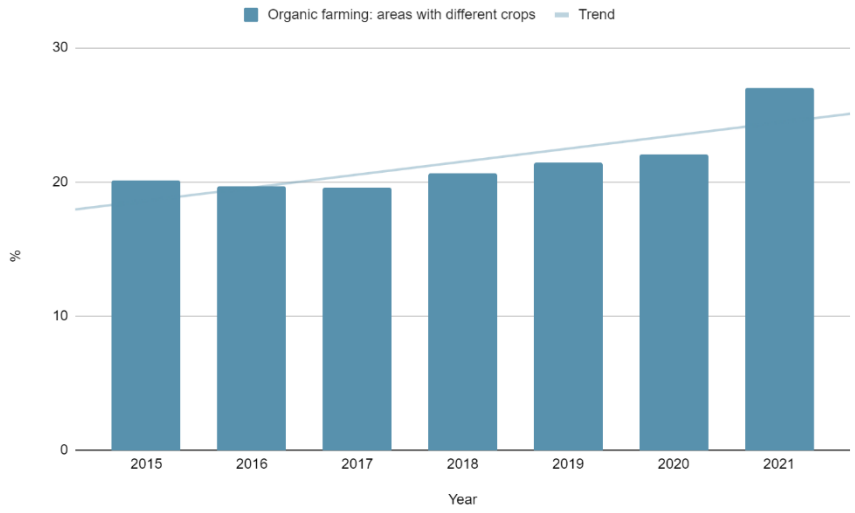
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

2-4-1 Organic farming: areas with different crops

Data Description

Available sources			**Competent Ministry**
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2006-2021	No

Indicator evolution



Comments

The share of agricultural land used for organic farming has traditionally been very high in comparison with other regions (around 20%), and the evolution in the last few years is quickly ascending.

Andalucía has implemented diverse policies and measures to promote sustainable agriculture in the region, which is reflected in the positive trend of the indicator, including actions such as financial and technical support to farmers to implement sustainable practices, raising the awareness of society and farmers about the importance of sustainability, the use of new technologies and collaboration with other sectors to promote the circular economy.

4.1.3 Goal 3. Ensure healthy lives and promote well-being for all at all ages

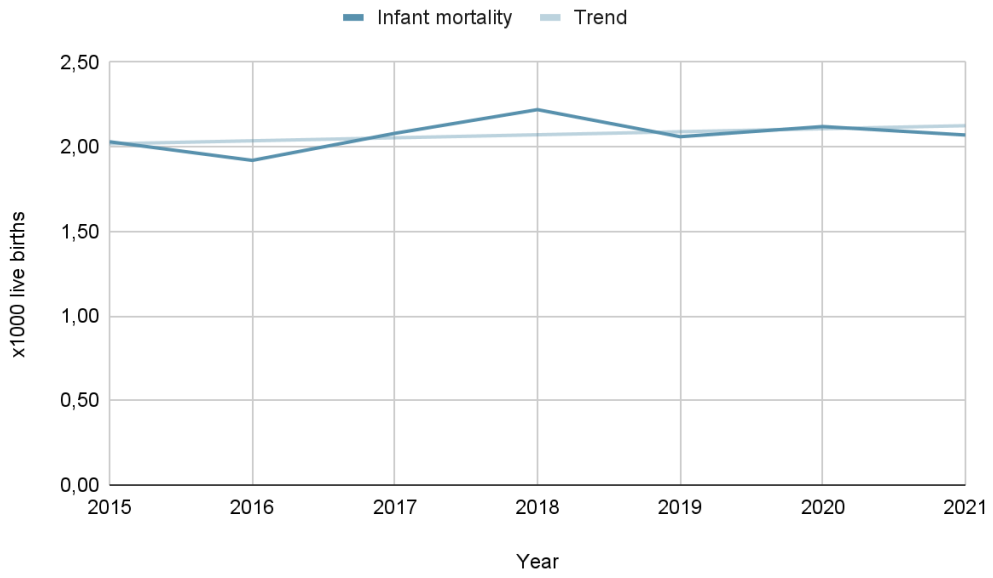
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

3-2-1 Infant Mortality

Data Description

Available sources			
Competences	Regional Ministry of Health and Consumption		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	X 1000	2010-2021	Yes

Indicator evolution



Comments

There have been fluctuations in the values, but they have been close to the optimum proposed by UNICEF, which is 2 deaths per 1,000 live births. In general, it can be considered that Andalucía has maintained a good situation in terms of infant mortality. Even though this is a generally positive indicator in European countries, the measures taken by the Andalusian 'Regional Ministry of Health and Consumption' have contributed to the optimal situation of the indicator, highlighting the existence of the Neonatal Screening Program, which is carried out in all hospitals in Andalucía and which allows the early detection of congenital diseases in new-borns and the promotion of healthy habits in children and adolescents (Strategy for the Promotion of Healthy Lifestyles in Andalucía 2019).

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

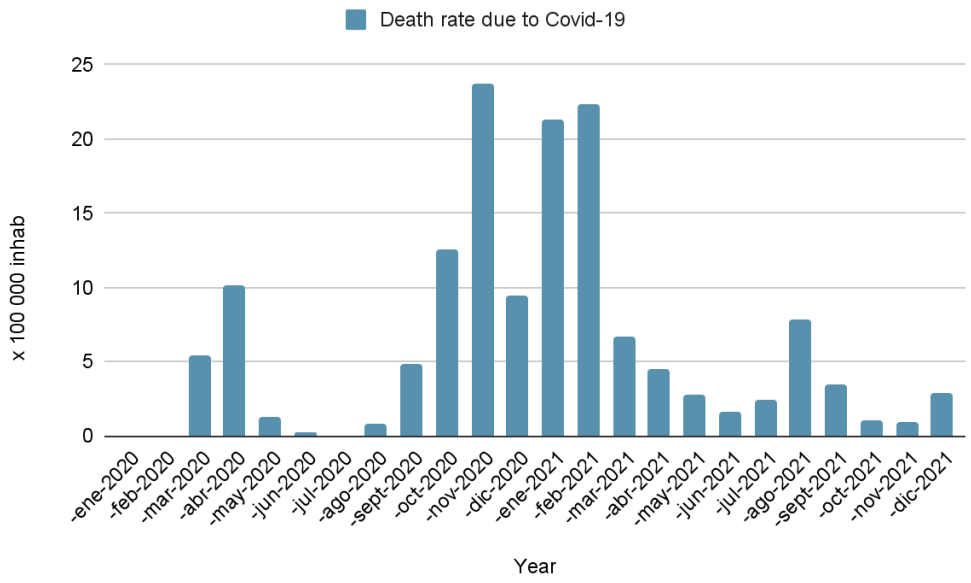
3-3-1 Deaths due to Covid

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Health and Consumption

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	x 100000 inhab	2020-2021	Yes

Indicator evolution



Comments

This data must be collected monthly and put in perspective with some events that happened during the pandemics (implementation of measures, deployment of vaccination). In January 2021 the effect of the third wave of covid after the Christmas holidays, which caused an exponential increase in cases, hospitalisations and deaths due to covid, reaching record numbers since the beginning of the pandemic. In April, the effect of the progress of the vaccination process and the control of virus transmission following the state of alert and the perimeter closure, which resulted in a progressive decrease in epidemiological and health indicators. Following the severe phase of the pandemic, the Andalusian Ministry of Health and Consumer Affairs produced the Andalucía, which provides updated and accessible information on the evolution and behaviour of COVID in the autonomous community, with data on cases, hospitalisations, ICU admissions, deaths and cumulative incidence. In addition, on 28 March 2022, became effective the 'New COVID-19 Surveillance and Control Strategy after the acute phase of the pandemic'

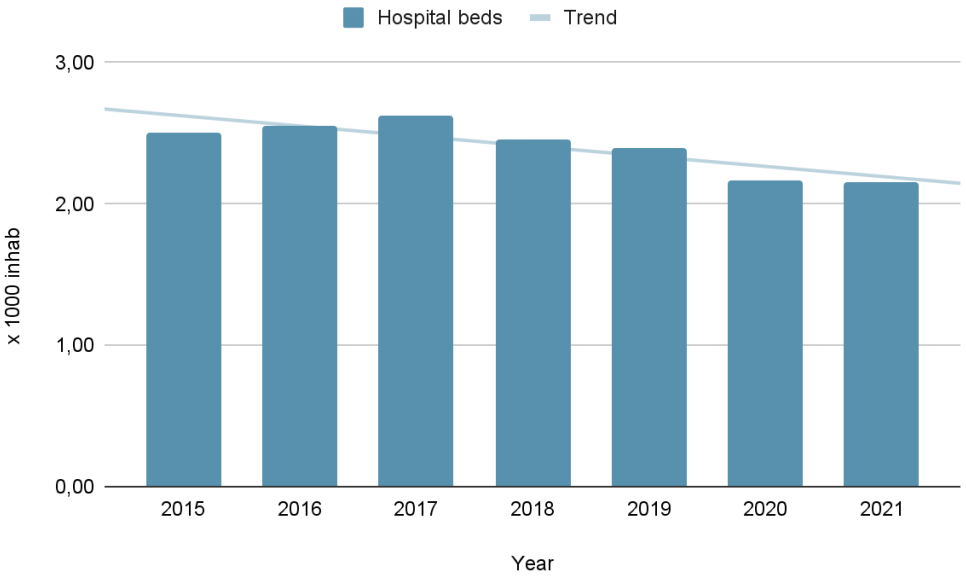
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

3-8-1 Hospital beds

Data Description

Available sources			MSSI
Competences	Regional Ministry of Health and Consumption		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	x 1000	2012-2021	No

Indicator evolution



Comments

There is no single optimal value of hospital beds in Europe, as this depends on many different factors, whether economic or social. The WHO recommends a minimum of 2.5 beds per 1000 inhabitants, a value that Andalucía has been at but which has been slightly decreasing as can be seen in its trend over the years. The reasons behind this could be due to the pressure on the health system and the reduced capacity to serve the population that the COVID-19 crisis generated across the entire country.

3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

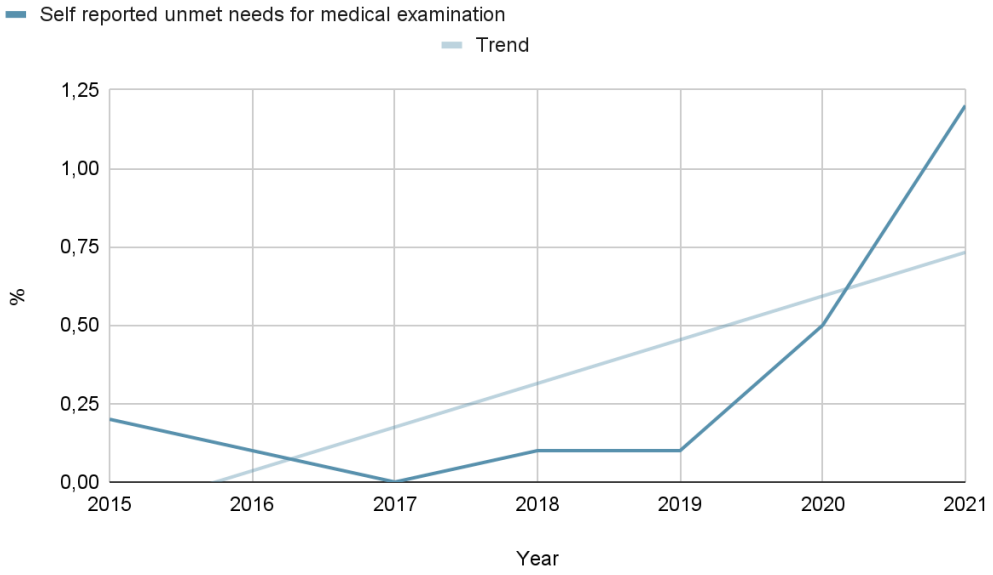
3-c-1 Self-reported unmet needs for medical examination

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of Health and Consumption

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2008-2021	Yes

Indicator evolution



Comments

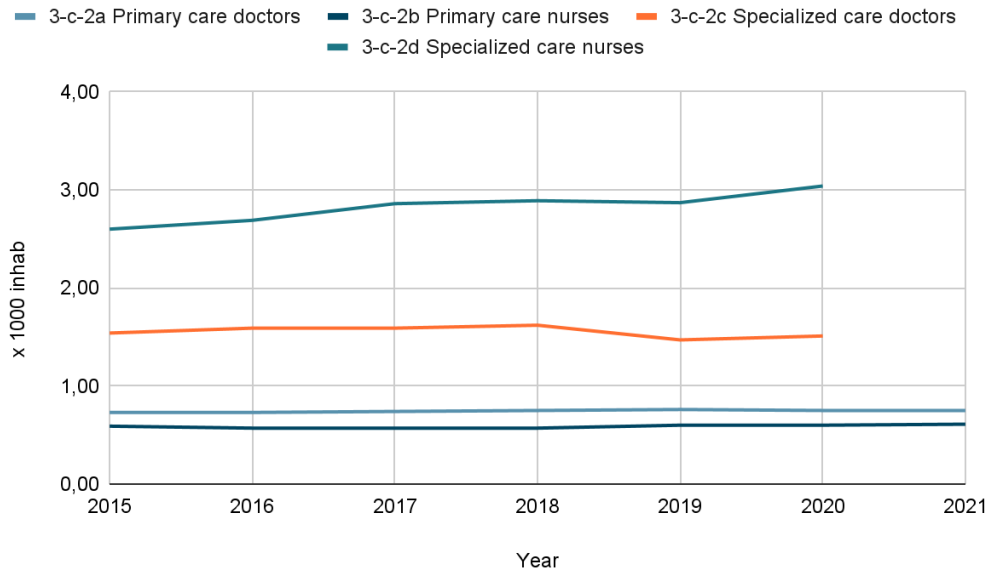
The value of this indicator has increased by almost one percentage point in the last two years, which means that more people have had a health problem that required medical attention and have not received it or have received it with delay. Due to the pandemic, this indicator may have increased due to the saturation of the health system for the care of covid patients, mobility restrictions and prevention and protection measures against the virus. The Andalusian Regional Government has tried to improve resources and healthcare protocols for the clinical management of patients with covid, which have led to greater efficiency and safety in hospital and outpatient care, as well as less saturation of the healthcare system. However, the value of the indicator is very low, and although it has caused an occasional increase, it is within acceptable and correctable values.

3-c-2 Health personnel

Data Description

Available sources				MSSSI
Competences	Regional Ministry of Health and Consumption			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
MSSSI	x 1000	2008-2021	Yes	

Indicator evolution



Comments

The ratio of health staff has remained almost constant in Andalucía, and slightly below the average in Spain (in some specific values, such as the specialised doctors, it is significantly below).

4.1.4 Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

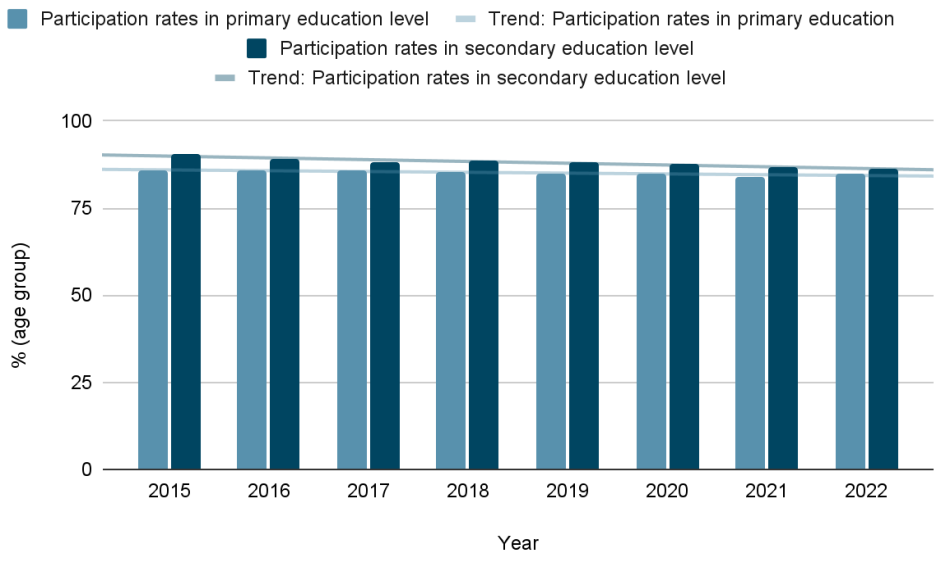
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

4-1-1 Participation rate in selected education levels

Data Description

Available sources			Competent Ministry
Competences	Regional Ministry of Educational Development and Vocational Training		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
Education and Universities Ministry (National)	%	1990-2022	Yes

Indicator evolution



Comments

The indicator has a slightly decreasing trend over time, and although it is not at concerning levels, there is still a percentage of uncovered participation that should be covered in order to reach the final objective of the target. However, the indicator is well within an optimal range. The Regional Ministry of Educational Development and Vocational Training has the 'Strategic Plan for the Development of Education in Andalucía 2021-2027', which is the instrument for planning and coordinating educational policies in the autonomous region, with a comprehensive, innovative and participatory vision. The plan includes among its strategic objectives the promotion of participation and social commitment to education, as well as the development of a democratic and civic culture in educational centres.

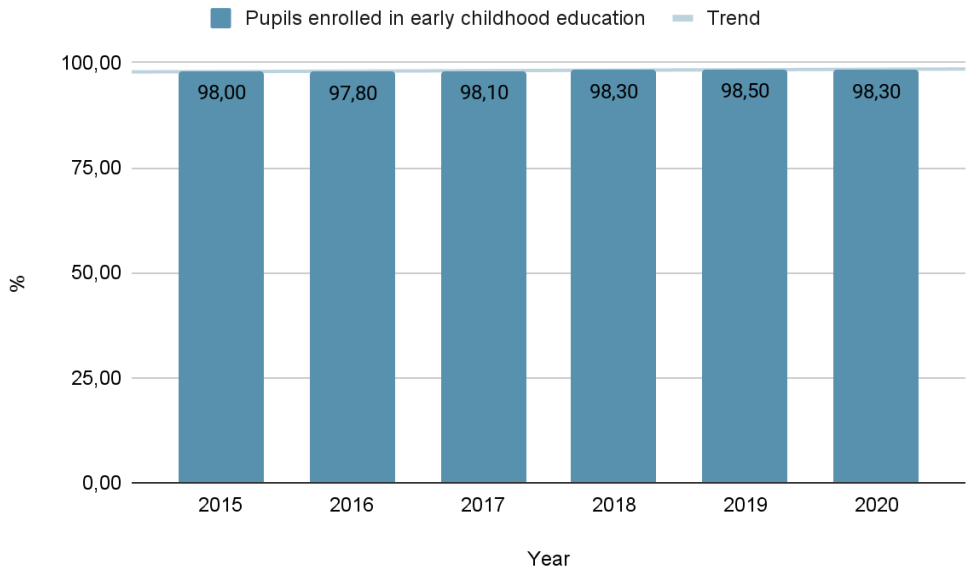
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

4-2-1 Pupils enrolled in early childhood education

Data Description

Available sources			Competent Ministry
Competences	Regional Ministry of Educational Development and Vocational Training		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2013-2020	Yes

Indicator evolution



Comments

This indicator has a constant trend at almost maximum value, meaning almost all children in selected ages are enrolled in early education. Availability and affordability of this educational level are high, and according to Administration goals.

This indicator has a high variability among European countries, depending not only on economic development but also on societal and child care models.

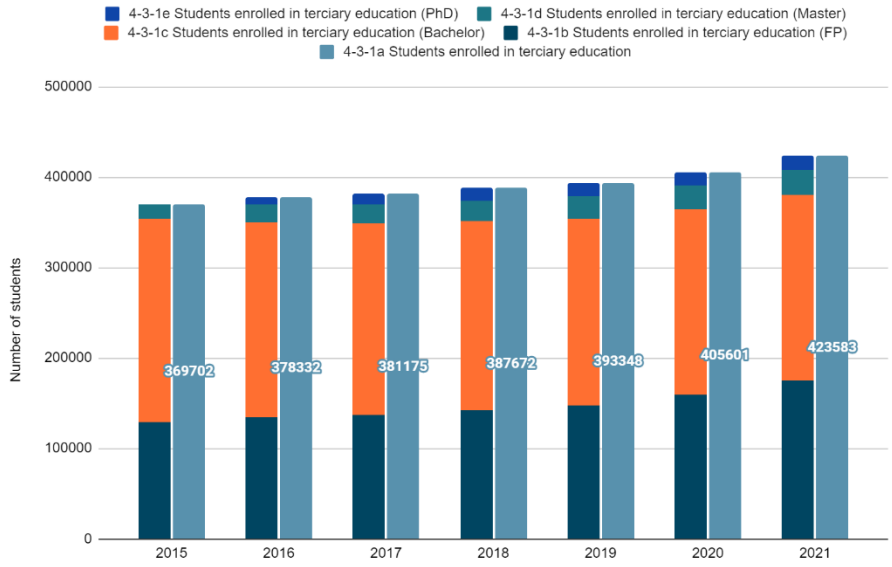
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

4-3-1 Students enrolled in tertiary education

Data Description

Available sources			Competent Ministry
Competences	Regional Ministry of Educational Development and Vocational Training Regional Ministry of University, Research and Innovation		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Education and Universities Ministry (National)	Number	2015-2022	Yes

Indicator evolution



Comments

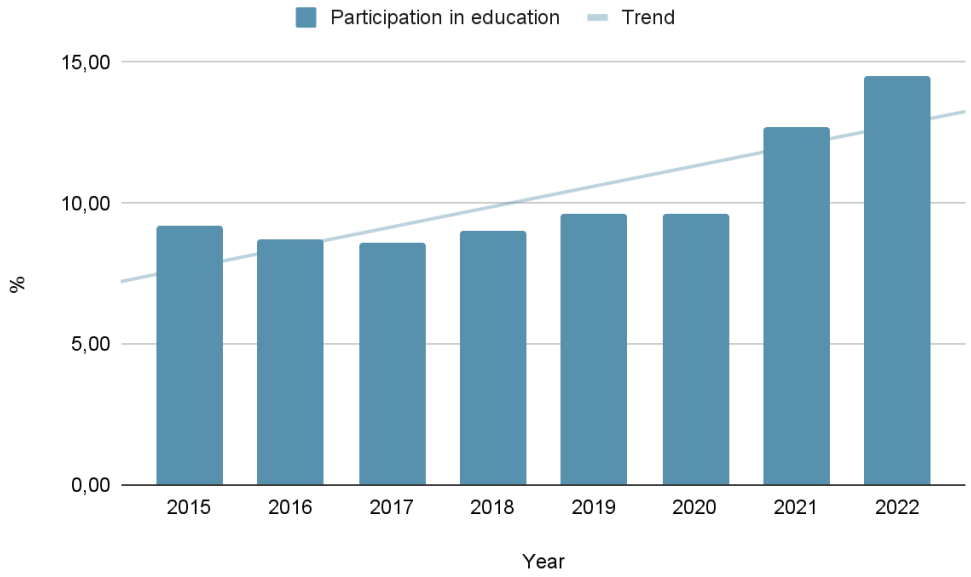
Overall, the number of students in higher education has increased over time, but the most interesting analysis looks into the type and modality of education. The trend in the number of undergraduate students has slightly decreased over the series analysed until stabilising in recent years, giving rise to an increase in the number of vocational training students. This fact may imply a better balance between the supply and demand of higher education in Andalucía, which adapts to the needs and expectations of the population and the labour market, as well as facilitating access to higher education for people with different profiles and educational backgrounds. This event may be related to the recent Strategic Strategic Plan for the Development of Education in Andalucía 2021-2027, which is the instrument for planning and coordinating vocational training policies in the autonomous community, with a comprehensive, innovative and participatory vision. The plan includes among its strategic objectives the promotion of quality, equity and excellence in vocational training, as well as the development of a professional and entrepreneurial culture in educational centres.

4-3-2 Participation in education

Data Description

Available sources			
Competences	Regional Ministry of Educational Development and Vocational Training		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2005-2021	No

Indicator evolution



Comments

This indicator shows a quickly growing trend, reflecting a growing interest in training, and the constant demand of the population for updating their skills.

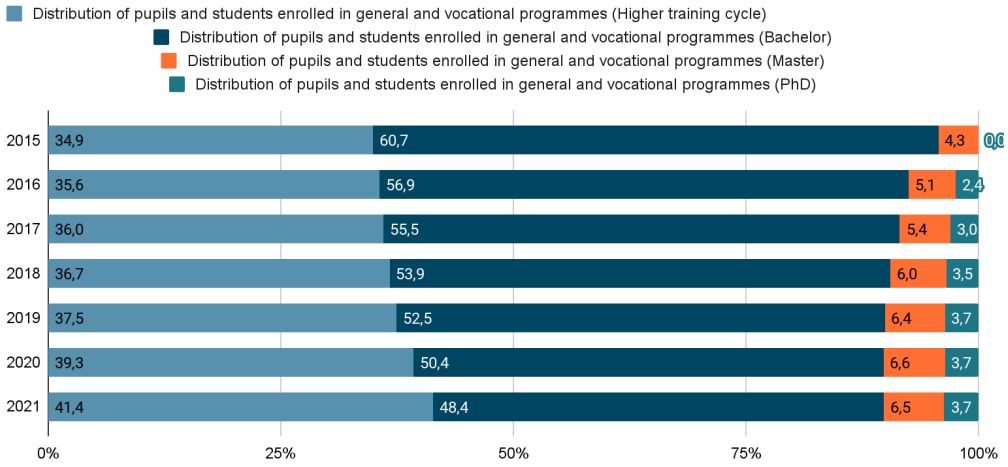
Andalucía has the full competence in Education and developed a variety of programmes at all levels to promote continuous learning both for adults and youth.

4-3-3 Distribution of pupils and students enrolled in general and vocational programmes

Data Description

Available sources				Competent Ministry
Competences	Regional Ministry of Educational Development and Vocational Training Regional Ministry of University, Research and Innovation			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
Education and Universities Ministry (National)	%	2015-2022	Yes	

Indicator evolution



Comments

The trend in this indicator shows a steady shift from higher, University Education, towards more accessible levels that grant faster access to the labour market.

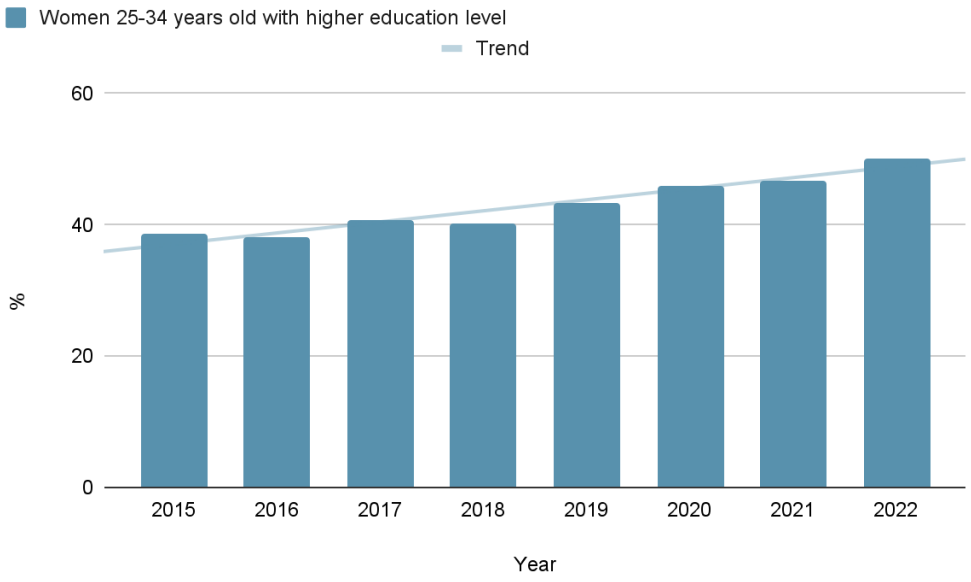
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

4-5-1 Women 25-34 years old with higher education level3

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of Educational Development and Vocational Training Regional Ministry of University, Research and Innovation Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2004-2022	No

Indicator evolution



Comments

Recent years are showing a constantly growing trend in the ratio of women with higher education levels, which show certain success of inclusion policies.

[3] Original indicator specified a different age range (30-34)

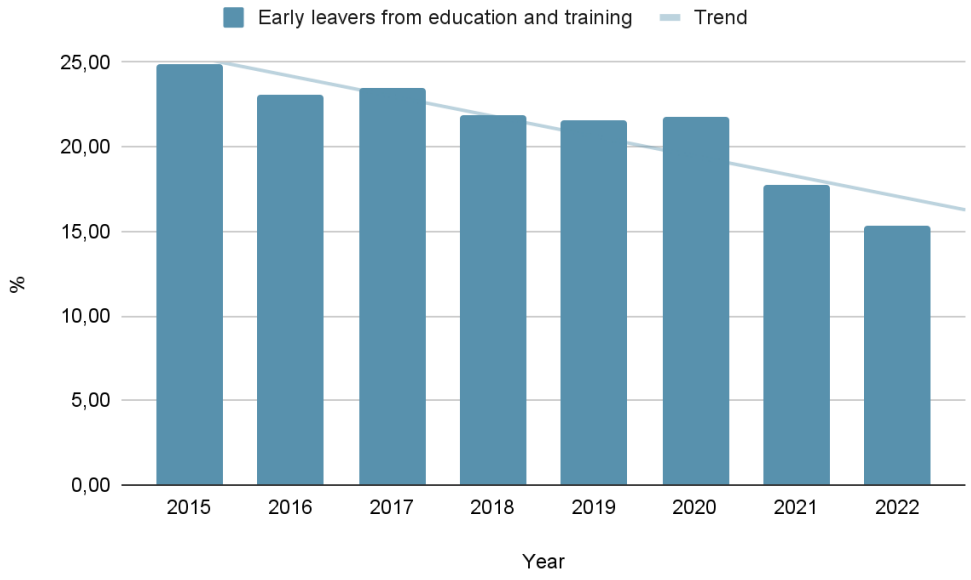
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

4-6-1 Early leavers from education and training

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Educational Development and Vocational Training		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2000-2021	Yes

Indicator evolution



Comments

Early leavers in Andalucía, although quickly descending, still remain over Spain's average value, which is in turn one of the highest among the EU countries.

4.1.5 Goal 5. Achieve gender equality and empower all women and girls

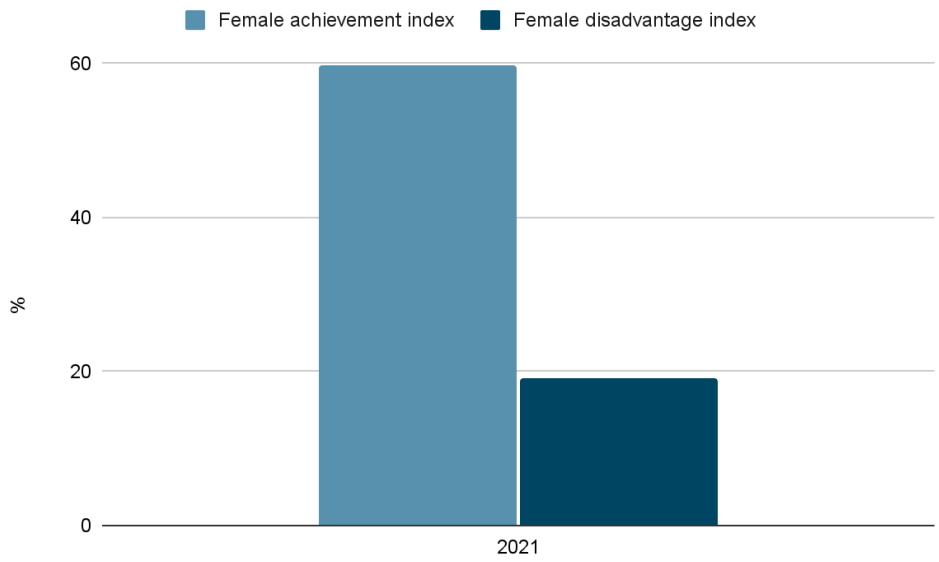
5.1 End all forms of discrimination against all women and girls everywhere

5-1-1 Female achievement/disadvantage index

Data Description

Available sources			European Commission
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
European Commission DG REGIO	%	2021	Yes

Indicator evolution



Comments

There is no trend for this indicator, but Andalucía performs very differently on each. In the Achievement Index, Andalucía ranks 128 across European regions. However, Andalucía is the 41st best region in the Disadvantage Index, a very good position but it is worth noting it is under most of the Spanish Regions.

Andalucía released recently the Strategic Plan for Equality of Women and Men in Andalucía 2022-2028 to tackle equality and inclusion issues.

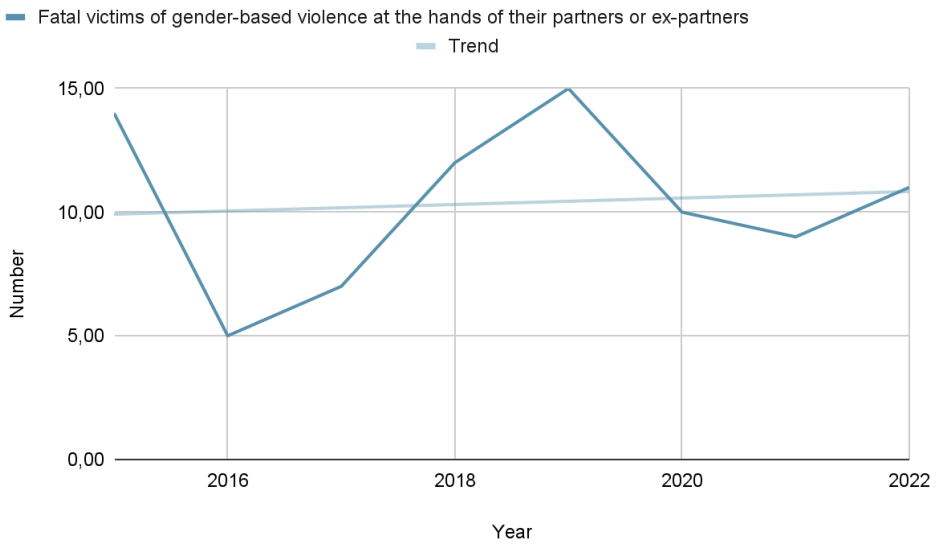
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

5-2-1 Fatal victims of gender-based violence at the hands of their partners or ex-partners

Data Description

Available sources			**Competent Ministry**
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Women's Institute. Ministry of Equality	n	2005-2022	Yes

Indicator evolution



Comments

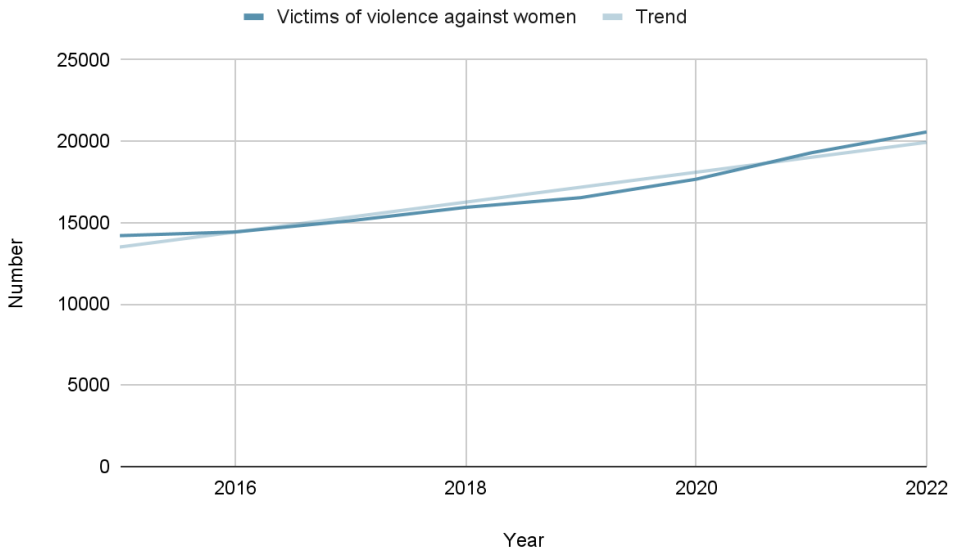
There is specific regulation in Andalucía regarding integral protection and prevention measures towards gender violence since 2007. This regulation was modified in 2018. The trend in the values of the indicator during the period 2015-2021 is not clearly positive or negative, as it oscillates year to year without following a clear pattern. It is important to emphasise that any value above zero is a matter of concern, and every single victim is a tragedy. For this reason, it is necessary to continue working on the prevention and fight against gender violence in Andalucía and around the world. The Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification has developed in 2020 the Andalucía, which focuses on prevention, care and recovery of victims, awareness raising and training of society, and institutional coordination. In addition, the Regional Ministry has specific programs for the care of women victims of gender violence and their children, such as women's centres, shelters or the 24-hour helpline.

5-2-2 Victims of violence against women

Data Description

Available sources			Competent Ministry
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Women's Institute. Ministry of Equality	n	2005-2023	Yes

Indicator evolution



Comments

There is specific regulation in Andalucía regarding integral protection and prevention measures towards gender violence since 2007. This regulation was modified in 2018. Although the increase in the number of registered cases may be a cause for concern, it can also be interpreted positively if it is associated with increased awareness and a better institutional response to gender-based violence. Regional and local authorities in Andalucía have implemented various policies and programs to address this problem, such as the promotion of social rejection of the aggressor and the prevention of *micromachismos* (gender micro-aggressions). The elaboration of studies and reports on the situation and evolution of gender violence in Andalucía, by the Andalusian Observatory of Gender Violence. And/or the creation of an integrated system of information on gender violence that allows the registration, monitoring and evaluation of cases, as well as the coordination between the different agents involved. In any case, it is necessary to continue working to eradicate gender violence and guarantee the right of women to live a life free of violence.

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

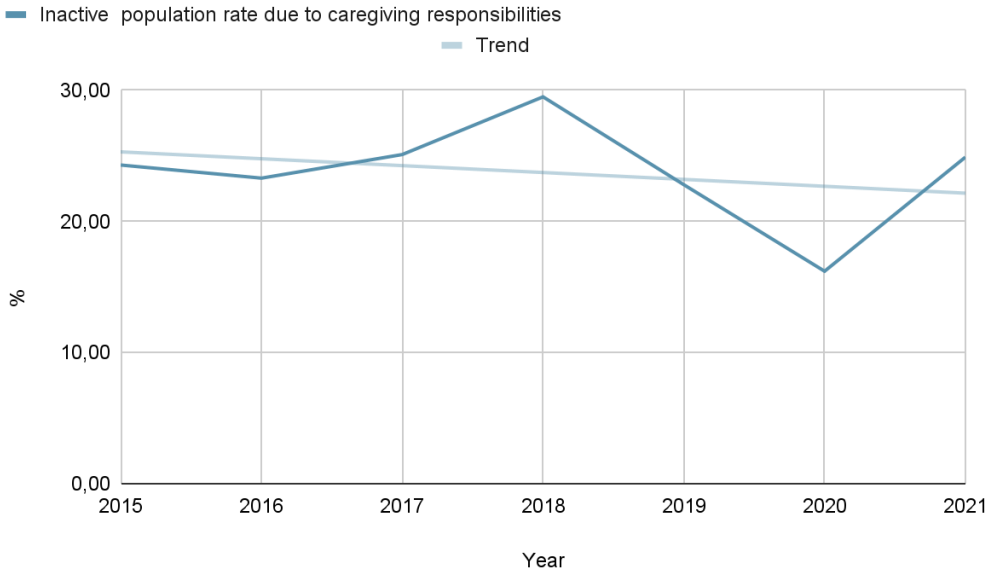
5-4-1 Inactive population rate due to caregiving responsibilities

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2006-2021	No

Indicator evolution



Comments

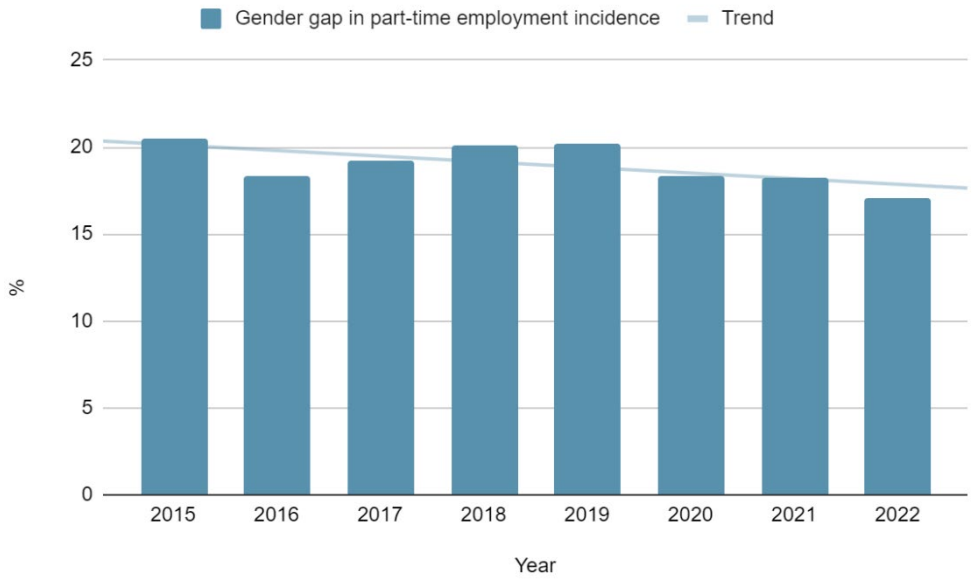
For Andalucía, there is a decreasing trend in this indicator, but with stability in recent years. One possible explanation for this downward trend is the growing incorporation of women into the labour market and social awareness of gender equality and co-responsibility in the family sphere. Likewise, there are measures such as the 'Law for the Promotion of Effective Equality of Women and Men in Andalucía', which seek to reduce the gender gap in the labour and family spheres, and to promote the reconciliation of work, personal and family life. However, the stability of recent years may be signalling that a point of equilibrium has been reached where work-family reconciliation is not yet fully resolved. In fact, the COVID-19 pandemic has highlighted the precariousness and lack of effective measures for the reconciliation of work and family life, especially for women.

5-4-2 Gender gap in part-time employment

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Employment, Business and Self-Employment Regional Ministry of Social Inclusion, Youth, Families and Equality Instituto Andaluz de la Mujer		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	p.p %	2006-2021	Yes

Indicator evolution



Comments

Positive values represent a predominance of female part-time employment. This has a light negative trend. The reasons for this may be linked to stereotypical gender roles that perpetuate the idea that women are primarily responsible for caring for the home and family. This leads to many women having to opt for part-time jobs to balance their work and family responsibilities. Moreover, in some sectors, part-time jobs may be primarily for women, limiting their opportunities to access full-time, higher-paying jobs. The 'Regional Ministry of Social Inclusion, Youth, Families and Equality' of Andalucía has implemented several strategies and actions to address the problem of the gender gap in part-time work, including the 'Strategic Plan for Equality of Women and Men in Andalucía 2022-2028' and the 'Andalusian Pact for Gender Equality'. In addition, they offer psychosocial support to families with minors at risk or unprotected through the NAYFA preventive program to facilitate their socio-labour insertion and favour conciliation.

5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

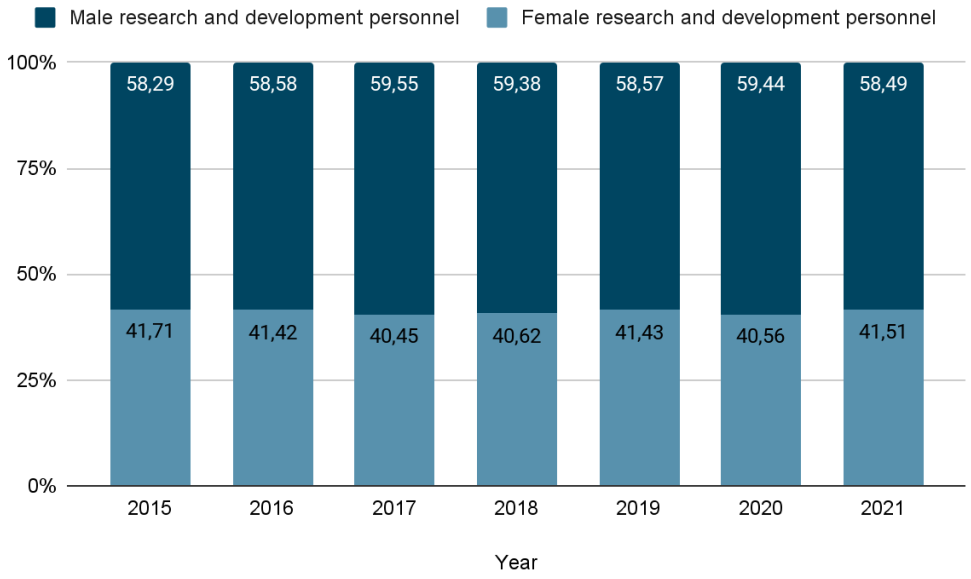
5-5-1 Female research and development personnel

Data Description

Available sources	
Competences	Regional Ministry of Employment, Business and Self-Employment Regional Ministry of Social Inclusion, Youth, Families and Equality Instituto Andaluz de la Mujer

Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2008-2021	Yes

Indicator evolution



Comments

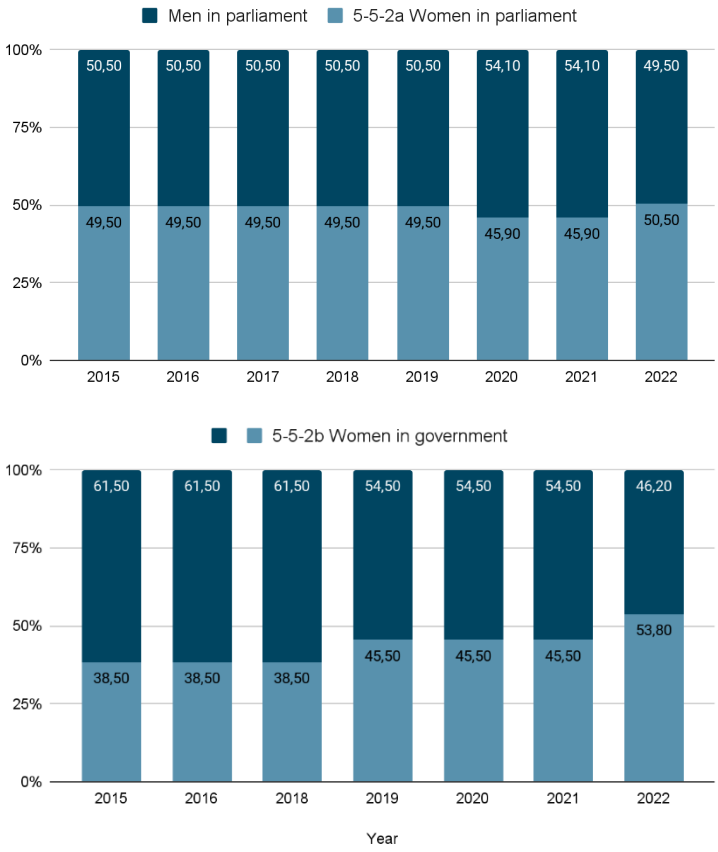
There is some gender parity in R&D personnel in Andalucía, although there are still more men than women. The impulse of the Andalusian R&D&I Strategy (EIDIA), Horizon 2027 has contributed to ensure that this continues to be the case, increasing the weight of science and technology in the Andalusian economy, fostering excellence and scientific and technological leadership, and promoting equal opportunities and diversity in the Andalusian R&D&I system. The fact that there is a balanced proportion of female and male personnel in R&D may reflect an advance in gender equality and in the recognition of the talent and potential of women in this field. However, Andalucía is slightly below the national average and does not have absolute parity for this indicator.

5-5-2 Women in parliament and government

Data Description

Available sources			
Competences	Parlamento de Andalucía Consejo de Gobierno		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2010-2022	Yes

Indicator evolution



Comments

These data indicate that women's political participation has improved significantly in Andalucía and Spain in recent years, thanks to the implementation of Organic Law 3/2007, of 22 March, for the effective equality of women and men, which establishes the principle of a balanced presence of both sexes in bodies and positions of responsibility. However, there are still challenges and inequalities that limit women's access to power and decision-making. Increasing the proportion of women in Parliament and Government contributes to improving the democratic quality and representativeness of Andalusian citizens by incorporating diversity and plurality of voices and interests. One possible reason why Andalucía shows an increasing trend in this indicator is the existence of a historical and cultural tradition of female leadership in the region, reflected in the presence of several female regional presidents from 1994 to 2019.

4.1.6 Goal 6. Ensure availability and sustainable management of water and sanitation for all

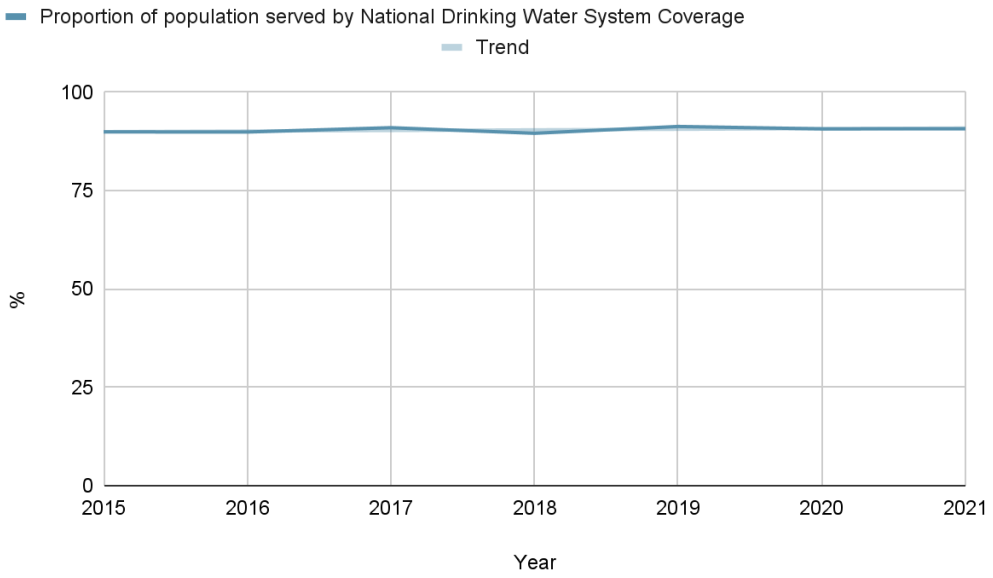
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

6-1-1 Population served by safely managed drinking water supply services[4]

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development Competence Shared with other Administrative levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2015-2021	Yes

Indicator evolution



Comments

The indicator is very close to 100% as the municipalities are responsible for the quality of water for human consumption, being able to manage its supply directly or through a manager.

[4] Supply Zones (*Zonas de Abastecimiento*, ZA) that supply populations of less than 50 inhabitants or that supply less than 10 m3 of water per day are excluded from the scope of application of RD 140/2003 (current legislation), so the primary source (SINAC) does not cover 100% of the population recorded in the National Statistics Institute (INE), even though all the ZA included in the scope of application have been notified.

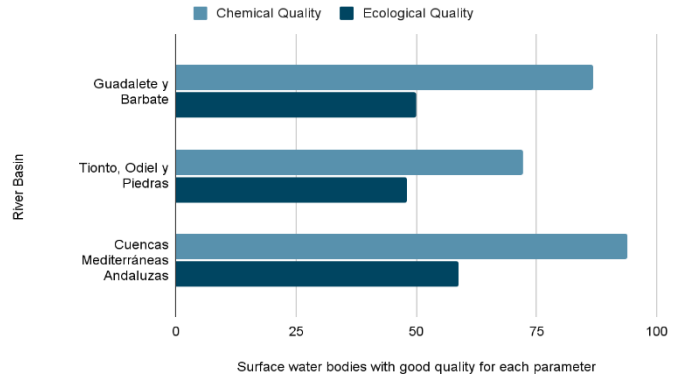
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

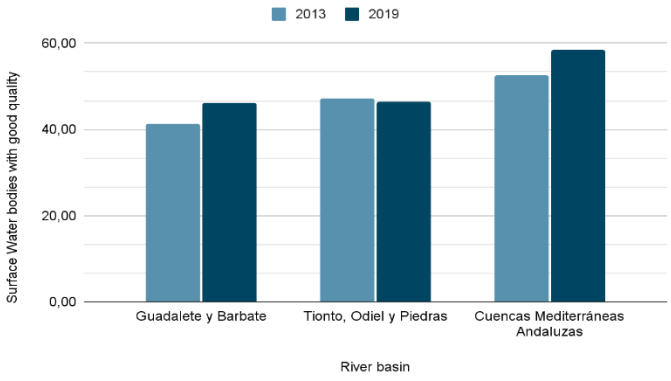
6-3-1 Water bodies that exceed a standardised quality rating

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**REDIAM**
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
REDIAM	%	2011-2021	Yes

Indicator evolution





6-3-1 Water bodies that exceed a standardised quality rating

Comments

As the overall quality of surface water bodies depends on both chemical and ecological status, the latter limits the overall value of the indicator.

There is an improvement in the amount of water bodies in good status between 2013 and 2019, although values are still below 50% in two of the three basins.

This may be because measures to restore the ecological quality of watercourses are often costly and require long periods of time to show results. On the other hand, in some cases, when the ecological status has been altered a recovery process is not possible.

Water quality measures and objectives are set out in the river basin management plans:

Demarcación Hidrográfica Del Guadalete-Barbate: Plan Hidrológico 2021-27

Demarcación Hidrográfica Del Tinto, Odiel y Piedras: Plan Hidrológico 2021-27

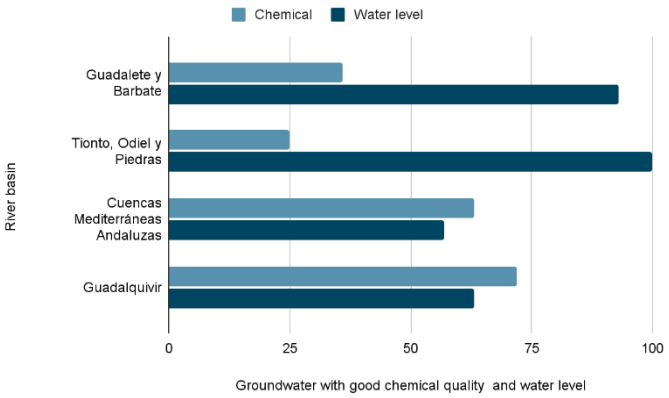
Demarcación Hidrográfica de las Cuencas Mediterráneas Andaluzas: Plan Hidrológico 2021-27

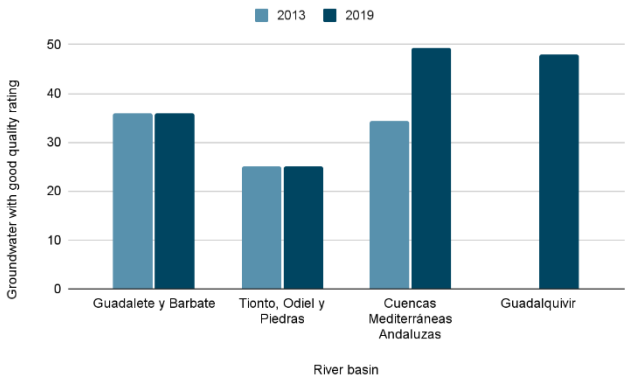
6-3-2 Groundwater that exceed a standardised quality rating

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**REDIAM**
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
REDIAM	%	2011-2021	Yes

Indicator evolution





6-3-2 Groundwater that exceed a standardised quality rating

Comments

The large farms characteristic of the Andalusian region exert enormous pressure on groundwater bodies, and have been affecting their chemical quality and piezometric levels since the green revolution. Although measures have been implemented to reduce groundwater contamination and over extraction, the effects of these measures are limited.

Less than half of the water bodies present good overall quality, it is necessary to remember that the region of Andalucía has unique natural enclaves whose conservation depends on the status of specific groundwater bodies and therefore a strict level of vigilance must be maintained.

Water quality measures and objectives are set out in the river basin management plans:

Demarcación Hidrográfica Del Guadalete-Barbate: Plan Hidrológico 2021-27

Demarcación Hidrográfica Del Tinto, Odiel y Piedras: Plan Hidrológico 2021-27

Demarcación Hidrográfica de las Cuencas Mediterráneas Andaluzas: Plan Hidrológico 2021-27

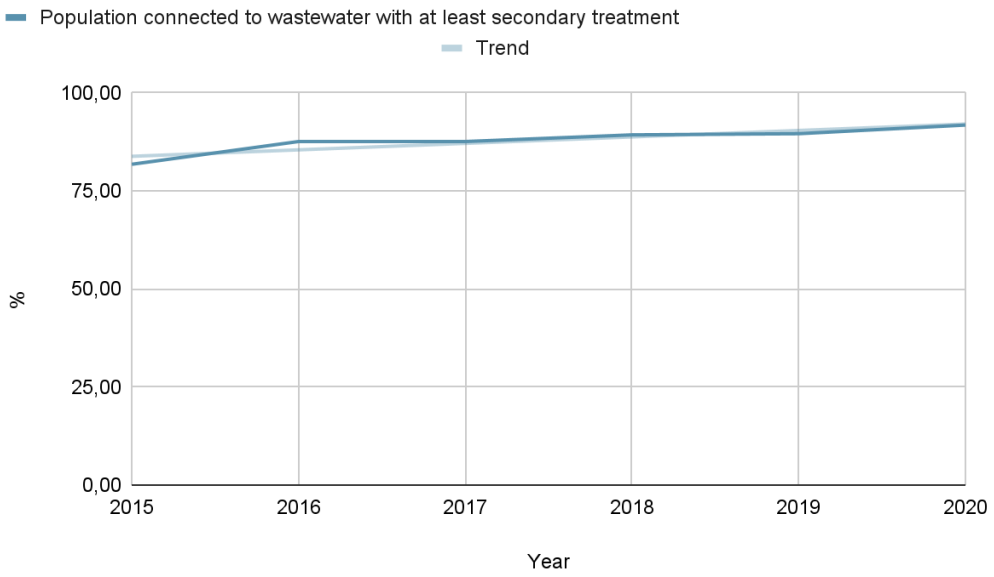
Plan Hidrológico 2022-2027 de la DH Guadalquivir - Memoria

6-3-3 Population connected to wastewater with at least secondary treatment

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2000-2020	No

Indicator evolution



Comments

Following the Council Directive of 21 May 1991 on urban waste water treatment, since 2005 all Spanish urban agglomerations with a population equivalent of more than 2000 inhabitants have been connected to secondary wastewater treatment systems. In the case of Andalucía, this is particularly relevant due to the presence of areas sensitive to eutrophication. Law 9/2010, of 30 July, on Water for Andalucía, assigns water management competences in the region to the Andalusian Government.

4.1.7 Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

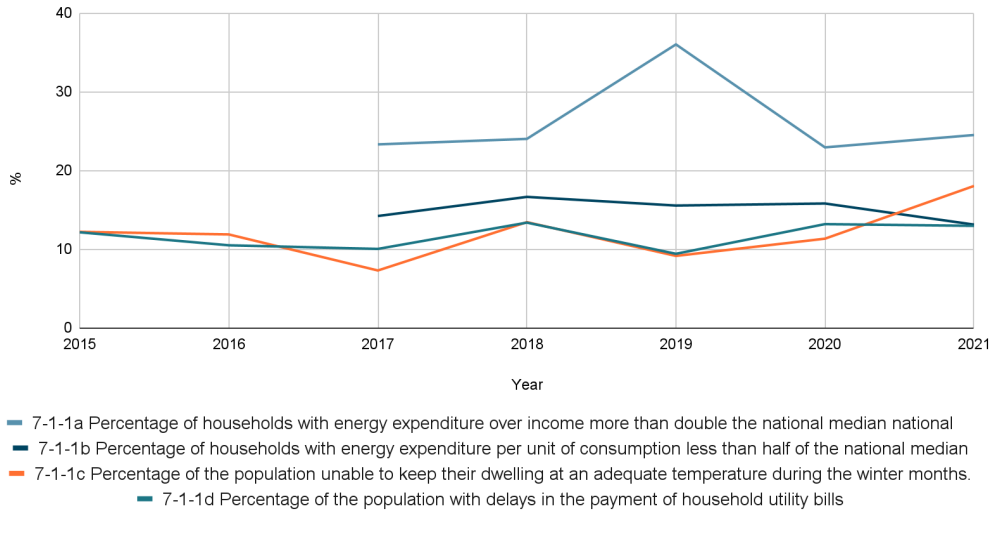
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

7-1-1 People affected by energy poverty

Data Description

Available sources			MITECO
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
MITECO	%	2018-2020	Yes

Indicator evolution



Comments

The indicator is provided disaggregated by the different dimensions of Energy Poverty. There is not a total and all of them have to be analysed separately.

Since the elaboration of the indicator is recent, the time coverage is not enough to correctly evaluate trends, especially in the case of the first dimension.

7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

7-2-1 Electricity production that comes from nuclear power

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MITECO/AEE**
Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
AAE (Andalusian Energy Agency)	%	2005-2021	Yes

Comments

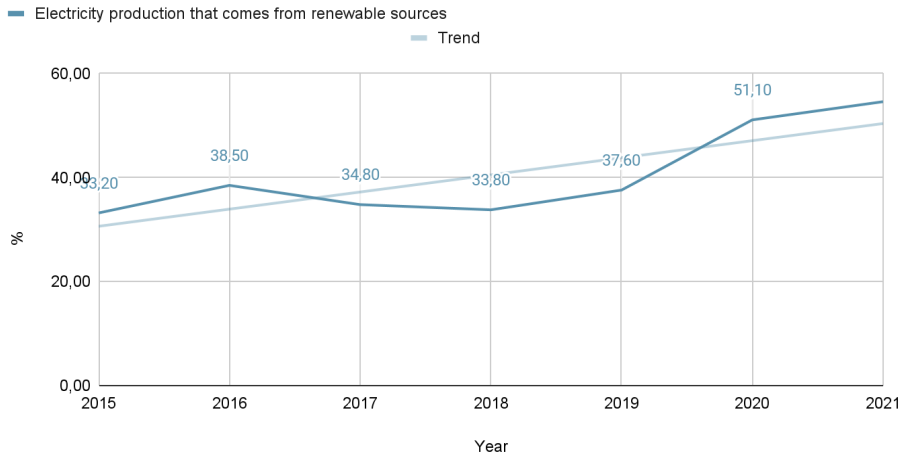
There is no nuclear production in Andalucía, nor plans to implement it in the near future. The Regional Government has expressed its commitment to renewable energies as a source of electricity generation, and has drawn up the Andalucía Energy Guidelines, which guide the policy on the promotion of clean energies, energy saving and efficiency.

7-2-2 Electricity production that comes from renewable sources

Data Description

Available sources			
	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MITECO/AEE**
Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
AAE (Andalusian Energy Agency)	%	2005-2021	Yes

Indicator evolution



Comments

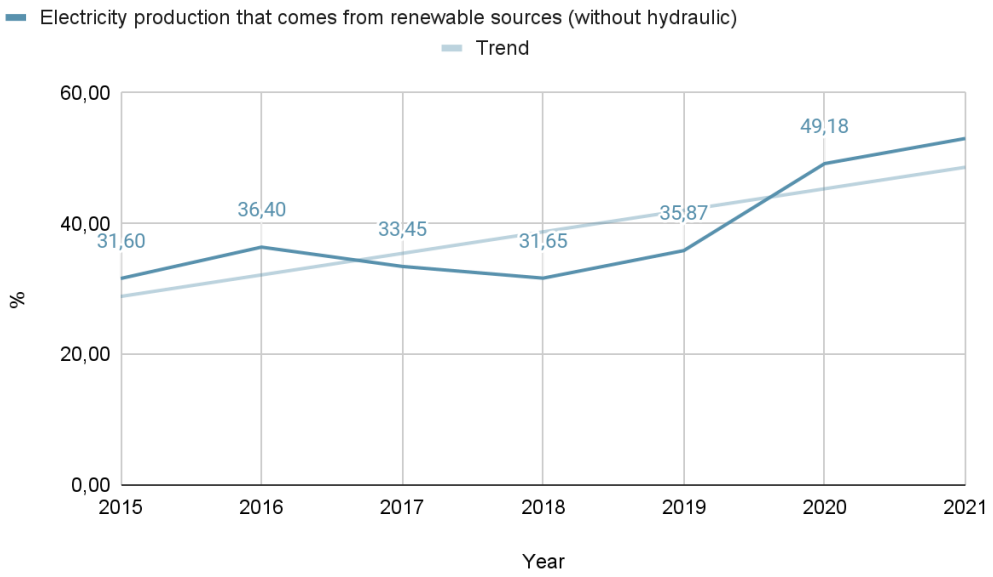
According to the Spanish law on Climate Change and Energy Transition, Spain should reach 70% of renewable penetration in electricity generation before 2030. There is not a specific goal for Andalucía in this magnitude, but the commitment in the Andalusian Action Plan for Climate is 42% of Renewable Energy in the final consumption in 2030. The Andalusian energy strategy defines actions and projects to achieve those goals

7-2-2b Electricity production that comes from renewable sources (excluding hydraulic)

Data Description

Available sources				MITECO/AEE
Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
AAE (Andalusian Energy Agency)	%	2005-2021	Yes	

Indicator evolution



Comments

Due to the difficult situation of water resources in Andalucía and the expected severe drought in the coming decades, hydro power should be carefully considered in energy planning. Although it is a major driver in the energy transition and clearly a clean energy, water in Andalucía cannot be managed the same way as wind and solar resources.

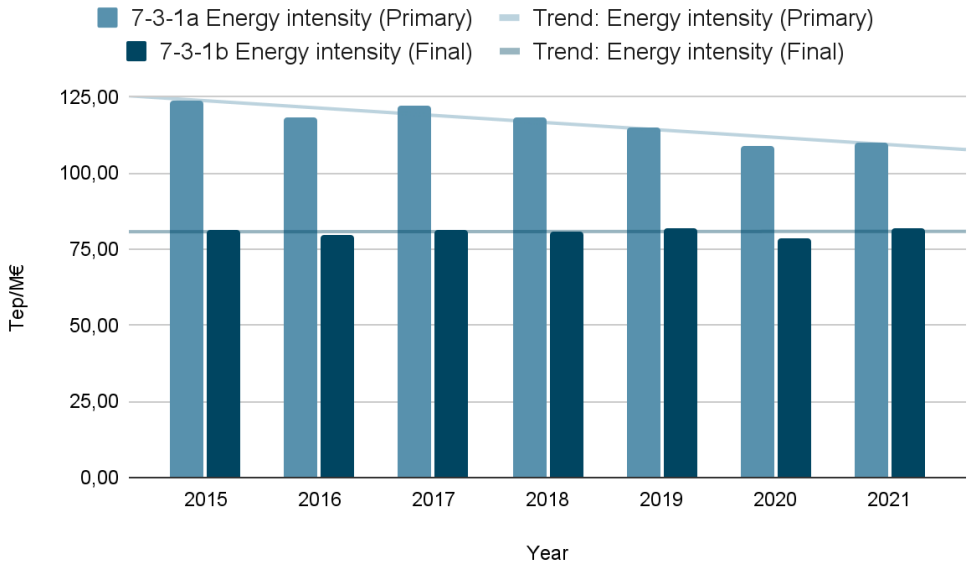
7.3 By 2030, double the global rate of improvement in energy efficiency

7-3-1 Energy Intensity

Data Description

Available sources				MITECO/AEE
Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
AAE (Andalusian Energy Agency)	%	2005-2021	Yes	

Indicator evolution



Comments

Primary Energy intensity is slowly decreasing, but the trend does not foresee the achievement of Andalusian goals. The commitment in the Andalusian Action Plan for Climate is a 39,5% reduction in primary consumption in 2030 (excluding energy generation).

4.1.8 Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

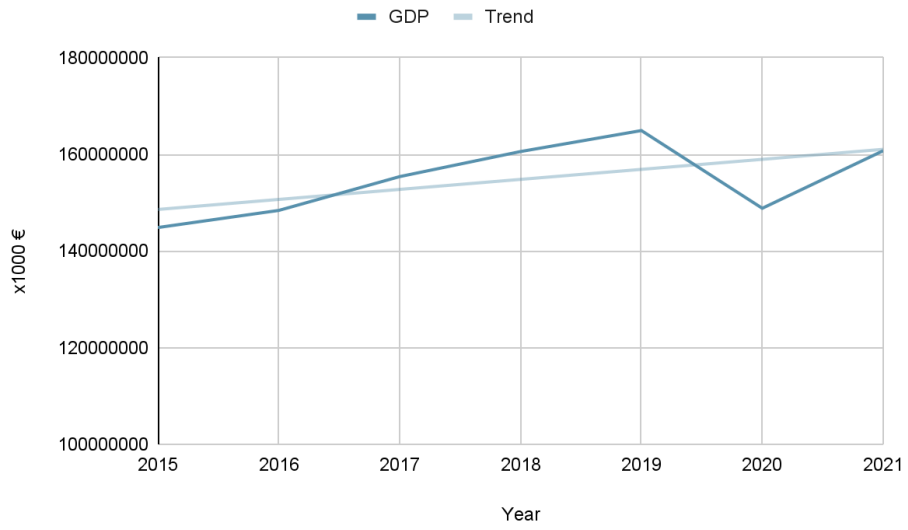
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

8-1-1 GDP at current market prices

Data Description

Available sources			
Competences	Regional Ministry of Economy, Finance and European Funds Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	x1000 €	2000-2021	Yes

Indicator evolution



Comments

Andalucía's GDP per capita has increased by 9.59% between 2015 and 2021, from 17,249 euros to 18,906 euros. However, this growth has not been homogeneous or linear throughout the period. Andalucía's GDP per capita has experienced ups and downs, with years of greater and lesser economic dynamism. The year with the lowest growth was 2020, when GDP per capita decreased by -10.1% with respect to the previous year. The year 2021 has seen the greatest increase in the indicator during the period analysed, influenced by the reactivation of the tourism sector and the support of European funds. The regional government has affected this indicator with the preparation of the Andalucía Strategy Plan 2020-2030', which establishes the objectives and strategic lines for the sustainable and inclusive economic and social development of the region, and the management of the 'Andalucía *En Marcha* Plan', which mobilises more than 3.4 billion euros to promote projects and investments in infrastructure, education, health, culture and sports. The value of Andalucía's GDP per capita is below the national and European averages, however, the Andalusian Government with the central government is promoting measures with the implementation of the National Recovery Plan, which channels European funds to finance transformative projects in different areas that will directly affect the region's economic growth.

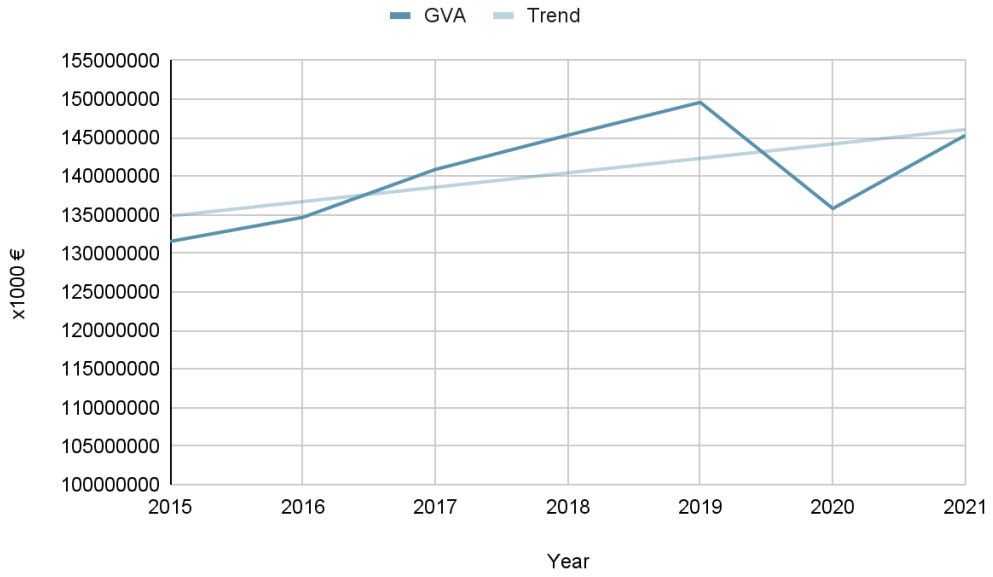
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8-2-1 GVA at basic prices

Data Description

Available sources			
Competences	Regional Ministry of Economy, Finance and European Funds Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	x1000 €	2000-2021	Yes

Indicator evolution



Comments

Findings in 8-1-1 are also applicable

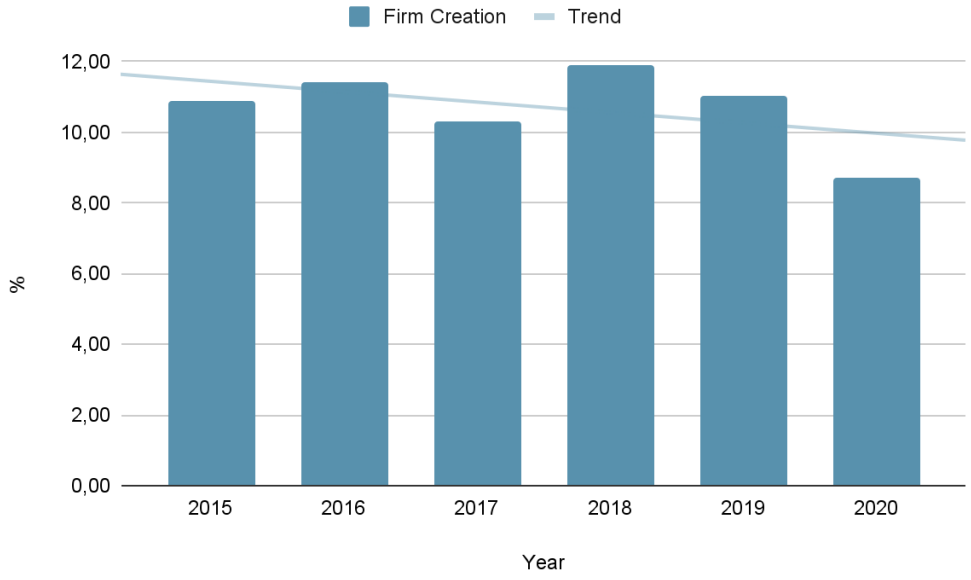
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalisation and growth of micro-, small- and medium-sized enterprises, including through access to financial services

8-3-1 Firm Creation

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2008-2020	Yes

Indicator evolution



Comments

The trend of this indicator, which is represented as an annual variation rate, is positive and constant over time. The improvement of the economic and social context after the financial crisis of 2008-2013 has favoured the recovery of business activity and the increase in the confidence and optimism of entrepreneurs. Moreover, the diversification and modernisation of the productive fabric has boosted the development of emerging and strategic sectors such as renewable energies, biotechnology, the circular economy and industry in the period analysed. A crucial year to analyse the evolution of this indicator was 2020, when the impact of the COVID-19 pandemic on the Andalusian economy took place. Despite the difficulties and restrictions derived from the health crisis, the percentage of business creation in Andalucía resisted, due to the creation of companies related to sectors such as retail trade, health and social activities, professional and scientific activities and administrative and auxiliary activities. Among the strategies that Andalucía includes that encourage support for the creation and maintenance of companies, the improvement of working and social conditions, the promotion of innovation and competitiveness, and the promotion of entrepreneurial culture, we can highlight the Strategic Plan for Self-Employment in Andalucía 2020-2023 and the Strategic Plan for the Internationalisation of the Andalusian Economy Horizon 2027.

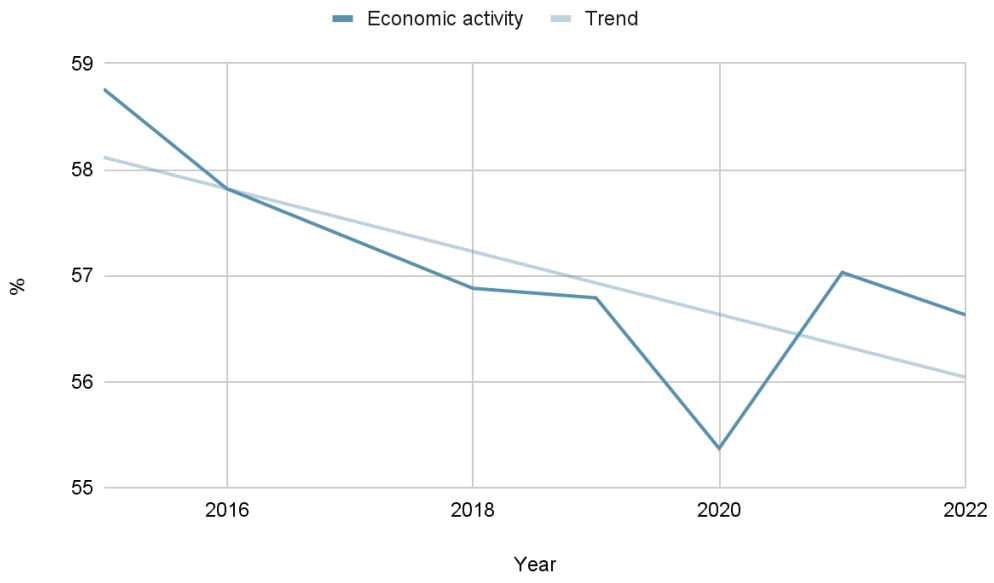
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8-5-1 Economic activity

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2006-2022	Yes

Indicator evolution



Comments

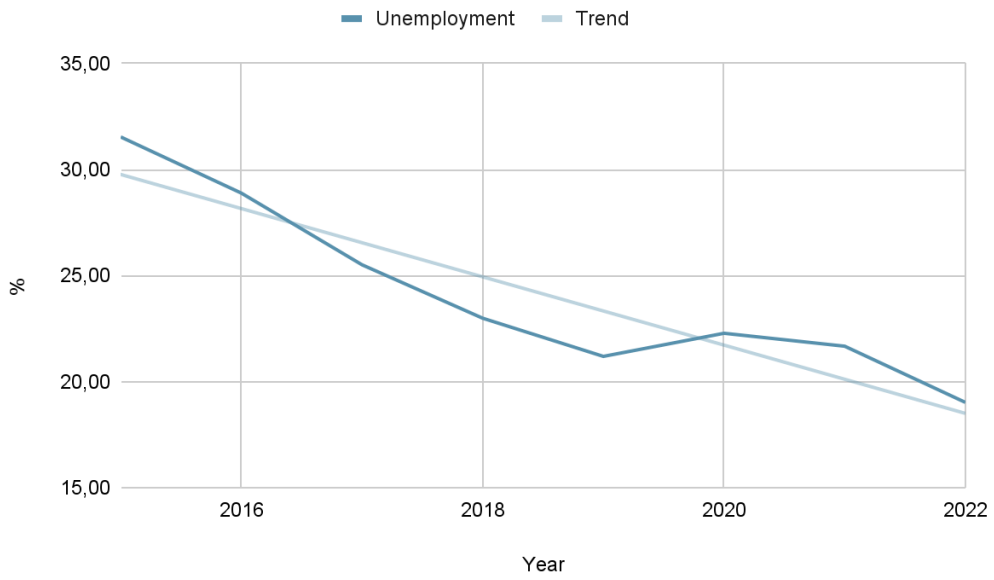
The trend of this indicator for Andalucía is decreasing in the period analysed, with an upturn in 2020. This has a negative impact on the target, since from an economic and social point of view, it means less use of the region's productive and human potential, less income and wealth generation, greater economic dependence and less social cohesion. It should be borne in mind that the indicator implies the proportion of people working or looking for work, so that demographic effects such as the low birth rate, the increase in life expectancy and the prolongation of the working life of some people over 65 years of age, give the trend of this indicator in the series direction.

8-5-2 Unemployment

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2002-2022	Yes

Indicator evolution



Comments

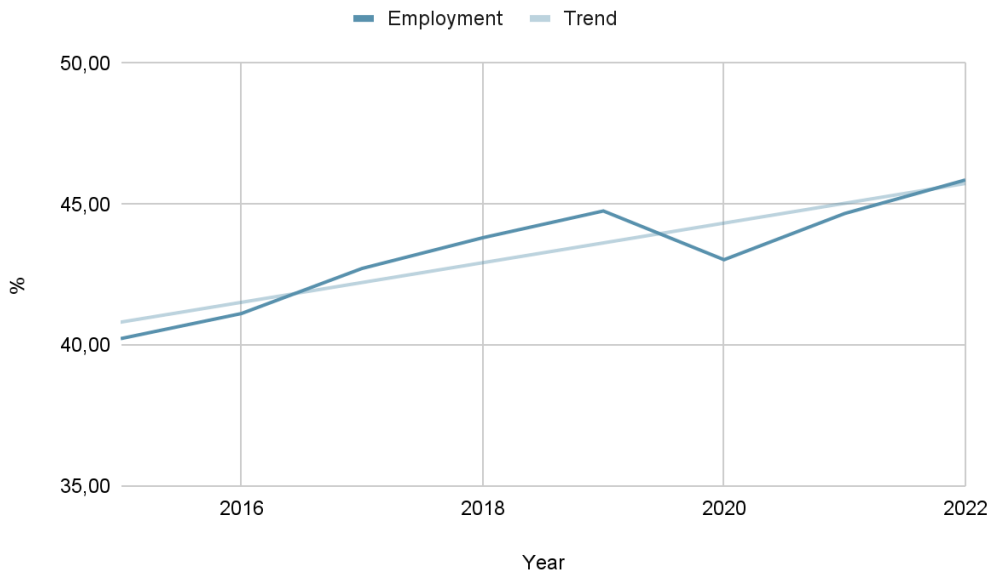
The decrease shown in the unemployment rate in Andalucía can be explained by several reasons. Firstly, the economic recovery and job creation after the financial crisis of 2008-2013 have contributed to the decrease in unemployment in key sectors such as tourism, construction, agriculture and services. Moreover, the qualification and employability of Andalusian workers has been improved through vocational training programmes, certificates of professionalism and specialisation courses in emerging and strategic sectors. In addition, the social economy has been promoted as a source of stable and quality employment, supporting cooperatives, labour companies and strengthening the associative fabric. A crucial year to analyse is 2020, when the COVID-19 pandemic impacted the Andalusian economy. Despite the difficulties and restrictions resulting from the health crisis, the unemployment rate in Andalucía decreased by 0.9% compared to the previous year, standing at 21.1%. This contrasts with the 2% increase at the national level. The Regional Ministry of Employment, Business and Self-Employment counts on several strategies oriented to maintain this trend and improve the data presented by the region, such as the Strategic Plan for Self-Employment 2020-2022, the Andalusian Plan for Economic Recovery 2021-2027 (PARA) or the Andalucía Orienta Programme 2020-2023.

8-5-3 Employment

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2002-2022	Yes

Indicator evolution



Comments

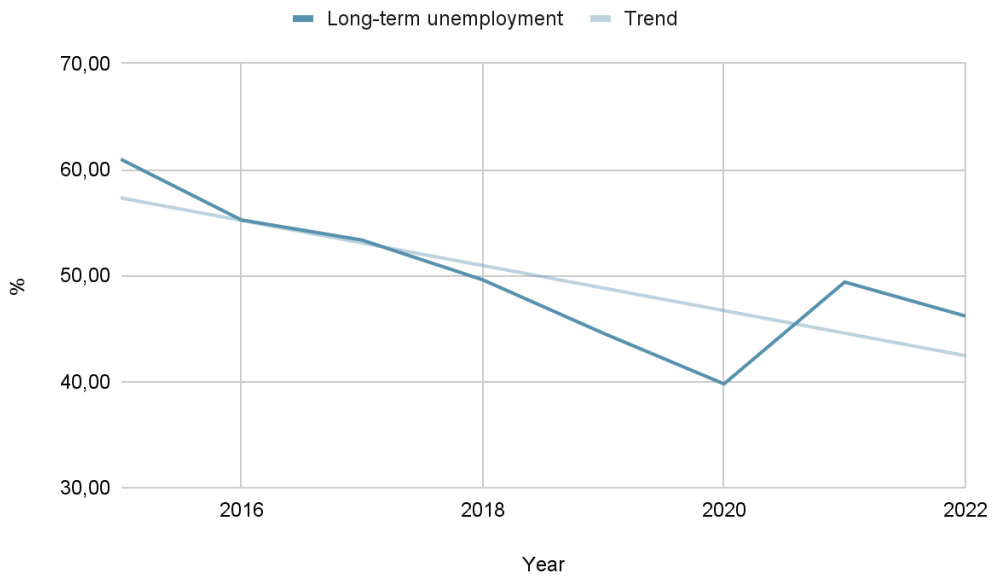
Findings in 8-5-2 are also applicable

8-5-4 Long-term unemployment

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2002-2022	Yes

Indicator evolution



Comments

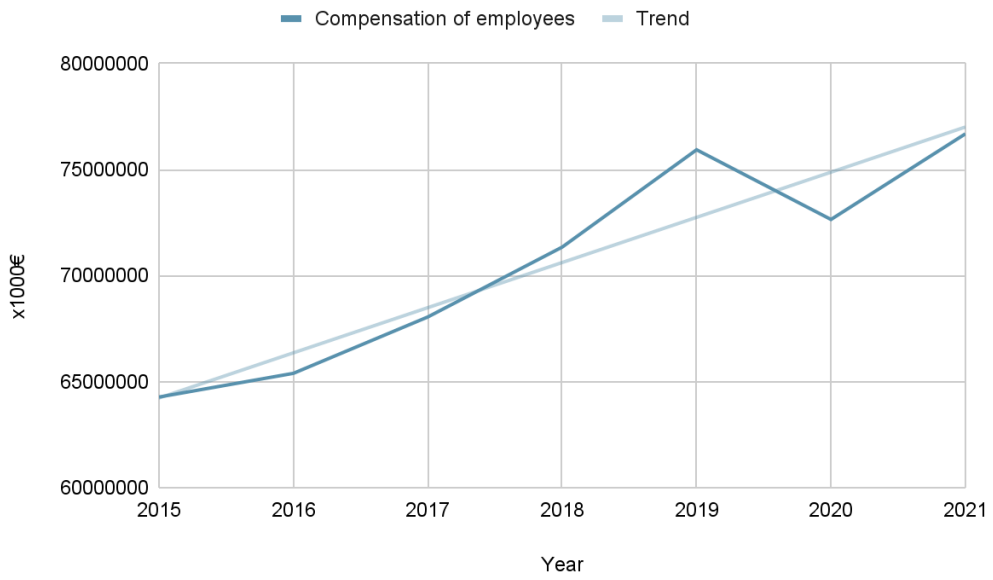
Findings in 8-5-2 are also applicable

8-5-5 Compensation of employees

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	x1000€	2000-2021	Yes

Indicator evolution



Comments

The value of compensation received by salaried workers in the Andalusian region has increased during the period analysed, with a decrease in 2020 due to the health and economic crisis caused by the COVID-19 pandemic. On the one hand, an increase in this indicator may reflect a higher level of income and welfare of Andalusian workers, as well as a higher revenue-raising and public spending capacity of the Andalusian regional government. On the other hand, an excessive or uneven increase in this indicator may generate problems of competitiveness, inflation, territorial or social imbalances, or public deficit. In the case of Andalucía, it can be said that the value of compensation of employees is good in relative terms, but bad in absolute terms. In other words, Andalucía has improved its position with respect to Spain as a whole and the other autonomous communities in recent years, but it continues to be below the national average and the most developed regions.

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training

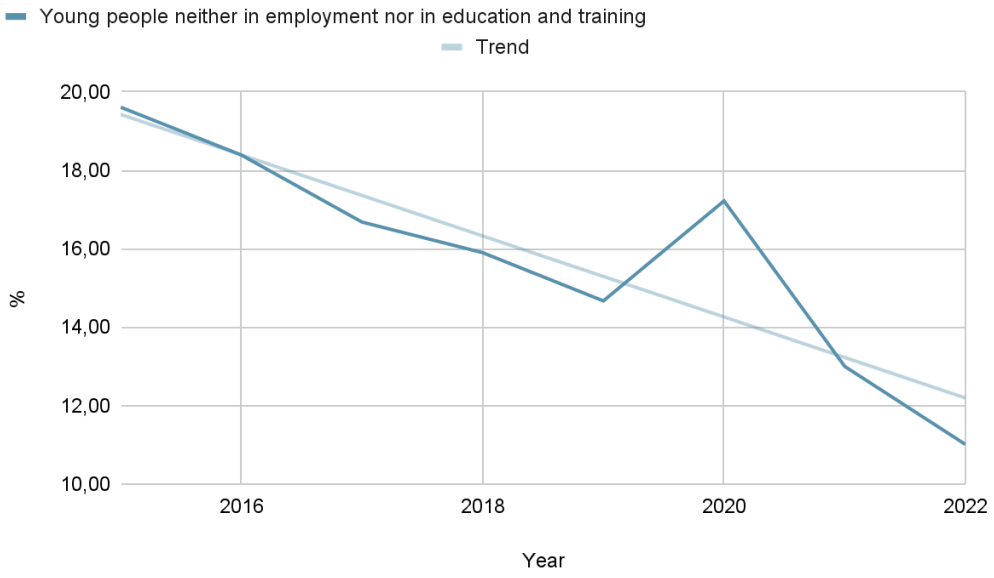
8-6-1 Young people neither in employment nor in education and training

Data Description

Available sources	eurostat; INE Instituto Nacional de Estadística; Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Employment, Business and Self-Employment Regional Ministry of Educational Development and Vocational Training Competence shared with other Administration levels

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2010-2021	No

Indicator evolution



Comments

The downward trend of the indicator reflects an improvement in the situation of social and labour exclusion of part of the young Andalusian population. There is a rise in 2020 due to the health and economic crisis caused by the COVID-19 pandemic, explained by the increase in youth unemployment and the abandonment of studies or training by some young people who were affected by the measures of confinement, restriction of mobility and closure of non-essential activities that were adopted to contain the spread of the virus. In general terms, the trend shown is recovering, reflecting a greater social and labour integration of young Andalusians, as well as a higher qualification and potential productivity of the labour force. Andalucía has improved but still has a higher value than the national average. In order to continue on the path of improvement, the competent ministries are considering various strategies and actions such as: the Strategic Plan for the Development of Education in Andalucía 2021-2027, which seeks to promote attractive training adapted to the current labour market; the Youth Now Plan, which seeks to improve employability and the quality of employment; and the Strategic Plan for the Promotion of Green Employment, which promotes the ecological transition and generates opportunities in green sectors.

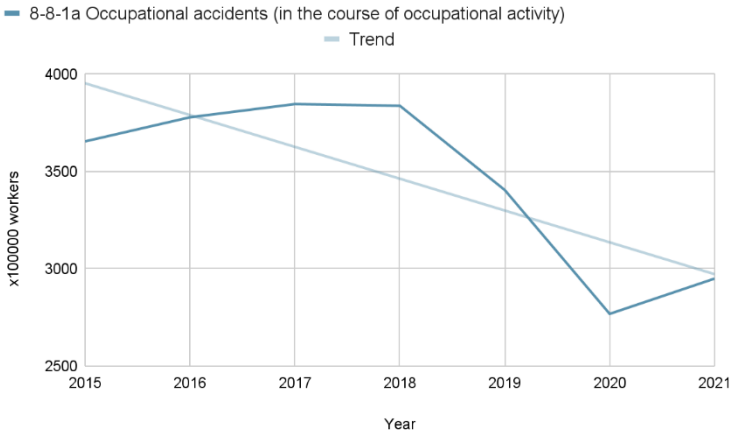
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

8-8-1 Occupational Accidents

Data Description

Available sources			MITES
Competences	Regional Ministry of Employment, Business and Self-Employment		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
MITES	x100000 workers	1988-2022	No

Indicator evolution



Comments

Given the importance that the 2030 Agenda gives to reducing road traffic fatalities (target 3.6), a breakdown into two sub-indicators has been considered relevant in order to appreciate the importance of commuting accidents in the occupational accident rate.

4.1.9 Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

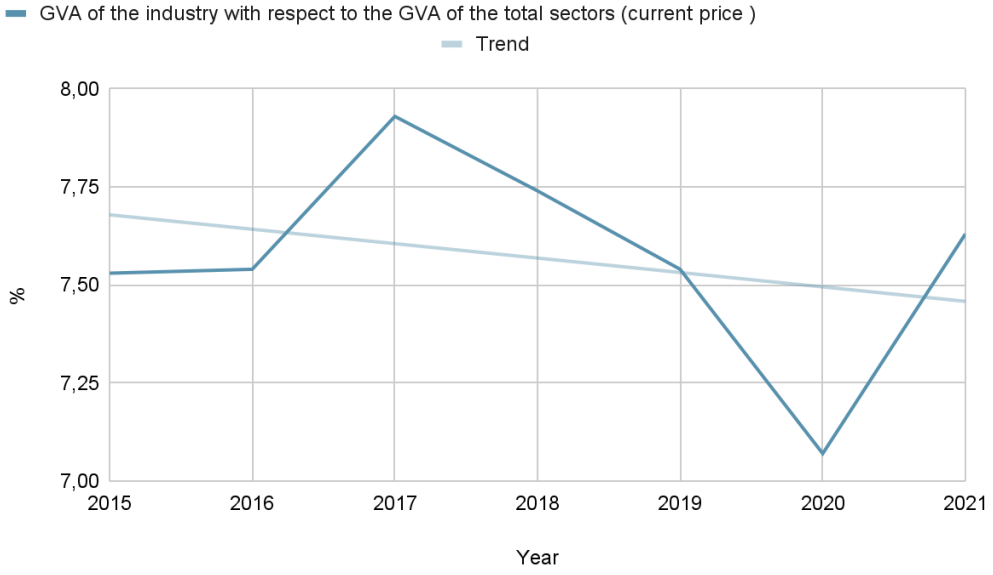
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

9-2-1 GVA of the industry with respect to the GVA of the total sectors (current price)

Data Description

Available sources			
Competences	Regional Ministry of Industrial Policy and Energy Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2006-2021	No

Indicator evolution



Comments

The trend of the indicator is slightly decreasing due to the decline caused by the pandemic in 2020, recovering the value presented in 2015 during 2021. The contribution of industry to the economic growth of the Andalusian region has a low profile, which should be increased in a sustained manner in order to increase the degree of development, diversification and competitiveness of the regional productive structure. The Regional Government of Andalucía has developed and is considering various strategies and actions, such as the Industrial Strategy of Andalucía 2020, which is articulated around four pillars: industrialise Andalucía, increase industrial employment, improve innovation in industry and strengthen the industrial fabric. Also of note is the Industrial Cities Programme, which aims to support Andalusian municipalities with significant industrial activity or with the potential to develop it, by reinforcing their global positioning, improving their industrial infrastructures and services, revitalising their business and social fabric or attracting investment and strategic projects.

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

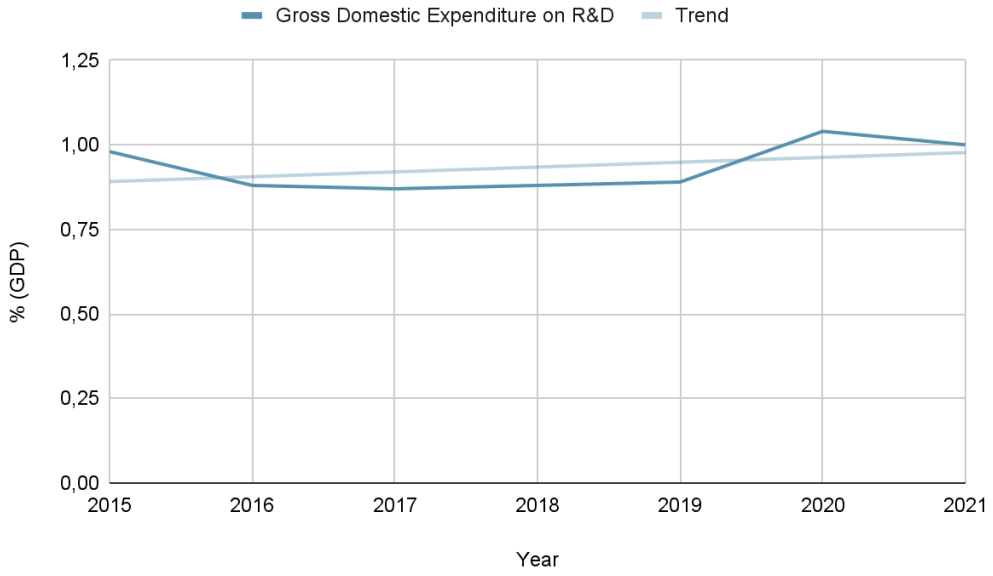
9-5-1 Gross Domestic Expenditure on R&D

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of University, Research and Innovation

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2000-2021	Yes

Indicator evolution



Comments

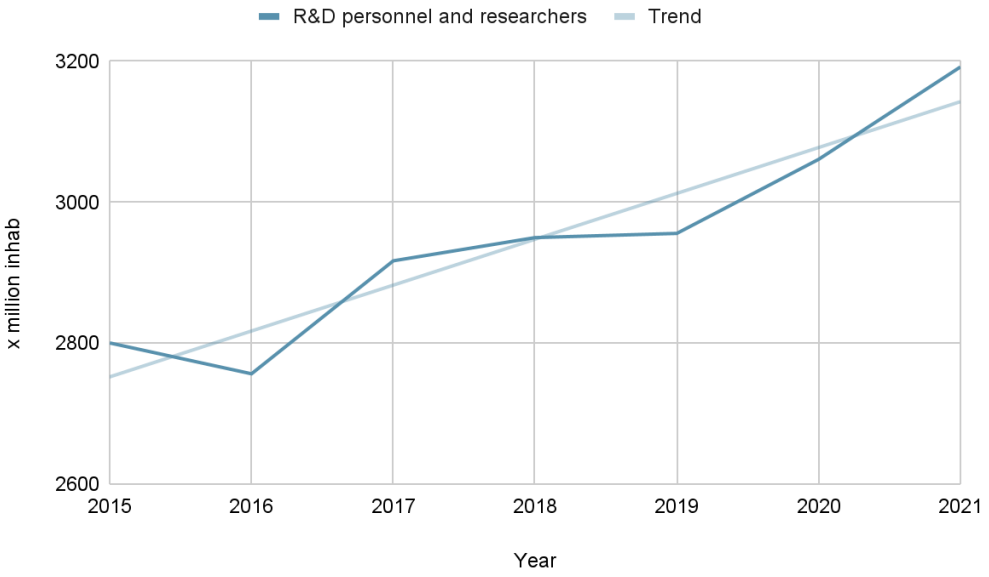
The trend of the indicator is stable and fluctuates slightly over time, meaning that the economic effort in R&D in Andalucía has not varied substantially over the period. Investment in R&D is below the national and European average, which indicates that there is space for improvement and territorial imbalances between the different Autonomous Regions. The Andalusian Department of University, Research and Innovation has adopted measures such as the promotion of the Andalusian R&D&I Strategy (EIDIA), Horizon 2027, the promotion of participation in European R&D&I programs, the development of complementary plans under the 'Recovery and Resilience Framework' together with the central government, support for the transfer of knowledge and innovation, and the promotion of knowledge-based entrepreneurship. These measures are designed to increase competitiveness, innovation and economic and social growth in Andalucía.

9-5-2 R&D personnel and researchers

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of University, Research and Innovation		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	x million inhab.	2000-2021	Yes

Indicator evolution



Comments

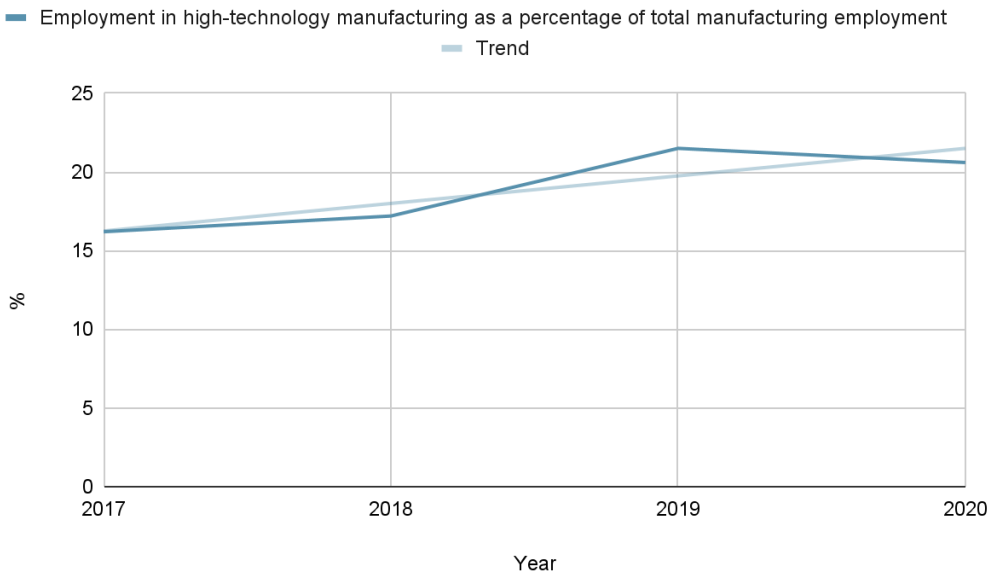
The number of people dedicated to research and development in the region is increasing according to the positive trend of this indicator. This trend could be the result of various policies and strategies implemented by the Andalusian government and institutions to promote research and innovation in the region. The Regional Ministry of University, Research and Innovation de Andalucía has promoted different strategies and actions to promote research and development in the region, such as the Andalusian R&D&I Strategy (EIDIA), Horizon 2027, the complementary R&D&I plans, the Andalusian Aerospace Strategy and the participation in European and international R&D&I programs. These initiatives have generated a favourable framework for the increase of human and economic resources for research. This is a positive development, since it can improve the region's innovative capacity and its competitiveness in an increasingly globalised market. However, it is also important to consider other factors, such as the quality of research and the effectiveness of the R&D policies and strategies implemented, as Andalucía remains below the national and European average for this indicator.

9-5-3 Employment in high-technology manufacturing as a percentage of total manufacturing employment

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Industrial Policy and Energy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2017-2021	Yes

Indicator evolution



Comments

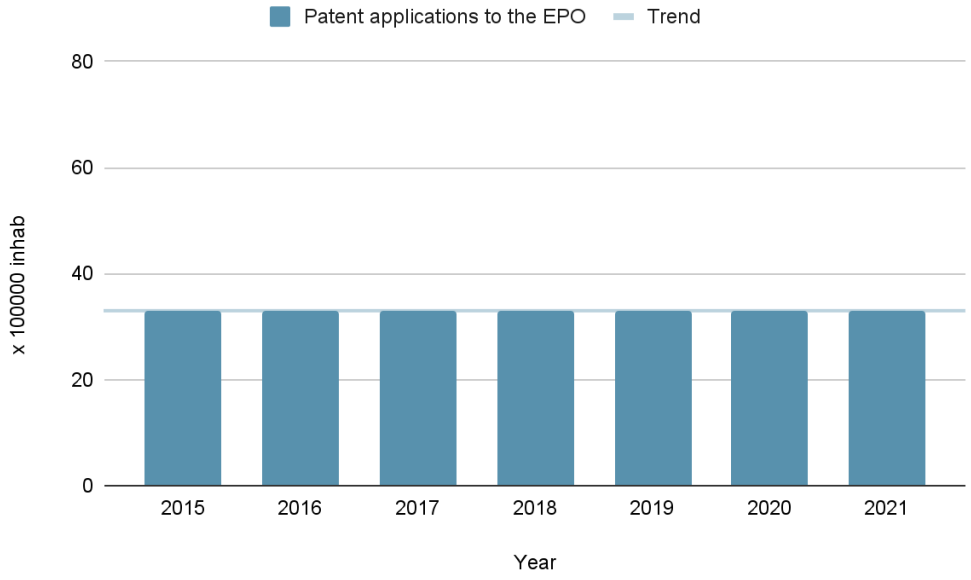
The available data series is too short to evaluate trends.

9-5-4 Patent applications to the EPO

Data Description

Available sources			OEPM
Competences	Regional Ministry of University, Research and Innovation		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
OEPM	x 100000 inhab	2017-2020	Yes

Indicator evolution



Comments

The available data are constant, no trends can be evaluated.

4.1.10 Goal 10. Reduce inequality within and among countries

10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

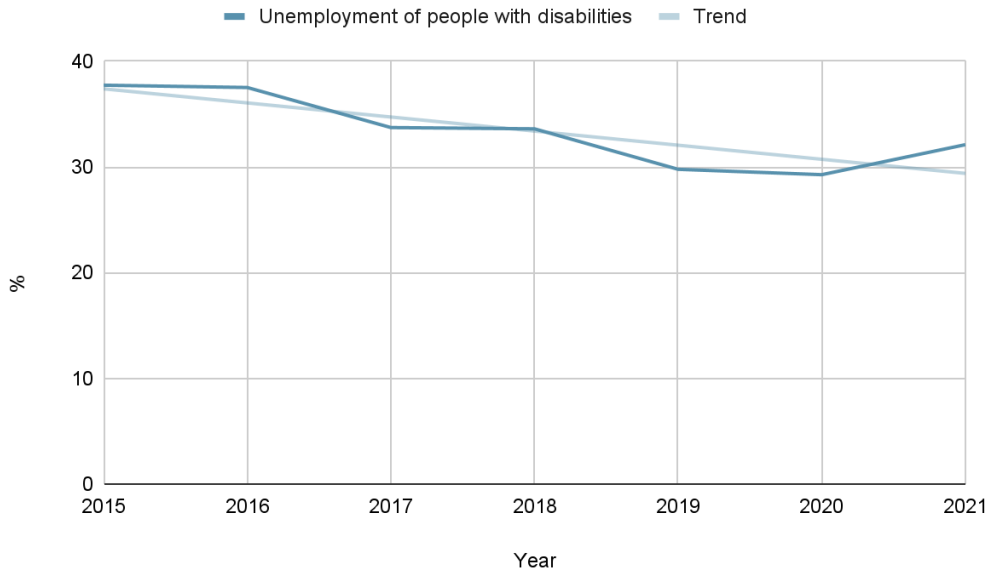
10-2-1 Unemployment of people with disabilities

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Regional Ministry of Employment, Business and Self-Employment

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2014-2021	Yes

Indicator evolution



Comments

The indicator monitors an issue highly relevant within the 2030 agenda and for a very vulnerable group, as it reflects the situation of social and labour exclusion of a part of the population with disabilities. Andalucía has shown a decreasing trend from 2015 to 2022, with a rise in 2020 due to the health and economic crisis caused by the COVID-19 pandemic. This rise is explained by the increase in general unemployment and the effect on people with disabilities, considered, depending on the type, as a group at risk, being more affected by the measures of confinement, restriction of mobility and closure of activities. With respect to the national average and the rest of the Autonomous Regions, it is above, however, the downward trend shows the efforts made by the Andalusian Regional Government to improve the situation of the indicator. The Regional Ministry of Social Inclusion, Youth, Families and Equality has generated and implemented plans during the period analysed and during the current period, that incorporate measures to improve the employability, training and access to the labour market of this group. The aim of some of these plans is to improve the socio-occupational integration of people with disabilities, such as support for sheltered employment, the promotion of self-employment and entrepreneurship or business awareness.

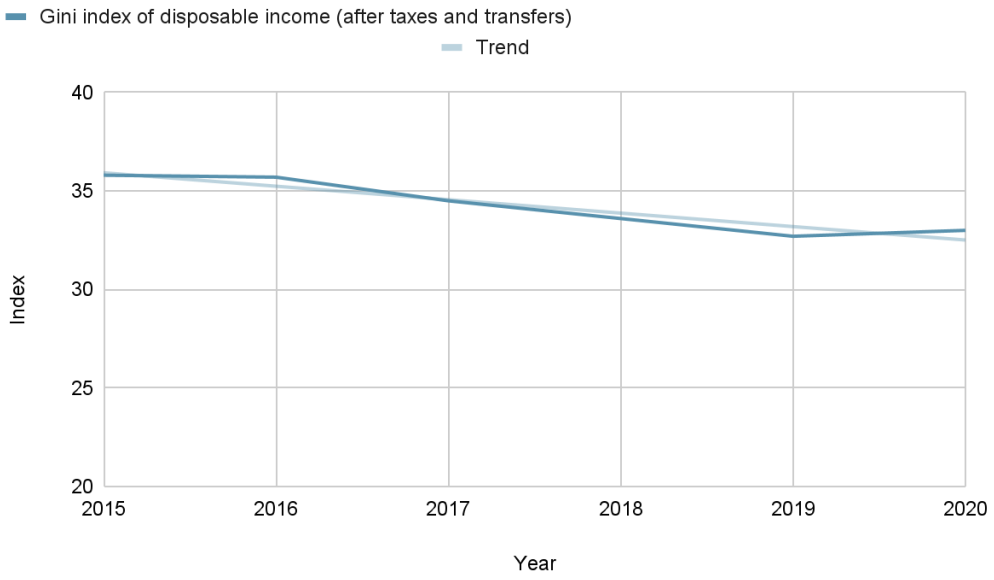
10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

10-4-1 Gini index of disposable income (after taxes and transfers)

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	Index	2015-2020	Yes

Indicator evolution



Comments

The Gini index in Andalucía has shown a decreasing trend from 2015 to 2020 due to the improvement of economic and social conditions after the financial crisis. Likewise, there is a slight rise in 2020 due to the negative impact of the COVID-19 pandemic, which caused a fall in GDP, an increase in unemployment and a reduction in household income. Andalucía has a low level of inequality in income distribution compared to the whole of Spain and the rest of the world, but a high level compared to the rest of Europe. The Regional Ministry is the department in charge of the autonomous competences in the area of social policies that directly affect the gini index, affecting numerous perspectives such as social services, senior citizens, dependent persons, citizen participation and volunteering, migration policies, youth, childhood, conciliation, family, equality and/or gender violence.

There is an alternative source for the Gini index, based on the *Life Conditions Survey*, with more recent data (updated to 2022) and comparable to other European countries (as the same suurvey is performed all across Europe), but this source was selected due to better accuracy, due to the use of income data.

4.1.11 Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

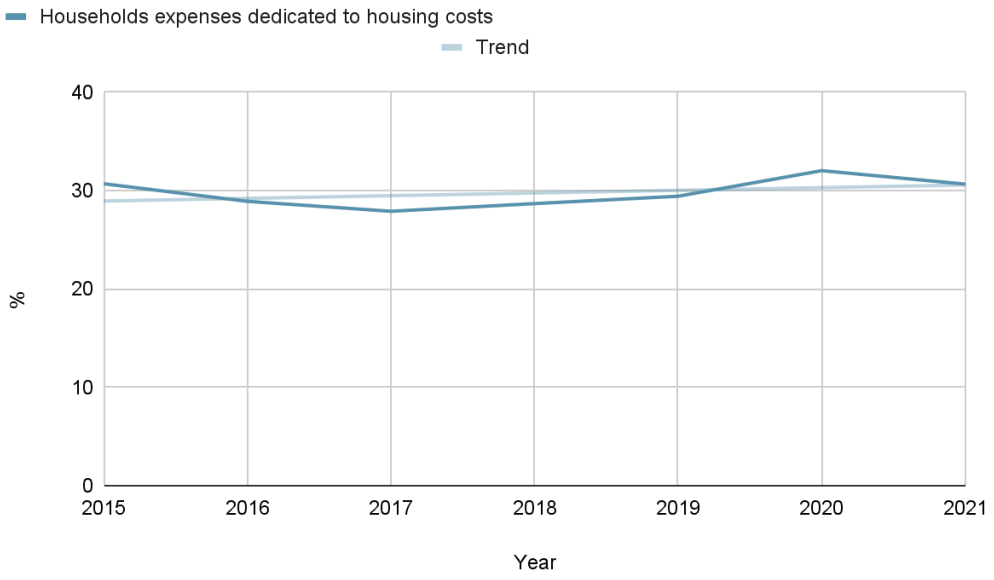
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

11-1-1 Households expenses dedicated to housing costs

Data Description

Available sources			
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2006-2021	Yes

Indicator evolution



Comments

The indicator, which reflects the economic effort involved for families in accessing and maintaining decent and adequate housing, has a constant trend, indicating that despite the improvement in economic and social conditions, there has been no progress in the facility and affordability of accessing and maintaining decent and adequate housing for families. The Regional Ministry of Public Works, Territorial Articulation and Housing is trying to improve this situation with measures such as the 'Plan Vive en Andalucía, for housing, rehabilitation and urban regeneration in Andalucía 2020-2030', which includes actions to promote access to rented or owned housing, rehabilitation and urban regeneration, the promotion of public housing stock, attention to people in situations of vulnerability or residential exclusion, and the promotion of sustainability and innovation in the housing sector.

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

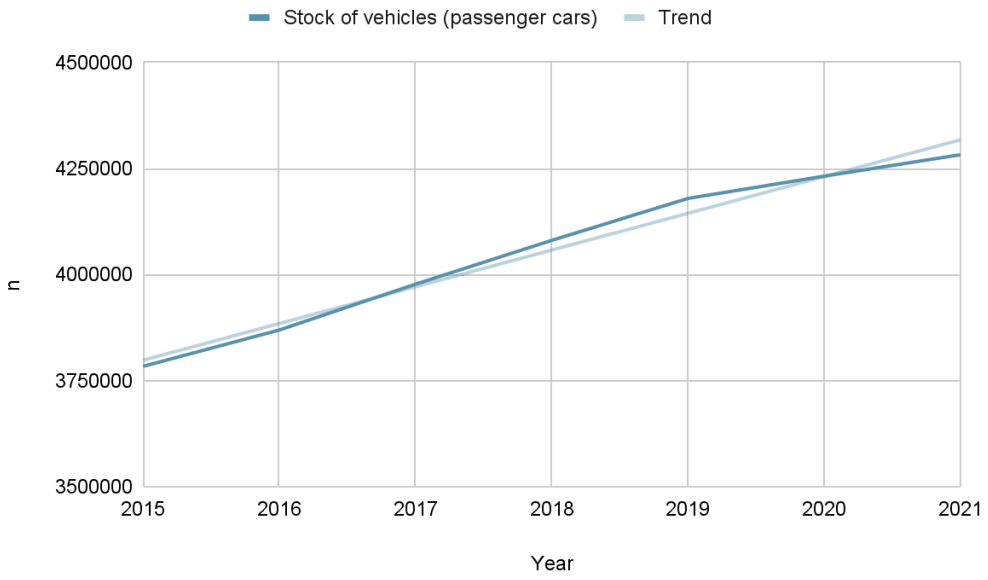
11-2-3 Stock of vehicles (passenger cars)

Data Description

Available sources	
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with other Administration levels

Selected source	Unit	Time coverage	Comparability (Spanish regions)
DGT	n	2006-2021	Yes

Indicator evolution



Comments

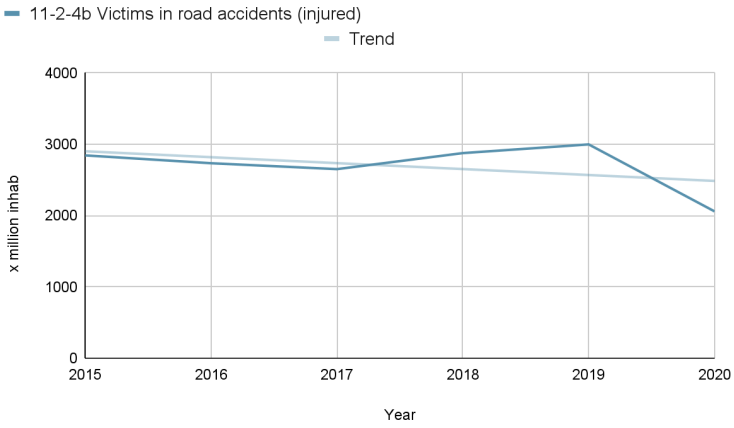
The trend in the number of vehicles is increasing, something which has been shown in Spain, Europe and most of the rest of the world. The implications of this fact for target 11.2 are negative. This includes air pollution, as vehicles are responsible for increased consumption of fossil fuels, which generates greenhouse gas emissions, damages ecosystems and increases energy dependency. In addition, it generates traffic congestion that causes time loss, stress, noise and road accidents, affecting regional economic health. Furthermore, the increase in vehicles requires more road infrastructure and parking, reducing the space available for sustainable activities such as green areas or the promotion of public transport.

11-2-4 Victims in road accidents

Data Description

Available sources			
	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**DGT**
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Eurostat	x million inhab	2006-2021	Yes

Indicator evolution



Comments

Taking into account only the value of fatal victims underestimates the importance of road safety on people's quality of life and has therefore been disaggregated into two sub-indicators in order to assess the relative importance of each dimension. The trend of the indicators is constant, with a decrease in 2020 mainly due to the reduction in mobility caused by the COVID-19 pandemic and the state of alarm, which limited road travel for several months. The implication of this fact is negative as there has been no progress and/or progress on this indicator, which represents an irreparable loss of human lives and a very high social and economic impact. The Regional Ministry of Public Works, Territorial Articulation and Housing of the Andalusian Government is responsible for improving road safety in the Autonomous Community of Andalucía. To this end, it is developing various strategies and actions aimed at reducing the number of fatalities in road accidents, as well as the environmental and social impact of traffic.

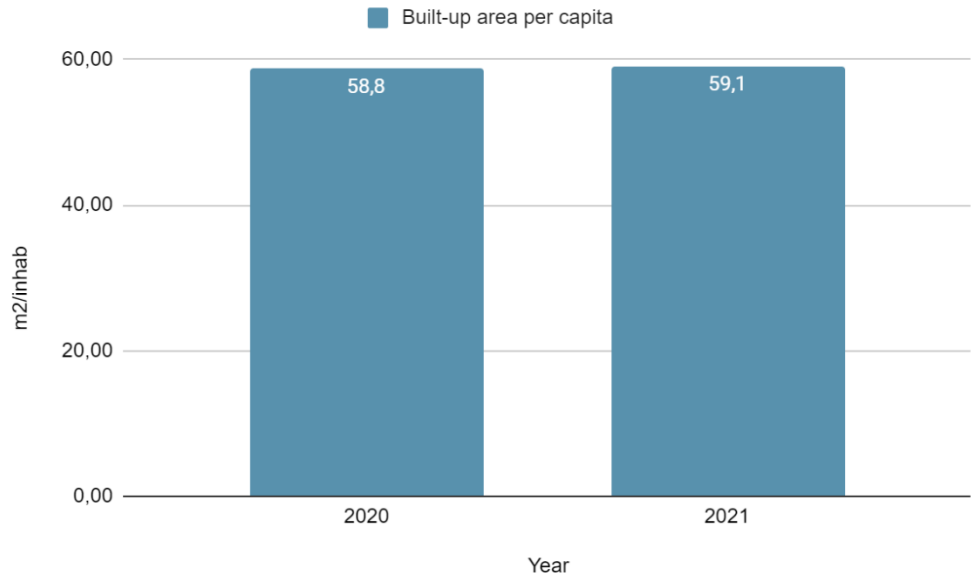
11.3 By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11-3-1 Difference between built-up area growth rate and population growth rate

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with other Administration levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)

Indicator evolution



Comments

The observable trend of the indicator is increasing in the last year analysed, slightly but indicating an increase in the degree of urban expansion and land consumption in a territory. The increasing trend of this indicator is negative from an environmental and social point of view, as it implies a greater occupation and fragmentation of the territory, a greater generation of waste and emissions, a greater dependence on private transport and less social cohesion. However, it also implies some benefits from an economic point of view, such as greater activity and employment in the real estate and tourism sector, greater tax revenue for public administrations and a greater supply and diversity of housing for citizens.

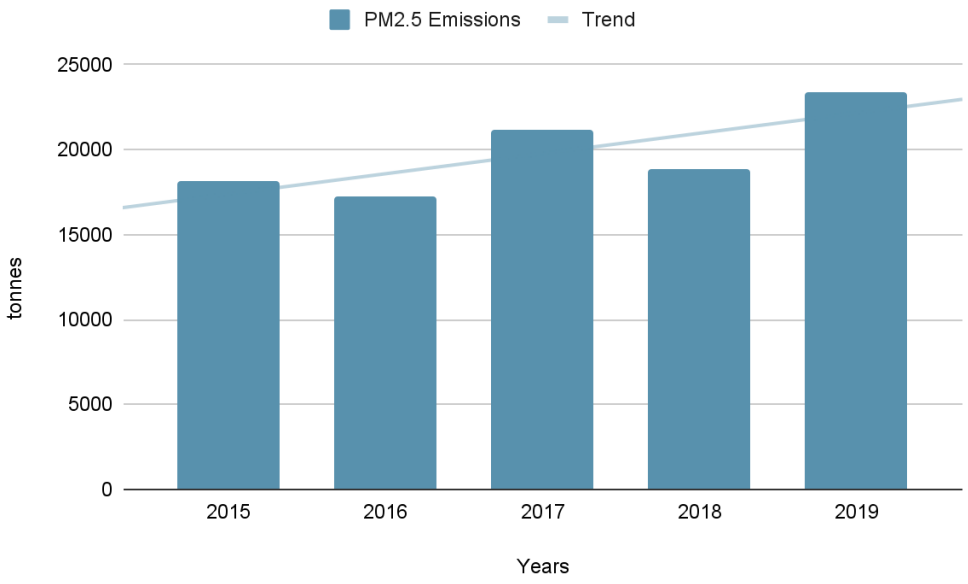
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11-6-1 PM2.5 Emissions

Data Description

Available sources				REDIAM
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
REDIAM	t	2003-2019	No	

Indicator evolution



Comments

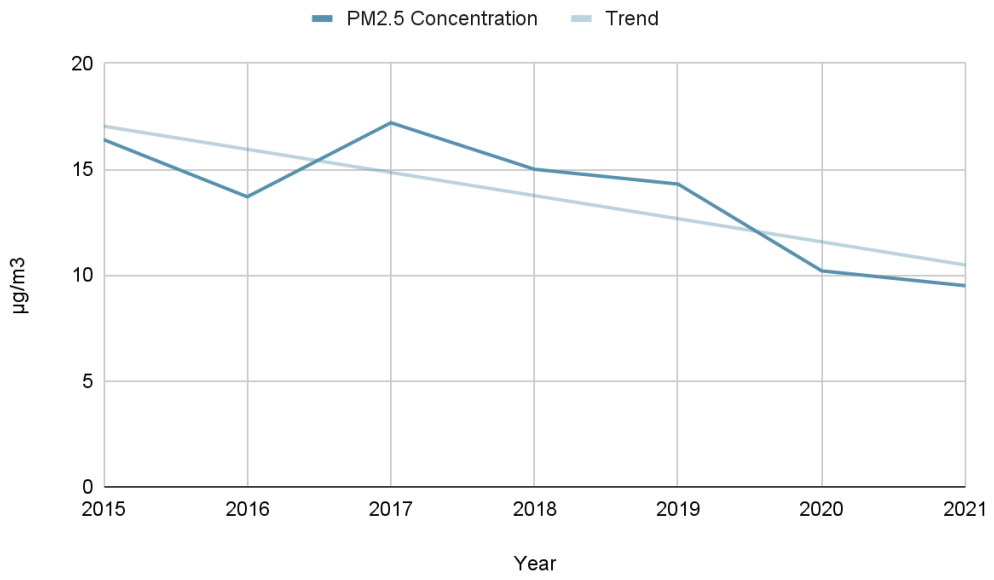
These particles are very harmful to human health and the environment, as they can penetrate the respiratory system and cause cardiovascular and respiratory diseases, as well as contributing to the formation of acid rain and climate change. The trend of the PM2.5 emissions indicator in Andalucía has been growing in the period from 2015 to 2019, showing a negative situation over time in the context of the objectives of the target to which it belongs. In Andalucía, the main strategies and actions that are being considered on the issue of air quality are: the Andalusian Action Plan for Climate and the Andalusian Air Quality Plan. Both aim to reduce air pollution and improve adaptation to climate change in the autonomous community.

11-6-1b PM2.5 Concentration

Data Description

Available sources			
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	µg/m3	2006-2021	Yes

Indicator evolution



Comments

This additional indicator is considered relevant to qualify the cities' pressure on PM2.5 emissions harmful to the population. As can be seen, the trend of this indicator, unlike the previous one, is negative, indicating that the monthly average, which during the whole period analysed was above the limit established by the WHO, manages in the last year analysed not to exceed the 10 micrograms per cubic metre established as such. The rest of the conclusions are similar to those analysed in the previous indicator, as although there is an improvement, there is still a concentration close to the limit, so there is room for improvement.

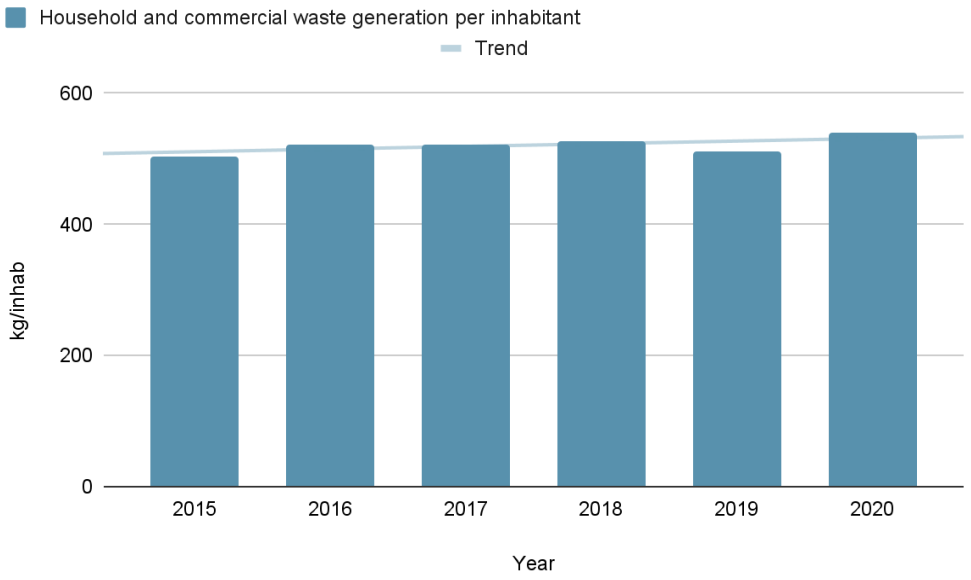
11-6-2 Household and commercial waste generation per inhabitant

Data Description

Available sources	
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration level

Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	kg/inhab	2010-2020	Yes

Indicator evolution



Comments

The trend of the indicator has been slightly increasing in the period from 2015 to 2020. The value of this indicator is a reflection of the environmental impact generated by human activity on the territory. A high value implies greater pressure on natural resources, higher greenhouse gas emissions and a greater need for waste management and treatment. It is therefore considered a negative value from the point of view of sustainability and the circular economy. However, the trend has not grown too much, and according to the Andalusian Integrated Waste Plan, one of the objectives for 2030 is to reduce to 10% the amount of municipal waste deposited in landfill and to reach a minimum of 65% of preparation for reuse and recycling. To this end, the separate collection of bio-waste, the promotion of preparation for reuse centres, the prevention of the use of single-use plastics and the raising of public awareness are proposed.

4.1.12 Goal 12. Ensure sustainable consumption and production patterns

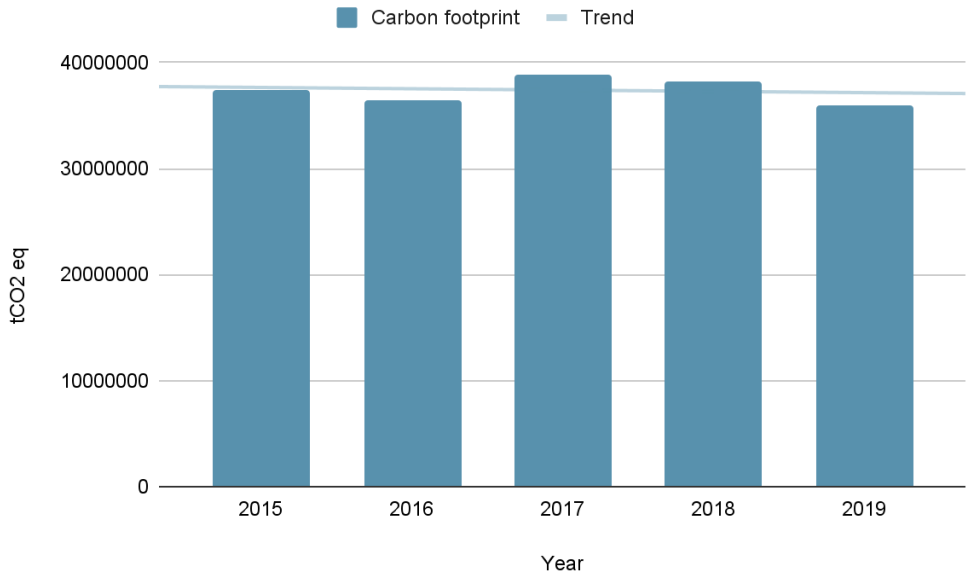
12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12-2-1 Carbon Footprint

Data Description

Available sources			
	eurostat / INE Instituto Nacional de Estadística / Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**Junta de Andalucía**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Regional Ministry of Sustainability, Environment and Blue Economy	kg/inhab	2005-2019	No

Indicator evolution



Comments

The carbon footprint of Andalusian municipalities can be consulted through the HCM application, which has been developed by the Regional Ministry of Sustainability, Environment and Blue Economy. This application calculates GHG emissions in the main emitting sectors: electricity consumption, road traffic, waste and wastewater management, agriculture, livestock, fossil fuel consumption in fixed installations and fluorinated gases. The value of this indicator is a reflection of the environmental impact of human activity on the climate. A high value implies a higher contribution to global warming and its negative consequences for the environment and human health. It is therefore considered a negative value from the point of view of sustainability and ecological transition. According to the Andalusian Integrated Waste Plan , one of the objectives for 2030 is to reduce GHG emissions. To this end, it is proposed to promote the use of renewable energies, improve energy efficiency, encourage sustainable mobility, promote the circular economy and integrated waste management, and increase the forest sink capacity.

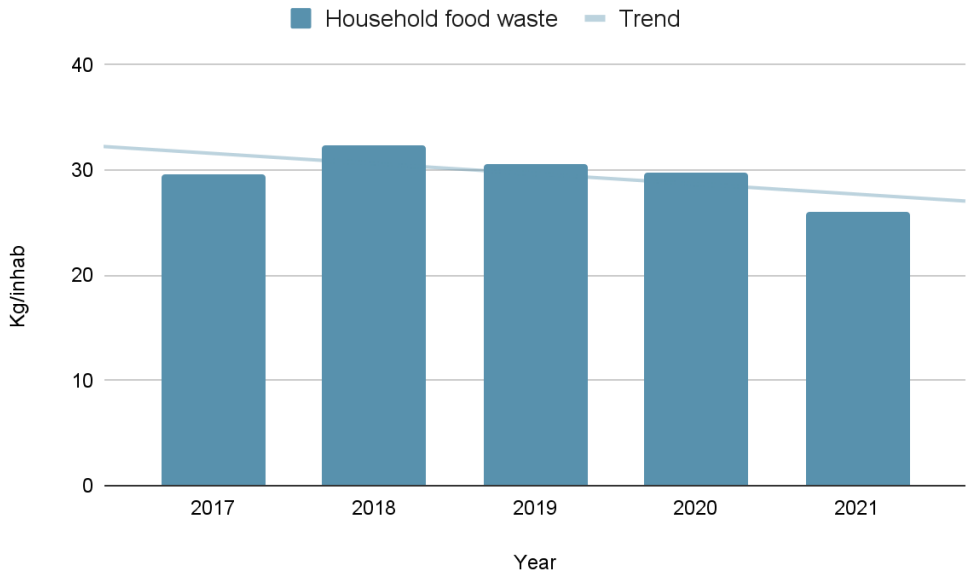
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

12-3-1 Food waste

Data Description

Available sources			
	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MAPA**
Competences	Regional Ministry of Health and Consumption Competence shared with other Administration level		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
MAPA	kg/inhab	2017-2021	Yes

Indicator evolution



Comments

This indicator only represents a part of the waste along the agri-food chain. The complementation of this indicator with food waste produced at other points in the chain (production, distribution, etc.) is necessary to assess the real dimension of food waste; however, due to the lack of data, the food waste in house is provided. In Andalucía, one of the objectives is to reduce food waste generation in the whole food chain from in the whole food chain from 2020 onwards: 50% reduction per capita at household level and retail consumption, and 20% in the and retail consumption, and 20% in the production and supply chains. production and supply chains. To this end, it intends to promote the prevention and reduction of food waste, encourage the use and donation of food, promote public education and awareness and improve the measurement and monitoring of food waste, as set out in its Andalusian Integrated Waste Plan for Andalucía. As can be seen, the trend is negative, but there is still a long way to go.

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment

12-4-1 Hazardous waste

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos · **REDIAM**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels

Selected source	Unit	Time coverage	Comparability (Spanish regions)
REDIAM	t	2011-2020	Yes

Indicator evolution

Comments

The trend of this indicator in Andalucía has been increasing since 2015. This may be due to several factors, such as the increase in industrial and agricultural activity, the development of the health and pharmaceutical sector, or the improvement in the identification and declaration of hazardous waste. According to the Andalusian Integrated Waste Plan, one of the objectives for 2030 is to reduce the amount of hazardous waste deposited in landfills and to achieve higher standards of preparation for reuse and recycling. To this end, it is proposed to promote the prevention and reduction of hazardous waste generation, to encourage material and energy recovery, to promote integrated and differentiated management of hazardous waste and to improve information and control.

4.1.13 Goal 13. Take urgent action to combat climate change and its impacts

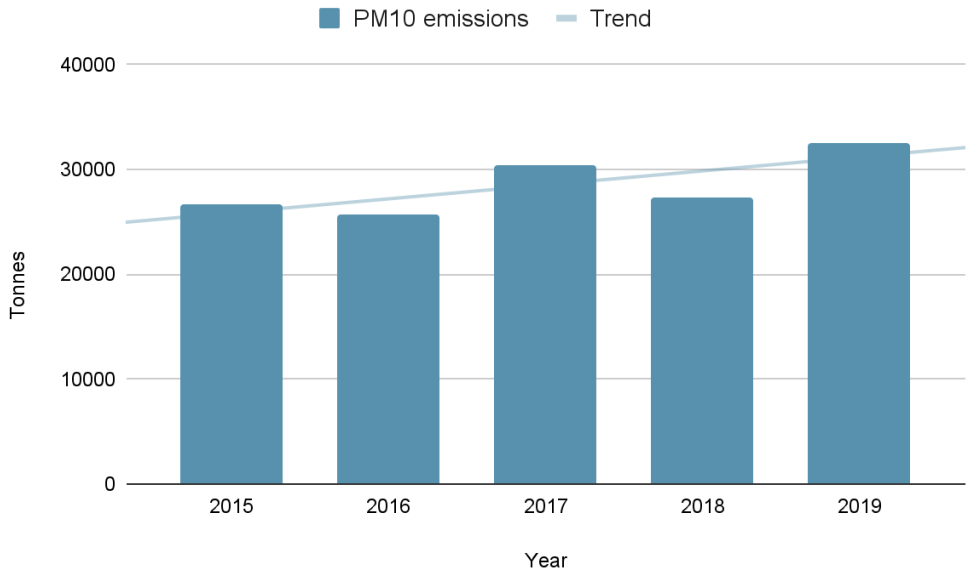
13.2 Integrate climate change measures into national policies, strategies and planning

13-2-1 PM10 Emissions

Data Description

Available sources			**REDIAM**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration level		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
REDIAM	t	2003-2019	No

Indicator evolution



Comments

Findings in 11-6-1 are also applicable

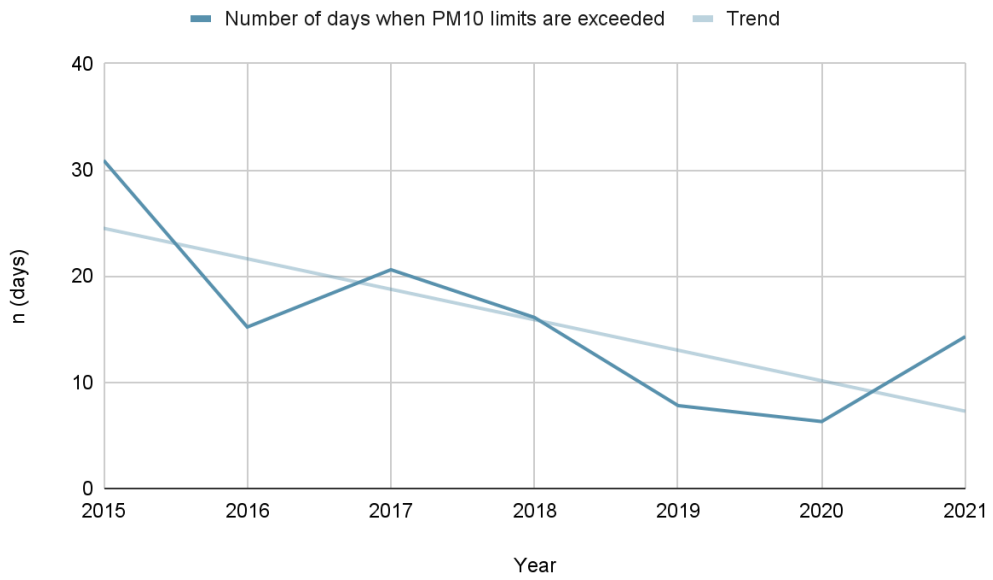
13-2-1b Number of days when PM10 limits are exceeded

Data Description

Available sources	
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels

Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	µg/m3	2006-2021	Yes

Indicator evolution



Comments

This additional indicator is considered relevant to qualify the cities' pressure on PM10 emissions harmful to the population.

Findings in 11-6-1b are also applicable

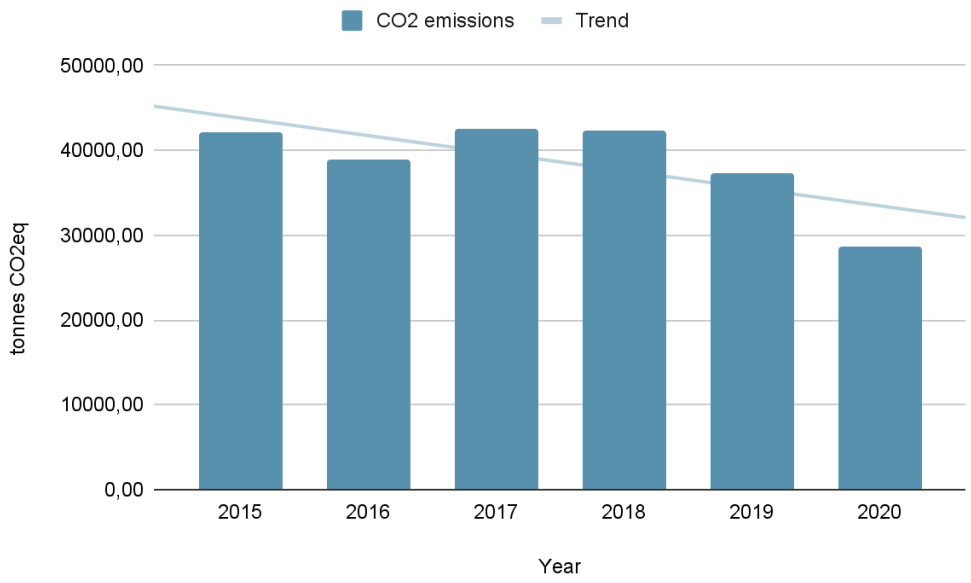
13-2-2 CO2 Emissions

Data Description

Available sources				
	eurostat	INE Instituto Nacional de Estadística	Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos	**REDIAM**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration level			

Selected source	Unit	Time coverage	Comparability (Spanish regions)
REDIAM	t	2003-2019	No

Indicator evolution



Comments

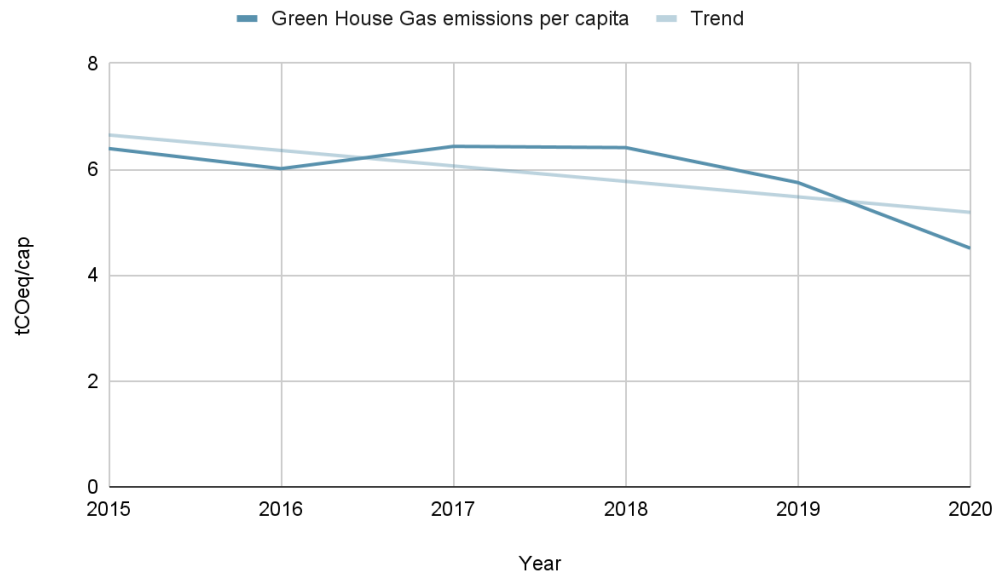
Although there are slight increases within the period analysed, there is a decreasing trend in CO2 emissions in Andalucía, a positive fact from an environmental point of view, as it contributes to mitigating climate change and to meeting the objectives of the Paris Agreement, which sets the goal of limiting the increase in global average temperature to less than 2°C with respect to pre-industrial levels. It is necessary to count on the support and participation of all social and institutional agents involved in the fight against climate change, in order to promote the ecological transition and the decarbonisation of the Andalusian economy, encouraging the development of green and sustainable sectors that generate employment and prosperity. With this goal in mind, the Regional Ministry of Sustainability, Environment and Blue Economy has drawn up the Andalusian Action Plan for Climate, which aims to define the necessary measures to reduce greenhouse gas emissions and adapt to the impacts of climate change in Andalucía, as well as to promote social participation and a just transition.

13-2-3 GreenHouse Gas Emissions

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
REDIAM	tCO2eq/cap	2010-2020	Yes

Indicator evolution



Comments

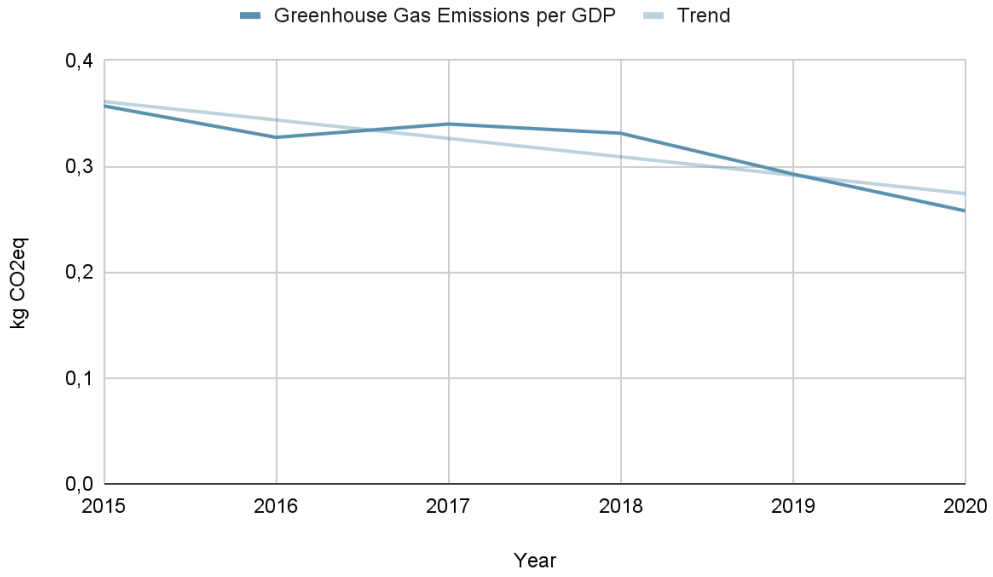
Findings in 13-2-2 are also applicable

13-2-3b GreenHouse Gas Emissions per unit of GDP

Data Description

Available sources			
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration level		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	Kg CO2eq	2010-2020	Yes

Indicator evolution



Comments

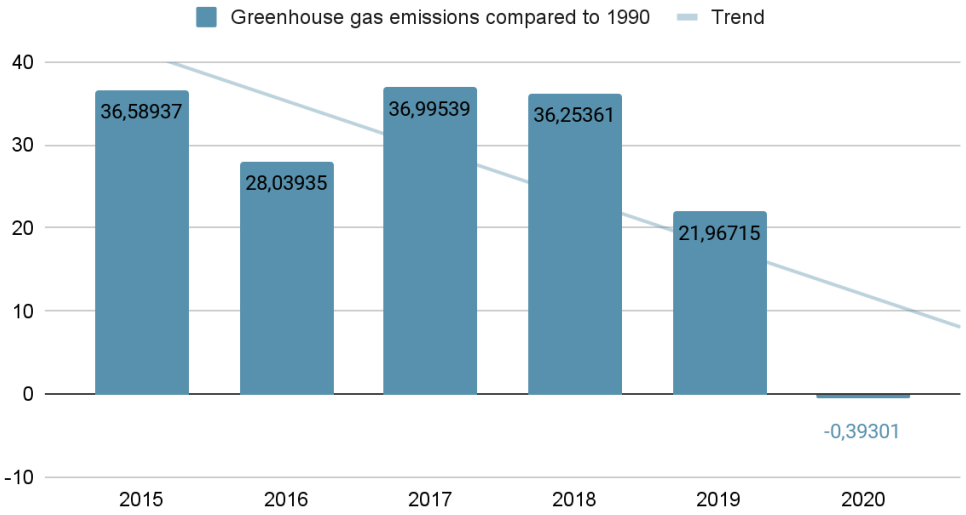
Findings in 13-2-2 are also applicable

13-2-3c Greenhouse gas emissions compared to 1990

Data Description

Available sources			
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2010-2020	Yes

Indicator evolution



Comments

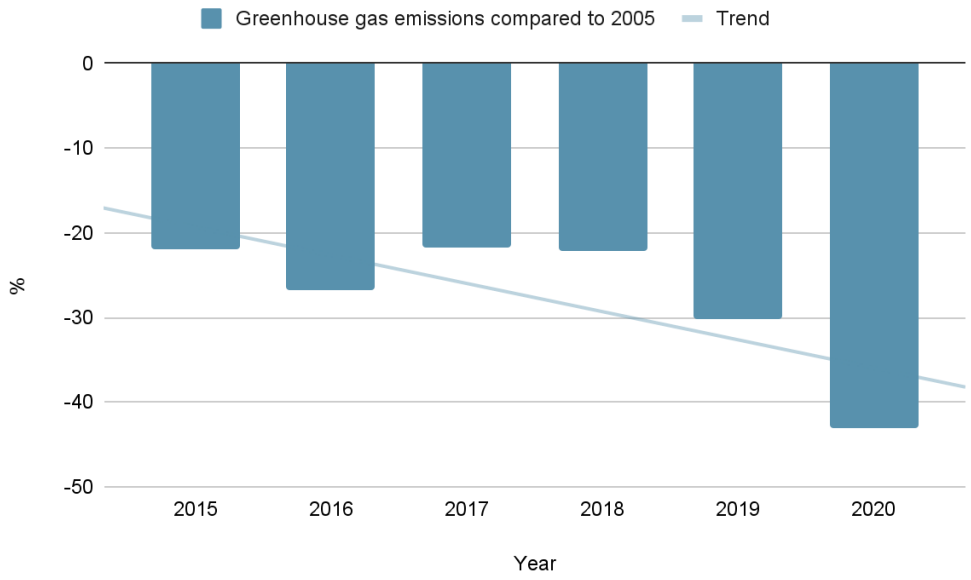
Findings in 13-2-2 are also applicable

13-2-3d Greenhouse gas emissions compared to 2005

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration level		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2010-2020	Yes

Indicator evolution



Comments

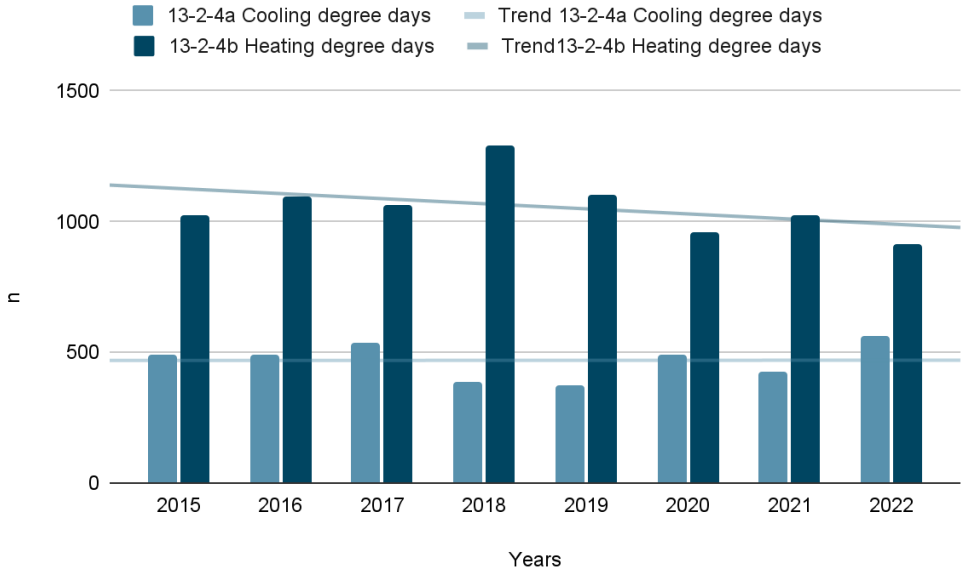
Findings in 13-2-2 are also applicable

13-2-4 Heating and Cooling Degree Days

Data Description

Available sources			
	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**Agri4cast**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Agri4cast	n	1979-2022	Yes

Indicator evolution



Comments

The cooling and heating degree days (CDD and HDD) indicators are used to measure the need for energy to cool or heat buildings according to air temperature. In Andalucía, CDD has increased and HDD has decreased between 2015 and 2022, which means that it is warmer and cooler. This is due to climate change, which is causing global warming and a higher frequency and intensity of heat waves and frosts; urbanisation, which generates an urban heat island effect due to the concentration of buildings, asphalt, vehicles and human activities; and the energy efficiency of buildings, which influences heat gain or loss and energy consumption.

4.1.14 Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

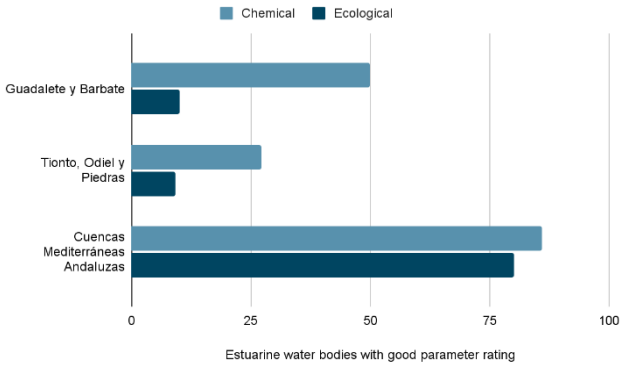
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

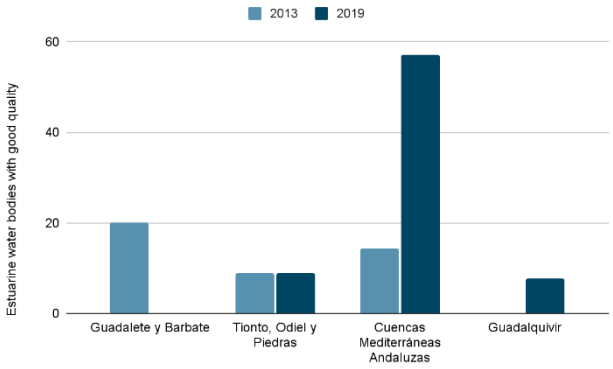
14-1-1 Estuarine with high/very high water quality

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos			**River Basin Agencies**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Regional Ministry of Agriculture, Fisheries, Water and Rural Development			
Selected source		Unit	Time coverage	Comparability (Spanish regions)
River Basin Agencies		%	2013-2019	Yes

Indicator evolution





14-1-1 Estuarine with high/very high water quality

Comments

As mentioned above, the region's historical intensive agricultural activity has exerted a very negative pressure on water bodies, and despite the measures implemented, recovery is slow. As can be seen in the graphs, in the case of estuarine waters, fragile ecosystems, ecological quality is the limiting factor.

Water quality measures and objectives are set out in the river basin management plans:

Demarcación Hidrográfica Del Guadalete-Barbate: Plan Hidrológico 2021-27

Demarcación Hidrográfica Del Tinto, Odiel y Piedras: Plan Hidrológico 2021-27

Demarcación Hidrográfica de las Cuencas Mediterráneas Andaluzas: Plan Hidrológico 2021-27

Plan Hidrológico 2022-2027 de la DH Guadalquivir - Memoria

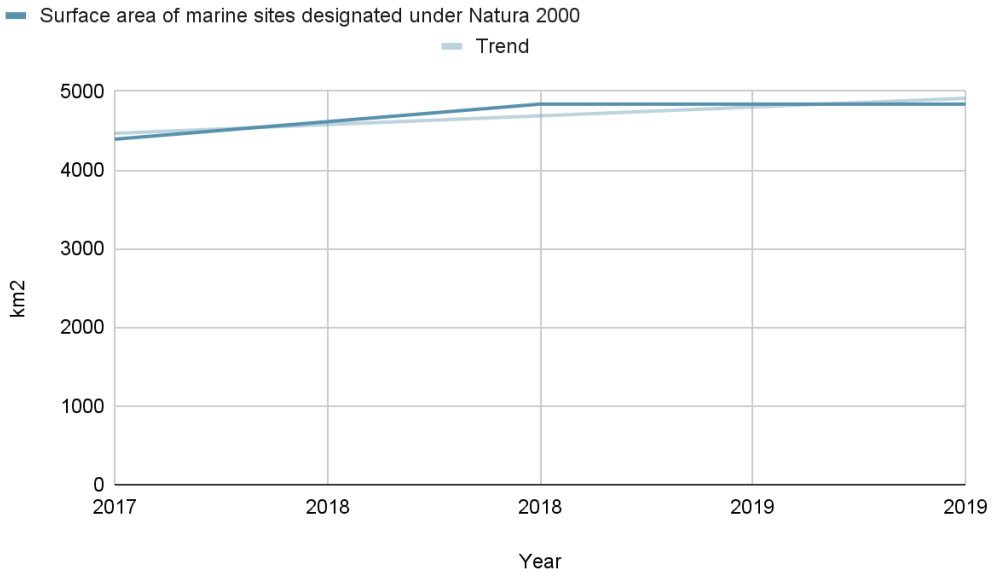
14.5 By 2020, conserve at least 10 percent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

14-5-1 Protected coastal area as a percentage of total coastal area

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	Km2	2011-2019	Yes

Indicator evolution



Comments

The area of sites protected under the Natura 2000 network has remained stable since 2017. It should be noted that this indicator does not include other protection figures at state and regional level, as no reliable time series with this data has been found, however, in 2014 it was estimated that the surface area of marine areas protected by all figures in force at the time corresponded to approximately 10,000 km2[5].

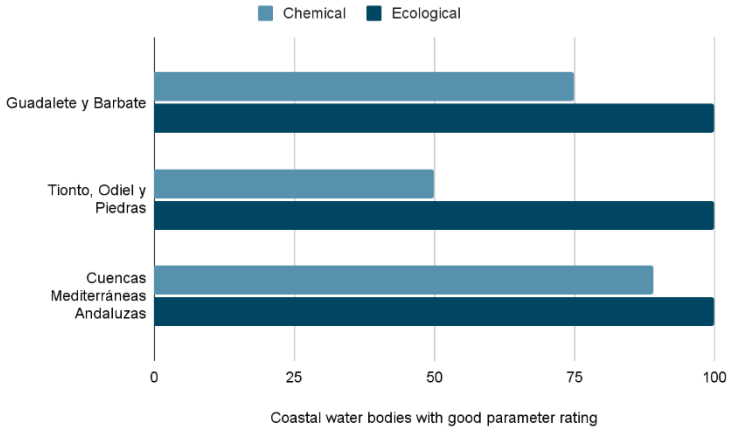
[5] Aranda, Y., Otero, M. (2014) '*Estudio de las figuras de protección de áreas marinas protegidas de Andalucía con fanerógamas marinas y propuestas de mejora para su gestión*' (Study of the protection figures of marine protected areas in Andalucía with marine phanerogams and proposals for improvement for their management). Malaga, Spain: IUCN. 76 pages

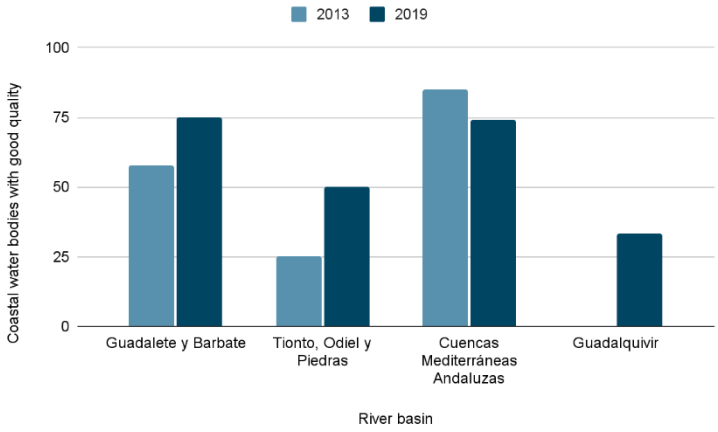
14-5-2 Coastal areas with good/very good water quality

Data Description

Available sources			
Competences	Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2015-2020	Yes

Indicator evolution





Comments

In the case of coastal waters, chemical quality is the determining value for overall quality, since 100% of coastal waters in all basins completely within Andalucía are considered to be of good ecological quality.

The Tinto, Odiel and Piedras basin is the basin with the worst coastal water quality, although the 2013-2019 evolution is notably positive.

Water quality measures and objectives are set out in the river basin management plans:

Demarcación Hidrográfica Del Guadalete-Barbate: Plan Hidrológico 2021-27

Demarcación Hidrográfica Del Tinto, Odiel y Piedras: Plan Hidrológico 2021-27

Demarcación Hidrográfica de las Cuencas Mediterráneas Andaluzas: Plan Hidrológico 2021-27

Plan Hidrológico 2022-2027 de la DH Guadalquivir - Memoria

4.1.15 Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

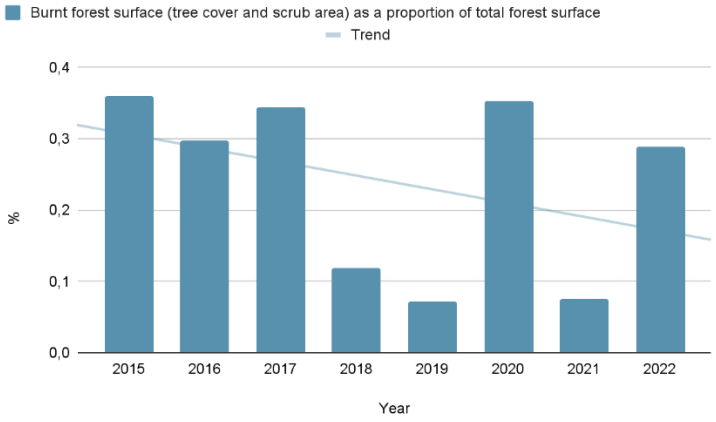
15-1-1 Land abandonment

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos · **LUISA**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Regional Ministry of Agriculture, Fisheries, Water and Rural Development

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	Km2	2011-2019	Yes

Indicator evolution



Comments

After consultation with experts in the agricultural sector and rural development in Andalucía, the indicator was considered irrelevant since the issue of agricultural land in Andalucía is more a result of the monopolisation of production than of land abandonment. 94% of Andalusian farms are less than 50 hectares in size, but they do not even cover a quarter of the agricultural area. However, farms of more than 1,000 hectares account for 43% of the land, although they represent only 0.6% of all existing farms (Land ownership)

The indicator has been replaced by a proxy: burned forest area with respect to the total forest area (wooded land and scrubland). Starting in 2022, the Infoca Plan statistics begin to include burned non-forest land areas, especially interesting to include agricultural areas in the future.

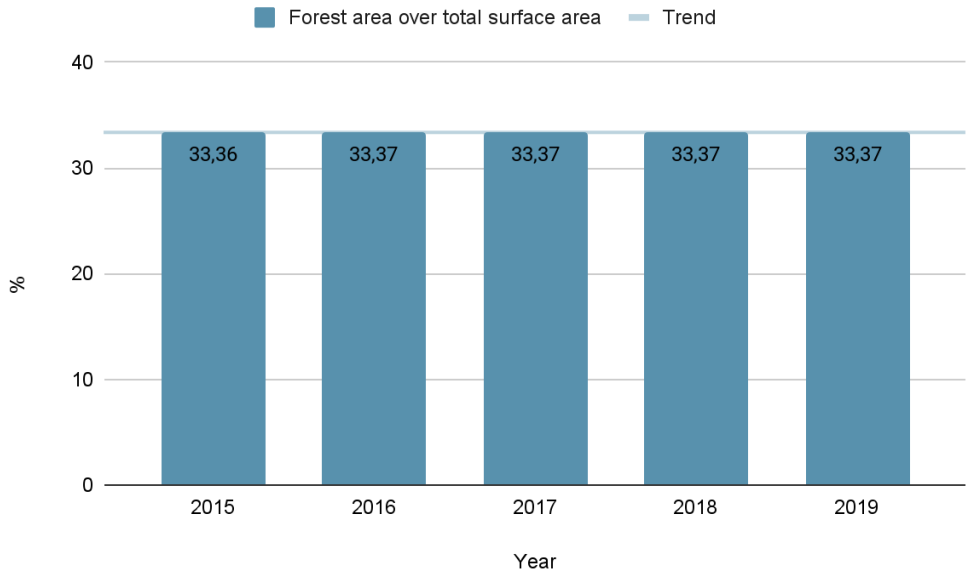
Fire statistics are very dependent on the weather patterns observed each year, and are thus a good indicator for extreme heat waves or droughts.

15-1-2 Forest area over total surface area

Data Description

Available sources			
Competences	Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2010-2019	Yes

Indicator evolution



Comments

There has been no loss of forest area in Andalucía in recent years, as will be shown later, in additional indicator 15-2-1 there are instruments for sustainable forest management that help to maintain both public and private forest areas in the region.

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

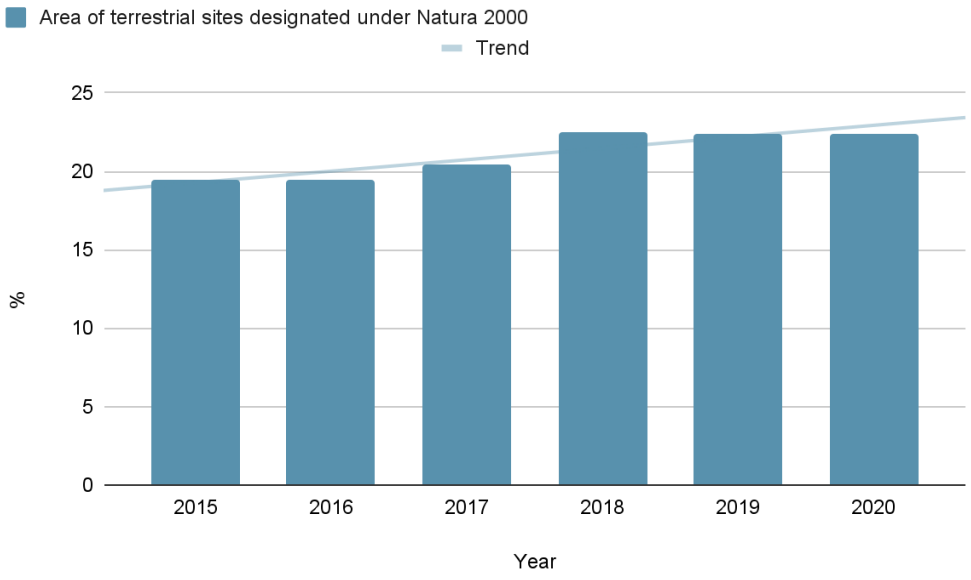
15-5-1 Terrestrial protected areas as a percentage of total area

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Sustainability, Environment and Blue Economy

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2020	No

Indicator evolution



Comments

The proportion of the natural area protected under the Natura 2000 network has increased slightly in recent years. Again, it should be noted that there are other instruments for the protection of natural areas at state and regional level that increase the proportion of protected natural surface area, but for which no reliable time series data have been found.

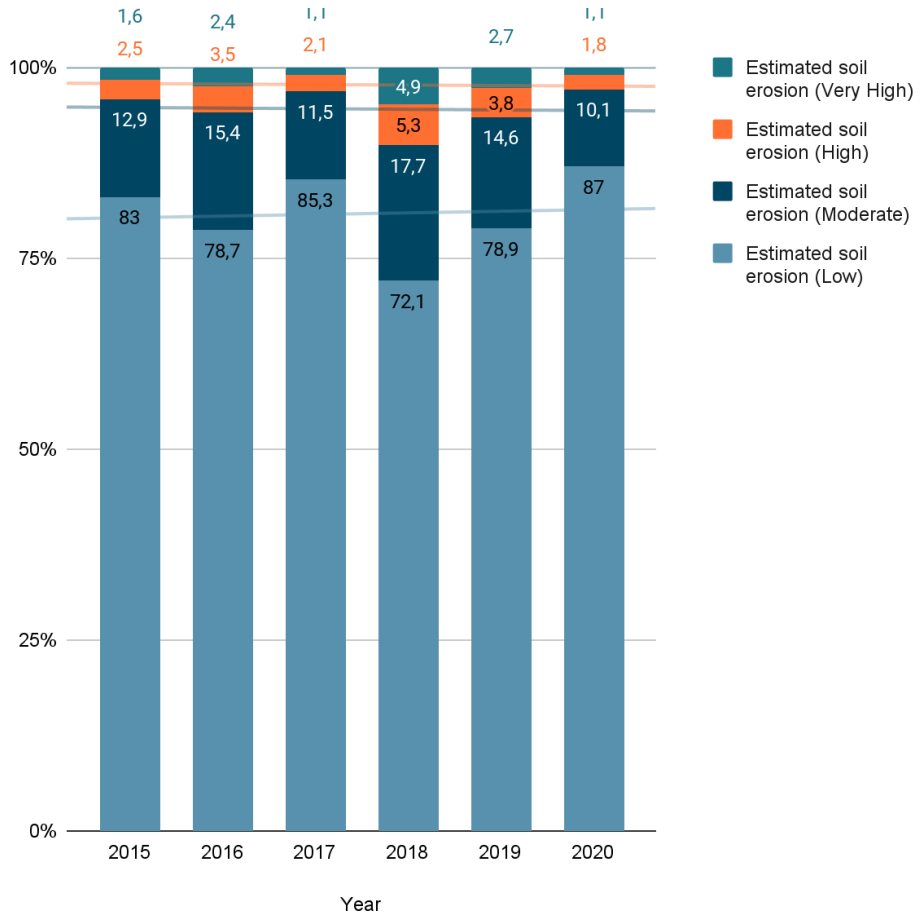
15-5-2 Estimated soil erosion

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Regional Ministry of Agriculture, Fisheries, Water and Rural Development

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2020	No

Indicator evolution



Comments

Although the area with high and very high soil losses due to erosion represents a small percentage of the total area of the region, it is a major problem in Andalucía.

The predominance of agricultural land and greenhouses in the territory means that the problems derived from this erosion are increased, causing nutrient pollution in water bodies as well as large floods in greenhouse areas, where the permeability of the soil is highly compromised, resulting in large economic losses during periods of DANA.

The measures planned and carried out to combat erosion and desertification are included in the Andalusian Forestry Plan.

4.1.16 Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

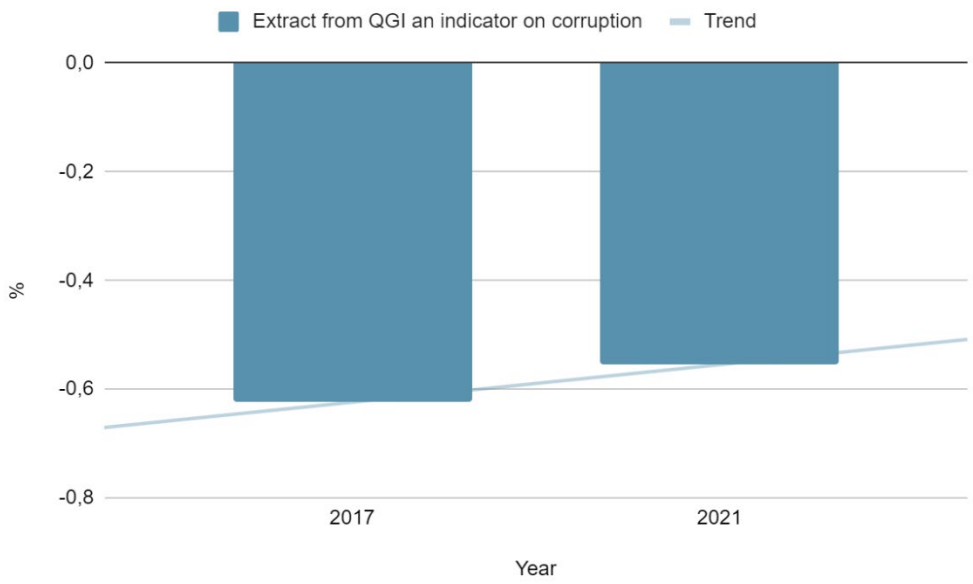
16.5 Substantially reduce corruption and bribery in all their form

16-5-1 Extract from QGI an indicator on corruption

Data Description

Available sources			
	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos	**University of Gothenburg**	
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Justice, Local Administration and Civil Service		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
University of Gotheburg	Index	2010-2020	Yes

Indicator evolution



Comments

The available data series is too short to evaluate trends.

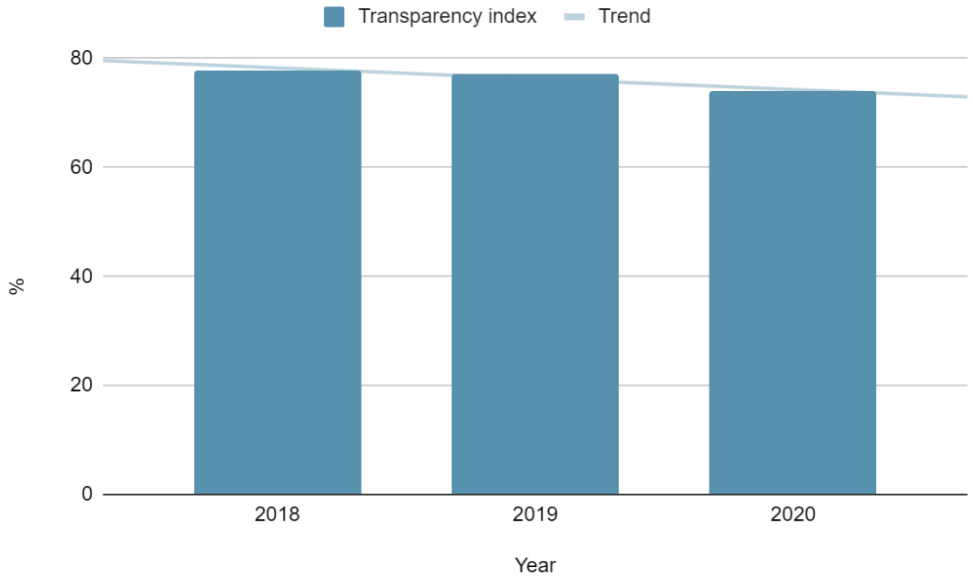
16.6 Develop effective, accountable and transparent institutions at all levels

16-6-1 Transparency index

Data Description

Available sources			**DYNTRA**
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Justice, Local Administration and Civil Service		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
DYNTRA	Index	2010-2020	Yes

Indicator evolution



Comments

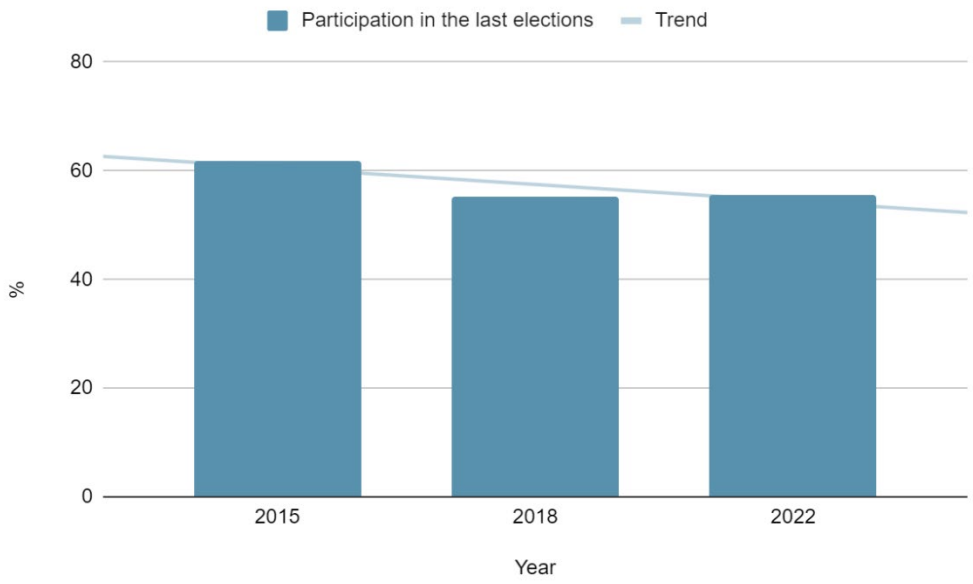
The available data series is too short to evaluate trends.

16-6-2 Participation in the last elections

Data Description

Available sources			Junta de Andalucía
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Junta de Andalucía	%	1982-2022	No

Indicator evolution



Comments

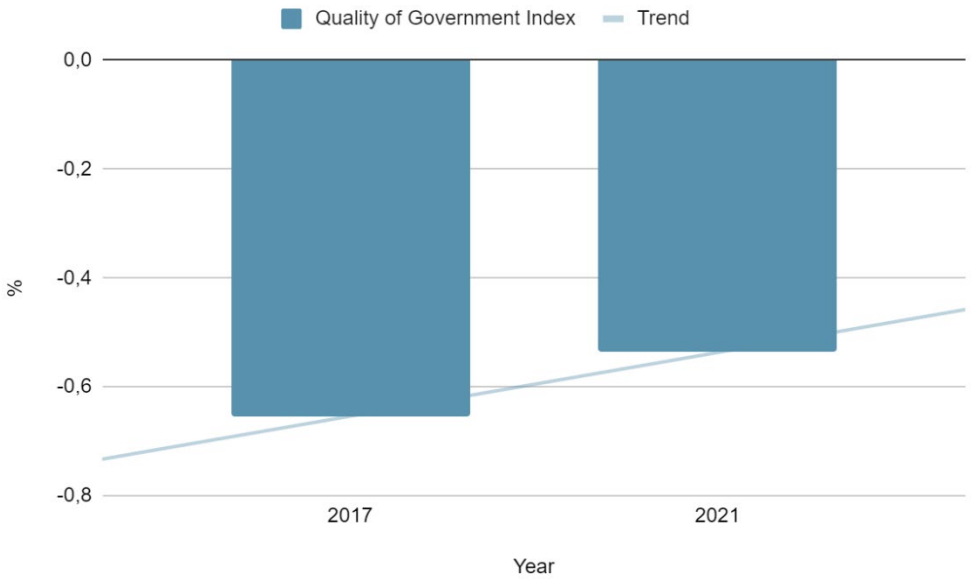
The available data series is too short to evaluate trends.

16-6-3 Quality of Government Index

Data Description

Available sources			**University of Gothenburg**
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
University of Gotheburg	Index	2010-2021	Yes

Indicator evolution



Comments

The available data series is too short to evaluate trends.

4.1.17 Goal 17. Revitalize the global partnership for sustainable development

17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

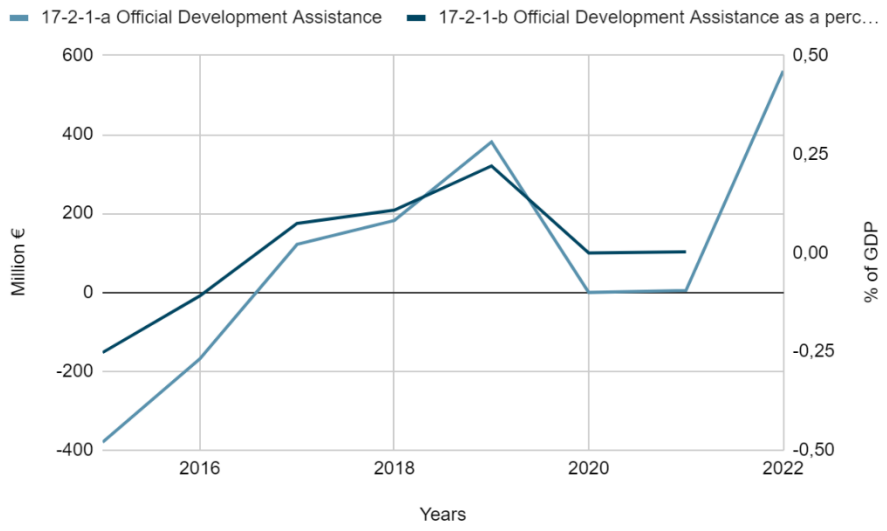
17-2-1 Official Development Assistance as a percentage of GDP

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Andalusian International Cooperation Agency

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	million € and %	2010-2021	No

Indicator evolution



Comments

The trend of this indicator is very volatile, as it is a metric closely related to the international, political and socio-economic context. The current growing trend of ODA in Andalucía is positive from an ethical and political point of view, as it shows the support and solidarity of Andalusian society with the most disadvantaged and vulnerable countries, especially in a context of global crisis such as the current one. The last recorded year, 2022, is close to the target of 0.7% of GDP set by the United Nations. This could be due to a greater awareness and commitment of local authorities to international cooperation and solidarity, which has resulted in a progressive increase in their budgets earmarked for this purpose and/or the greater capacity of Andalusian NGDOs to manage and implement cooperation projects. This may have been influenced by Andalucía's Third Andalusian Development Cooperation Plan (2020-2023), which aims to guide the actions of Andalusian cooperation in line with the Sustainable Development Goals and the 2030 Agenda.

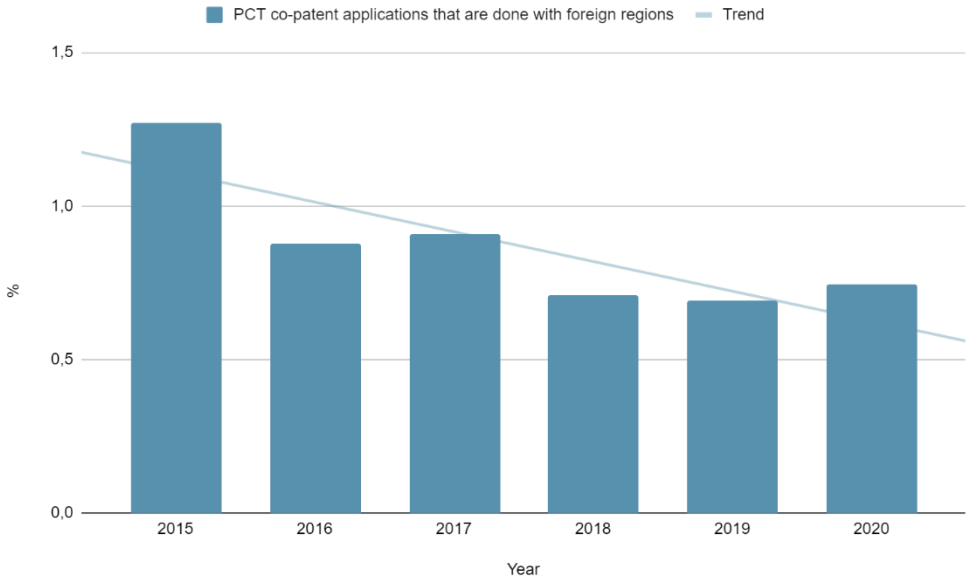
17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

17-6-1 PCT co-patent applications that are done with foreign regions

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Andalusian International Cooperation Agency		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2010-2020	No

Indicator evolution



Comments

The trend of the indicator is decreasing, although in the last few years, excluding the 2015 trend, it remains stable. The decrease in joint PCT patent applications with foreign regions in Andalucía has negative economic and social implications, as it reduces the capacity to generate and transfer knowledge, as well as competitiveness and positioning in international markets. However, it also poses technical and strategic challenges, such as the need to boost innovation and investment in R&D&I, improve collaboration with other regions and establish a clear industrial property strategy. Furthermore, it is necessary to raise awareness and train Andalusian agents on the advantages and requirements of the PCT system and the resources available for its processing.

17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

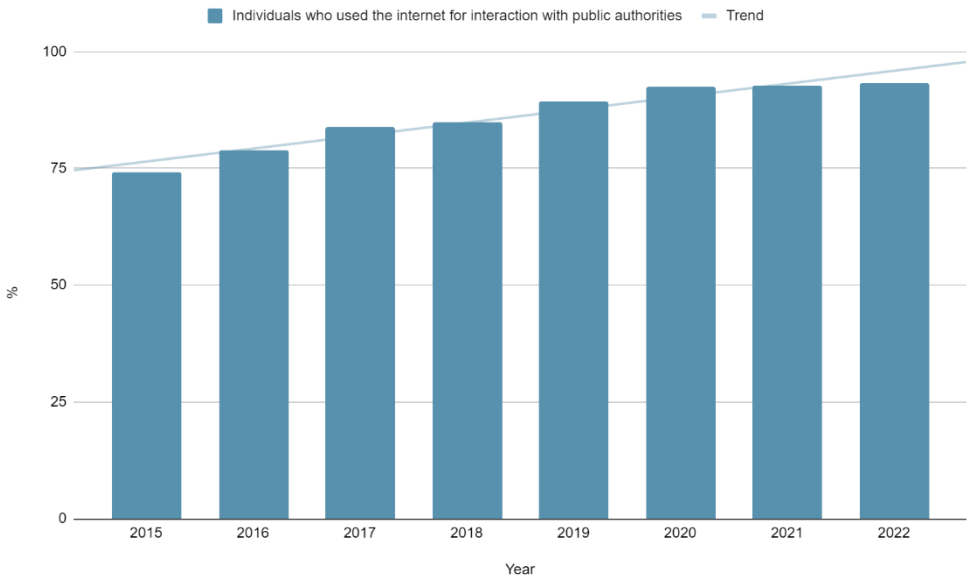
17-8-1 Individuals who used the internet for interaction with public authorities

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Justice, Local Administration and Civil Service Competence shared with other Administration level

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2022	No

Indicator evolution



Comments

The greater offer and quality of eGovernment services by Andalusian public authorities have improved their accessibility, usability and security, as well as their adaptation to different devices and channels. This has implied a positive trend for this indicator, which, among other factors, has increased due to the greater demand and confidence of citizens and companies in e-administration services, especially during the COVID-19 pandemic, which has boosted the digitalization of many procedures and formalities that were previously carried out in person. In order to increase the awareness and training of citizens and companies on the advantages and requirements of electronic administration services, Andalucía developed the Andalucía and created the 'Sede Electrónica General', which is the electronic access point to the services and procedures offered by the Andalusian public authorities through the Internet, guaranteeing their accessibility, security and interoperability.

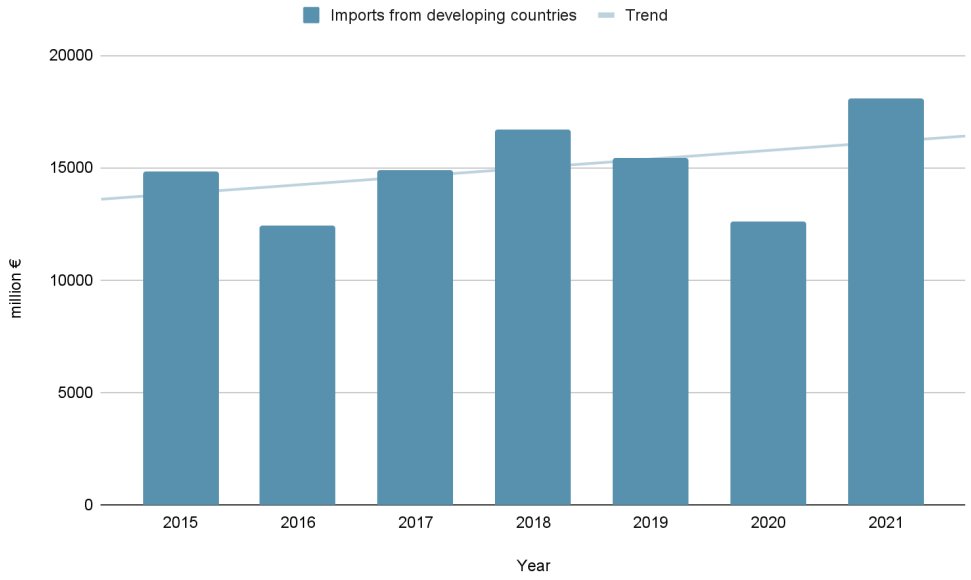
17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

17-12-1 Imports from developing countries

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Economy, Finance and European Funds		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	million €	2010-2021	No

Indicator evolution



Comments

The growing trend of this indicator is a positive implication from an economic and social point of view, as it implies a greater integration and commercial diversification of Andalucía in the global market. These imports reflect the degree of openness and trade diversification of Andalucía, as well as its contribution to the growth and sustainable development of the most disadvantaged countries.

5. ADDITIONAL INDICATOR SET

As stated in step 1 of the methodology, a comprehensive initial list of candidate indicators based on the identified gaps in SDG targets was created. This was a quite long list of indicators selected from other indicator frameworks related to the 2030 Agenda, such as the official UN indicators, the Andalusian SDG indicators system, the New Urban Agenda or others. A summary of this initial long list is shown in table 6.

Table 6. Target coverage in candidate indicators long list

SDG	Number of candidate indicators	Number of additional SDG targets	Additional SDG targets covered by candidates
1	4	4	1.3, 1.4, 1.a, 1.b
2	8	5	2.1, 2.5, 2.a, 2.b, 2.c
3	15	7	3.4, 3.5, 3.7, 3.9, 3.a, 3.b, 3.d
4	8	5	4.4, 4.7, 4.a, 4.b, 4.c
5	7	5	5.3, 5.6, 5.a, 5.b, 5.c
6	6	6	6.2, 6.4, 6.5, 6.6, 6.a, 6.b
7	6	2	7.a, 7.b
8	12	4	8.4, 8.9, 8.a, 8.b
9	11	5	9.3, 9.4, 9.a, 9.b, 9.c
10	10	8	10.1, 10.3, 10.5, 10.6, 10.7, 10,a, 10.b, 10.c
11	13	4	11.4, 11.7, 11.a, 11.b
12	12	7	12.5, 12.6, 12.7, 12.8, 12.a, 12.b, 12.c
13	3	3	13.3, 13.a, 13.b
14	10	8	14,2, 14.3, 14.4, 14.6, 14.7, 14.a, 14.b, 14.c

SDG	Number of candidate indicators	Number of additional SDG targets	Additional SDG targets covered by candidates
15	11	9	15.2, 15.3, 15.6, 15.7, 15.8, 15.9, 15.a, 15.b, 15.c
16	18	10	16.1, 16.2, 16.3, 16.4, 16.7, 16.8, 16.9, 16.10, 16.a, 16.b
17	16	12	17.1, 17.3, 17.5, 17.7, 17.9, 17.10, 17.13, 17.14, 17.15, 17.16. 17.17, 17.18
TOTAL	**170**	**104**	

Source: author's elaboration

After the iterative filtering of the list according to data availability, fit with Andalusian policies and feedback from the collaborating Entities, the final additional indicator set was narrowed to the one shown in Table 7.

Table 7. Additional indicators target coverage

SDG	Number of additional indicators	Number of additional SDG targets	Additional SDG targets covered by candidates
1	2	2	1.3, 1.4
2	3	2	2.5, 2.c
3	5	3	3.4, 3.7, 3.a
4	0	0	
5	0	0	
6	0	0	
7	3	0	
8	2	2	8.9, 8.10
9	4	4	9.3, 9.4, 9.b, 9.c

SDG	Number of additional indicators	Number of additional SDG targets	Additional SDG targets covered by candidates
10	2	2	10.1, 10.3
11	2	1	11.7
12	3	1	12.5
13	4	0	
14	2	1	14.4
15	1	1	15.2
16	4	4	16.1, 16.2, 16.3, 16.4
17	2	2	17.1, 17.3
TOTAL	39	25	

Source: author's elaboration

The suggested indicators help create a more complete dataset, covering up to 81 targets (47,9% of all targets), and reaching coverage levels comparable to current functional systems. It is worth noting that SDG 9, 10 and 16 are among the SDGs with more new indicators, reinforcing some of the least represented in the original indicator set.

5.1 Goal 1. End poverty in all its forms everywhere

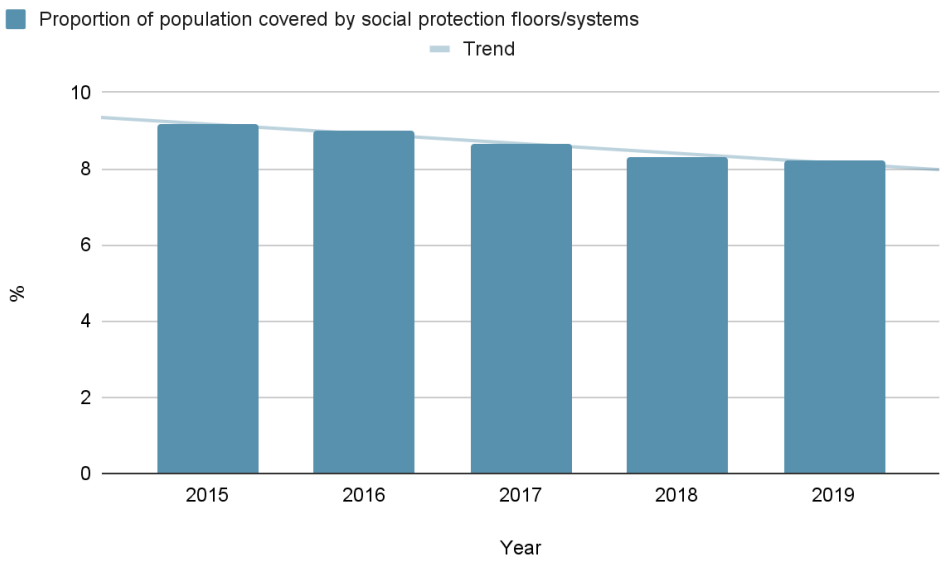
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1-3-1 Proportion of population covered by social protection floors/systems

Data Description

Available sources			
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Competence shared with other Administration Levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	1971-2020	Yes

Indicator evolution



Comments

This indicator is widely used to measure progress on the SDG 1.3 target of implementing social protection systems for all. It is an indicator that organisations such as the UN and OECD have proposed and consider it suitable for measuring the effectiveness of social protection systems. It is advantageous because it covers different groups and types of social protection, is based on international standards and definitions, reflects the degree of access to social rights and the impact of public policies, and captures changes in the needs and demands of the population and in economic and social conditions.

A gradual reduction is observed in the period analysed in Andalucía for the indicator, among the possible reasons for this decrease are the increase in unemployment and job insecurity, which hinder access to contributory or non-contributory benefits; and the impact of readjustments in social policies, which generate a greater demand for social protection and make its provision and management more difficult.

1-3-1 Proportion of population covered by social protection floors/systems

Methodological notes	Percentage of people protected by welfare benefits, with respect to the number of people potentially eligible for protection, according to type of benefit. The number of potentially eligible persons considered is the eligible population on 1 July of each year. In the social and economic benefits of the LISMI, the beneficiaries of the different types of benefits into which they are classified have been considered. From 2005 onwards, all beneficiaries of family benefits for dependent children are considered. Until this year, only non-contributory benefits were considered. This indicator is available for disaggregation into the different benefits.

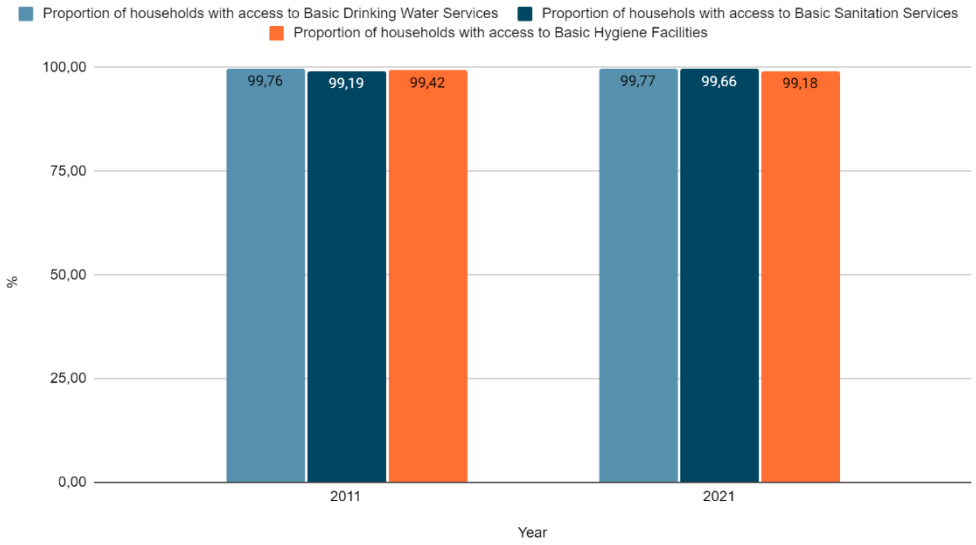
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

1-4-1 Proportion of population living in households with access to basic services

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía		
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality Competence shared with other Administration Levels		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2021	Yes

Indicator evolution



Comments

Although the value is expected to be close to 100% in most cases, it is a relevant indicator as it can not only monitor an additional target of the 2030 Agenda, but also to analyse access to services that may be impacted by environmental pollution, natural disasters, social conflict, or extreme poverty. In these cases, the indicator can be used to identify and address gaps and inequalities in access to safe drinking water between different regions, urban and rural areas, population groups or household types.

1-4-1 Proportion of population living in households with access to basic services

Methodological notes

Basic Services refer to public service provision systems that meet human basic needs including drinking water, sanitation, hygiene, energy, mobility, waste collection, health care, and education and information technologies. The basic services indicator will be therefore based on 9 components. These components are captured in various standalone indicators of the SDGs, which means that the concepts and definitions of SDG indicator 1.4.1 will be derived from or are the same as those of these specific SDG indicators.

Access to basic services implies that sufficient and affordable service is reliably available with adequate quality.

1) Access to Basic Drinking Water Services refers to the use of drinking water from an improved source that is available with a collection time of not more than 30 minutes for a round trip, including queuing. Improved sources include: piped water, boreholes or tube wells, protected dug wells, protected springs, and packaged or delivered water. This definition is based on the JMP drinking water ladder and is the foundation for SDG indicator 6.1.1 - Proportion of population using safely managed drinking water services.

2) Access to Basic Sanitation Services refers to the use of improved facilities that are not shared with other households. Improved facilities include: flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs. This definition is based on the JMP sanitation ladder and is the foundation for SDG indicator 6.2.1 - Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water.

3) Access to Basic Hygiene Facilities refers to availability of a handwashing facility on premises with soap and water. Handwashing facilities may be fixed or mobile and include a sink with tap water, buckets with taps, tippy-taps, and jugs or basins designated for handwashing. Soap includes bar soap, liquid soap, powder detergent, and soapy water but does not include ash, soil, sand or other handwashing agents. This definition is based on the JMP hygiene ladder and is the foundation for SDG indicator 6.2.1 - Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water.

5.2 Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

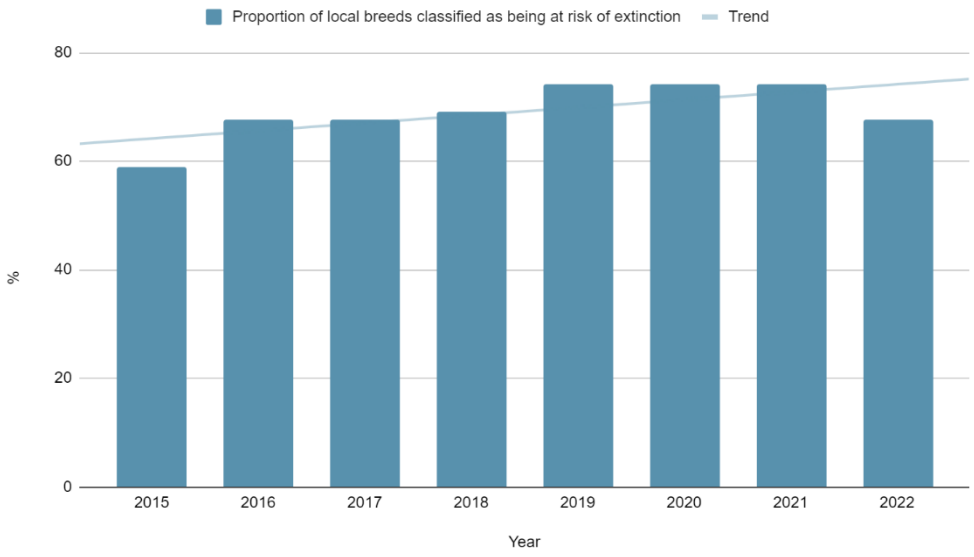
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilisation of genetic resources and associated traditional knowledge, as internationally agreed

2-5-1 Proportion of local breeds classified as being at risk of extinction6

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos	**MAPA**	
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
MAPA	%	2015-2022	Yes

Indicator evolution



[6] Proportion of the region's traditional livestock breeds that are classified as endangered animals

Comments

This indicator reflects the situation of livestock biodiversity and the genetic heritage of the region, as well as the risks that threaten its survival. The slight increase in its trend may reflect a greater awareness and appreciation of the genetic and cultural diversity represented by Andalusian indigenous breeds, as well as a greater involvement and commitment of public and private agents to their conservation and improvement. On the other hand, an excessive or continued increase in this indicator may generate problems of irreparable loss of the Andalusian genetic and cultural heritage, as well as a reduction in the competitiveness and sustainability of the Andalusian livestock sector. This is an extremely important variable, which must be monitored and analysed in order to better understand the situation in Andalucía and to act accordingly.

2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

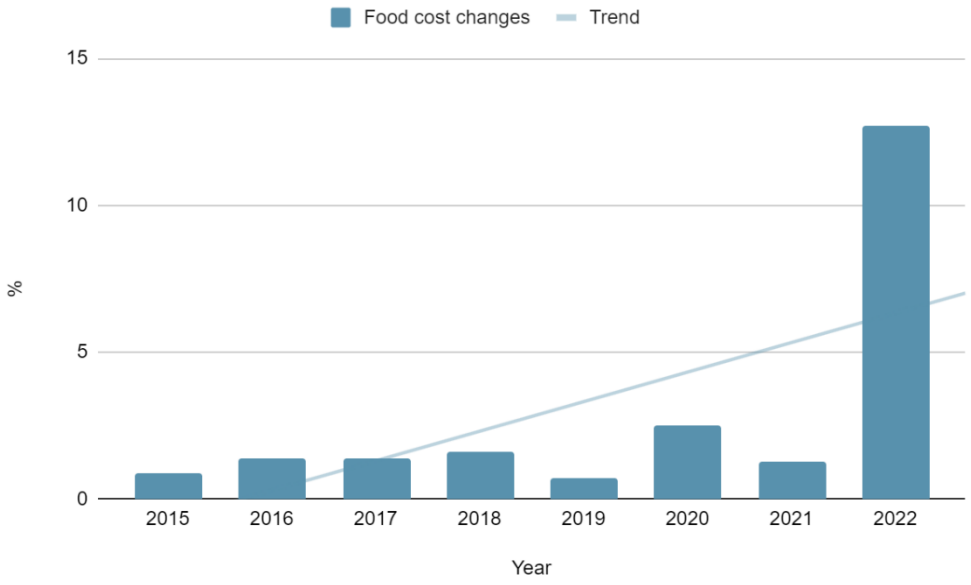
2-c-1 Food cost changes[7]

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of Health and Consumption

Selected source	Unit	Time coverage	Comparability (Spanish regions)
INE	%	2002-2022	Yes

Indicator evolution



Comments

The Food Consumer Price Index Growth indicator measures the percentage change in the price level of food and non-alcoholic beverages in relation to the same month of the previous year. This indicator reflects the increase or decrease in the cost of the household shopping basket. The increase in the CPI for food has a negative impact on the purchasing power and welfare of consumers, especially the most vulnerable, who have to spend more of their income to cover their basic needs.

The indicator has maintained a steady growth with some small increases with the exception of the last year 2022 where it suffers an extraordinary rise. The main reason for this is the increase in energy costs, which affect the transport, conservation and transformation of food. The Andalusian Government has limited competences to control the CPI of food, but it indirectly affects this metric by supporting the agri-food sector, encouraging responsible consumption and implementing measures to protect the most disadvantaged consumers, through social aids, food vouchers or social tariffs.

[7] Annual percentage change in the price of food (subgroup of the European Classification of Individual Consumption by Purpose).

5.3 Goal 3. Ensure healthy lives and promote well-being for all at all ages

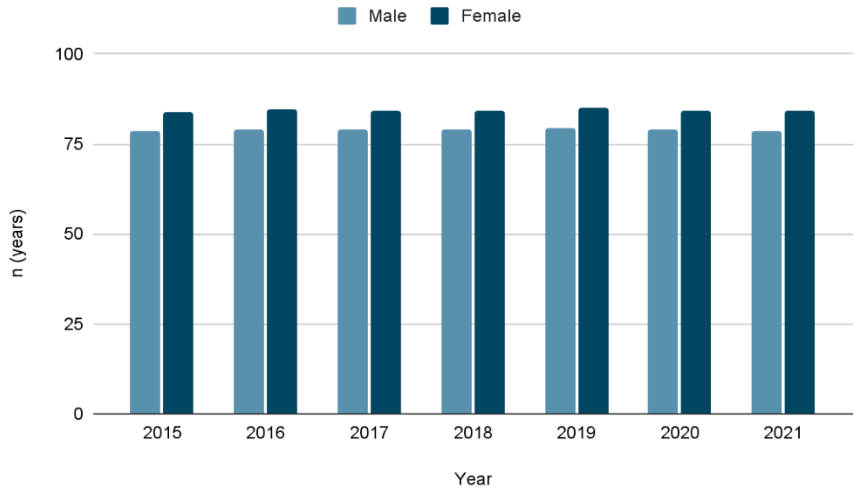
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3-4-1 Life expectancy at birth[8]

Data Description

Available sources			
Competences	Regional Ministry of Health and Consumption		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	Years	2000-2021	Yes

Indicator evolution



Comments

Life expectancy at birth is a key indicator for measuring progress on SDG target 3.4. This indicator reflects the impact of health policies, access to medical services and socioeconomic development in a region or country. The indicator is easily understandable and comparable, allowing assessment of progress at the global level and the detection of health inequalities. International organisations such as the WHO support its use and consider it essential for evaluating the health status of populations.

The trend is stable, and the value, which is above the European average but below the national average, is a considerably high value, but very relative, since it must be contextualised and compared with other similar values to be able to evaluate it correctly. Be that as it may, in Andalucía the Regional Ministry is implementing or considering several strategies to address these challenges, such as the 'Andalusian Health Plan', the 'Integral Plan of Attention to Heart Disease in Andalusia', the 'Andalucía's Comprehensive Oncology Plan' y the 'Plan for the Promotion of Physical Activity and Balanced Eating', with the aim of improving prevention, diagnosis, treatment and promotion of healthy habits.

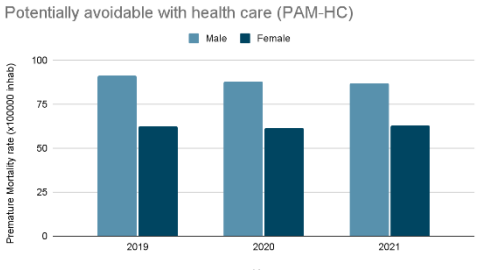
[8] Average number of years a man or woman is expected to live at birth, assuming that the rest of his or her life will be subject to current mortality conditions.

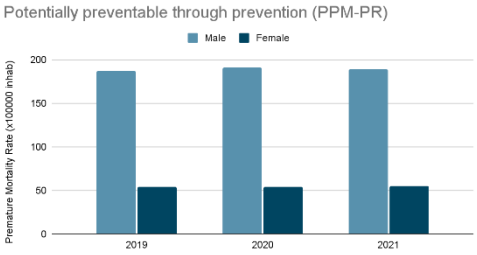
3-4-2 Premature mortality rate

Data Description

Available sources			
Competences	Regional Ministry of Health and Consumption		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	X 100000 inhab.	2019-2021	No

Indicator evolution





Comments

The Premature Mortality Ratio indicator is key to measuring progress on SDG target 3.4. It allows us to assess the proportion of deaths occurring before the expected age and reflects the quality of life and health status of the population. In addition, by disaggregating the data according to demographic factors, health inequalities can be identified and groups at higher risk can be determined. The indicator helps to evaluate the effectiveness of health policies and programs, and is recommended by international organisations such as WHO and the World Bank as a key measure to monitor progress and direct resources toward interventions that reduce premature mortality and promote population health. As can be observed, there are significant differences between men and women for this indicator, where the male rank is higher than the female during all the periods analysed.

Overall, the values of the indicator have been maintained across time; however, the value is above the national and European average, which indicates that there is room for improvement in prevention and health care. Some actions or strategies that the 'Regional Ministry of Health and Consumption de Andalucía' could be implementing are the 'Andalusian Health Plan', which aims to improve the health and well-being of the Andalusian population in a comprehensive, participatory and equitable manner. In addition, specific plans have been established to address important health problems in the region, such as heart disease and cancer. These plans aim to improve the prevention, diagnosis, treatment and follow-up of cardiovascular diseases and cancer, which are the leading causes of preventable death in Andalucía. A plan has also been implemented to promote health through physical activity and a balanced diet, especially among children and adolescents, in order to prevent overweight, obesity and related diseases.

3-4-2 Premature mortality rate

Methodological notes	Mortality rate of population under 75 years of age, attributed to causes that are considered to be potentially preventable through prevention (PPM-PR), as they can be avoided mainly through public health interventions and primary prevention, i.e. action is taken before the onset of the disease with the aim of reducing the incidence, or causes of mortality potentially avoidable with health care (PAM-HC) are those that are mostly avoidable through effective and timely health care, including both treatment and secondary prevention interventions (i.e. once the disease has appeared, the aim is to reduce the case fatality).

3.7 by 2030 ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs

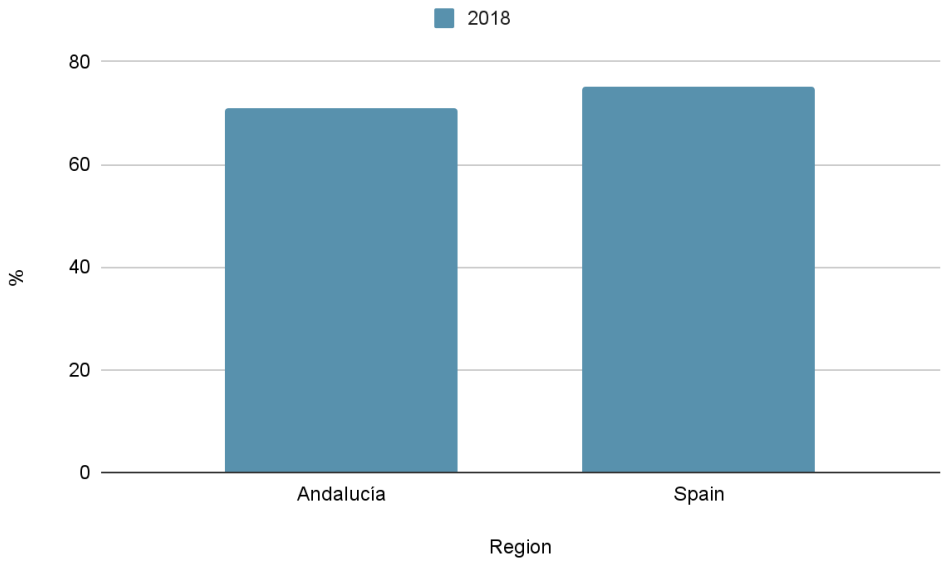
3-7-1 Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía
Competences	Regional Ministry of Health and Consumption Regional Ministry of Social Inclusion, Youth, Families and Equality

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2018	No

Indicator evolution



Comments

No significant changes in the use of modern contraceptives among Andalusian women have been produced and the latest year available is 2018, likewise, the value is similar to the national and European average. The Andalusian Regional Government focuses on providing adequate education on sexuality and reproduction, ensuring universal access to modern contraceptive methods and preventing sexually transmitted infections and unwanted pregnancies. Some of the strategies and actions implemented are the 'Andalusian Child and Adolescent Health Programme', a sexual information telephone number for young people, a sexual and reproductive health telephone number, information and counselling centres, as well as the distribution of informative material in health and educational centres.

3-4-2 Premature mortality rate

Methodological notes	Proportion of women, aged 18-49, married to a man or with a male partner, using modern contraceptive methods out of those who do not want to become pregnant, i.e. using contraception or have an unmet need for family planning. Modern contraceptive methods include hormonal contraceptives (pill, ring, patch, injection...), intrauterine device implantation (IUD), vaginal barrier methods (diaphragm, cervical cap, vaginal sponge...), male and female condoms, spermicides, morning-after pill, and female and male sterilisation. A woman is understood to have an unmet need for family planning when she does not want to become pregnant but is not using any contraceptive method. Specifically, unmet need for family planning refers to those women who have an unwanted pregnancy or who do not wish to become pregnant in the next three years but are not using any contraceptive method.

3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate

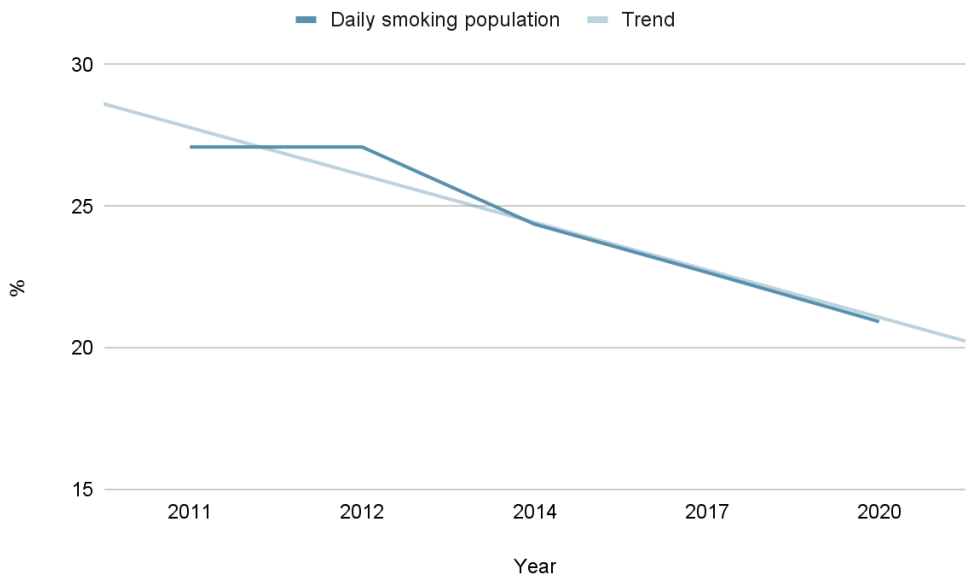
3-a-1 Daily smoking share of the population[9]

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Health and Consumption

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2020	No

Indicator evolution



Comments

Tobacco consumption in the adult population has declined over the period. The proportion of the population over 15 years of age who smoke cigarettes at least once a day has decreased due to various economic, social and health factors. In Andalucía, awareness and prevention programs and campaigns have been developed, such as the 'Plan Integral de Tabaquismo de Andalucía', which promotes educational and informative actions to reduce consumption and exposure to tobacco smoke. In addition, the COVID-19 pandemic has increased awareness of the harmful effects of tobacco on health, which has motivated some smokers to quit or reduce their smoking. Although it can be positively assessed that Andalucía has managed to reduce tobacco consumption in the adult population, there is still room for improvement as Andalucía still has a higher proportion than the national and European average. International organisations such as the World Health Organization (WHO) recommend the use of this indicator to measure progress in the implementation of the Framework Convention on Tobacco Control.

[9] Proportion of the population over 15 years of age that smokes cigarettes at least once a day

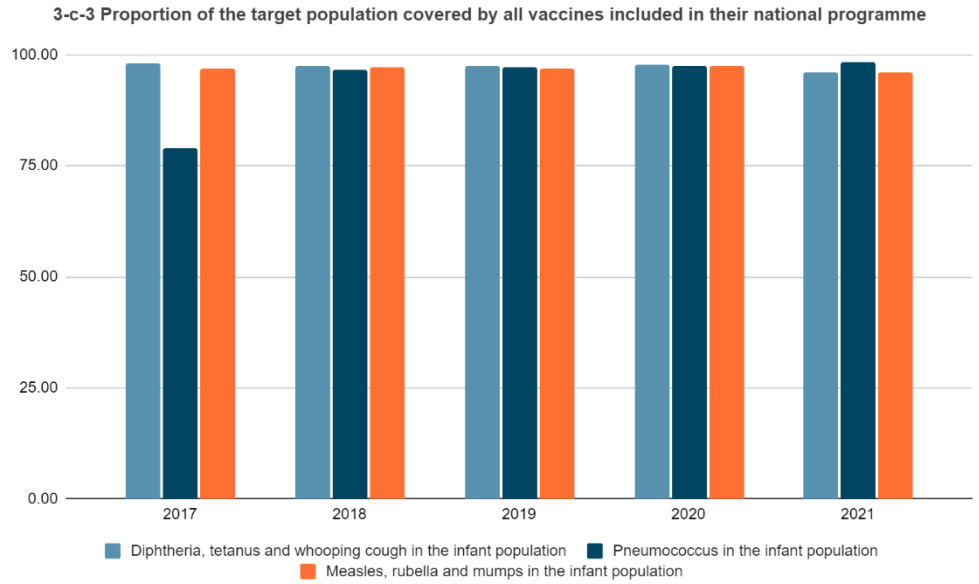
3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

3-c-3 Proportion of the target population covered by all vaccines included in their national programme

Data Description

Available sources	eurostat; INE Instituto Nacional de Estadística; Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Health and Consumption		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2017-2021	Yes

Indicator evolution



Comments

This is an indicator with a constant trend and with the target met. The existence of a universal public health system facilitates free access to vaccines for the entire population. In addition, the work of health professionals has long been crucial in informing, advising and motivating the population about the importance and benefits of vaccination. This is a very good value as it implies greater prevention and control of infectious diseases, lower morbidity and mortality associated with them, higher quality of life and well-being of the population and less pressure on the health system.

5.4 Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

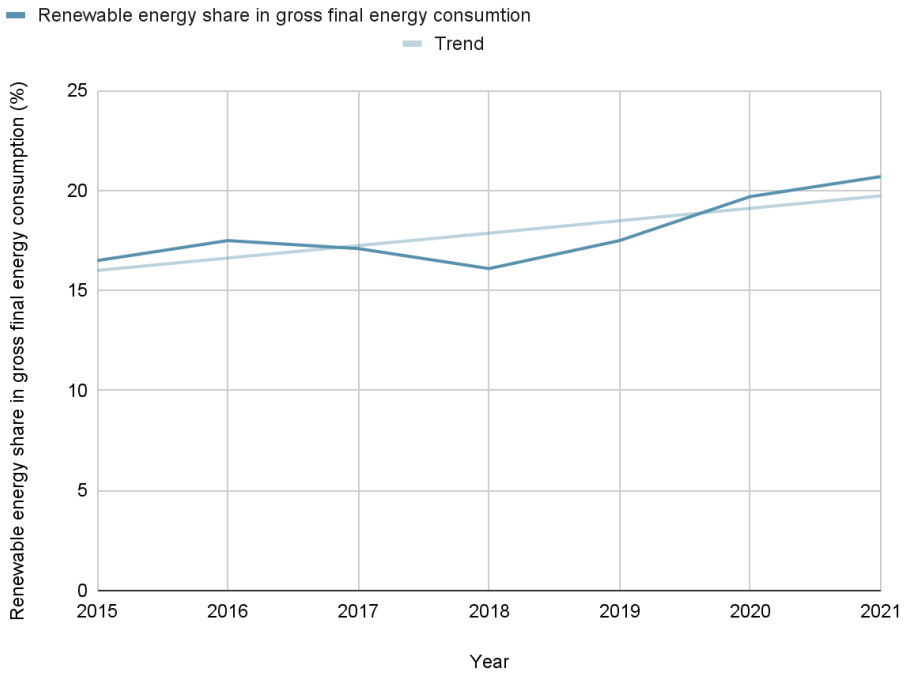
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

7-2-3 Renewable energy share in gross final energy consumption

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos			**AAE** **MITECO**
Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía			
Selected source	Unit	Time coverage	Comparability (Spanish regions)	
AAE	%	2011-2020	No	

Indicator evolution



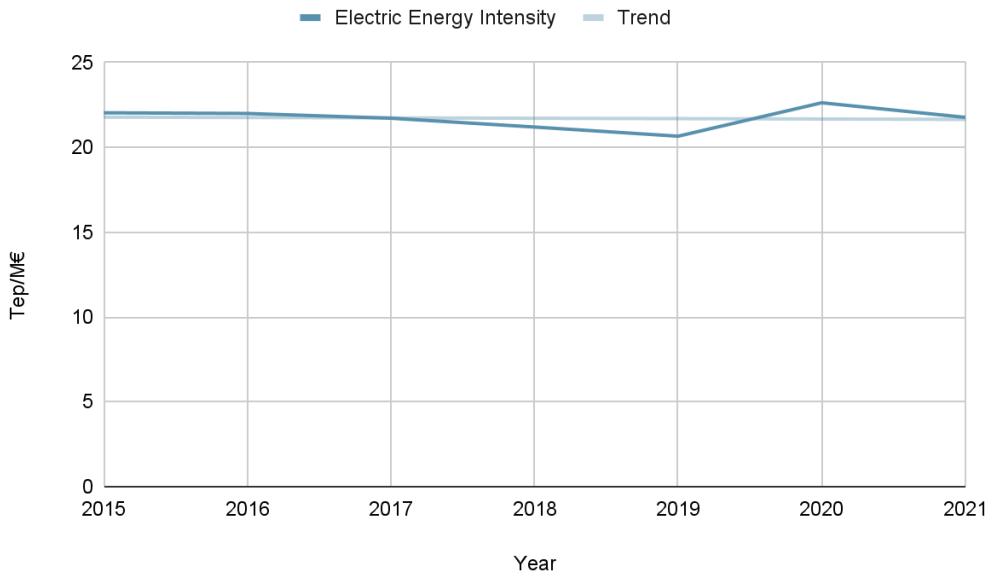
Comments	The indicator is one of the measures used by the National Statistics Institute (INE) to evaluate Spain's progress towards the 2030 Agenda. In addition, this indicator is aligned with European and national guidelines and regulations on ecological and digital transition, which set ambitious targets for the decarbonization of the energy system. International organisations such as the International Energy Agency (IEA) recommend the use of this indicator due to its cross-cutting relevance for achieving the Sustainable Development Goals and its ability to measure progress towards a more sustainable and environmentally friendly future. The region is making progress in the transition to a more sustainable and cleaner energy model, steadily increasing its share of renewables. The Andalusian region has been committed over the years to this energy source with initiatives such as the Andalusian Law on Climate Change (LACC), which establishes the goal of reaching a 27% share by 2030 and 100% by 2050.

7.3 By 2030, double the global rate of improvement in energy efficiency

7-3-2 Electric Energy intensity[10]

Data Description				
	Available sources	eurostat / INE Instituto Nacional de Estadística / Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**AAE** **MITECO**
	Competences	Regional Ministry of Industrial Policy and Energy Agencia Andaluza de la Energía		
	Selected source	Unit	Time coverage	Comparability (Spanish regions)
	AAE	Tep/M€	2011-2020	No

Indicator evolution



[10] Electricity demand at power plant busbars divided by gross domestic product in chained volume with reference 2015

Comments

The electric energy intensity of Andalucía has shown no significant change from 2015 to 2021, with an average value of 21.72 toe/M€. This means that the primary energy consumption per million euros of GDP has been stable in this period. This could be explained by several factors, such as the balance between the rising energy demand due to economic and demographic growth and the energy saving and efficiency measures implemented. Moreover, the energy mix has become more diversified, with a higher share of renewable sources and natural gas, which has enhanced efficiency and reduced losses in the energy system. However, the period analysed includes a period of economic recovery from 2016 and the covid crisis from 2020, which means that the fluctuations in the region's GDP have influenced this indicator, making the environmental policy measures implemented virtually unnoticeable. The indicator is well suited to monitor target 7.3 as it allows to evaluate the energy efficiency of an economy, identify areas for improvement and orient policies and actions towards a more efficient and sustainable use of energy. It is also used by organisations such as the United Nations, the International Energy Agency (IEA) and Eurostat in various studies and research focused on energy efficiency.

5.5 Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

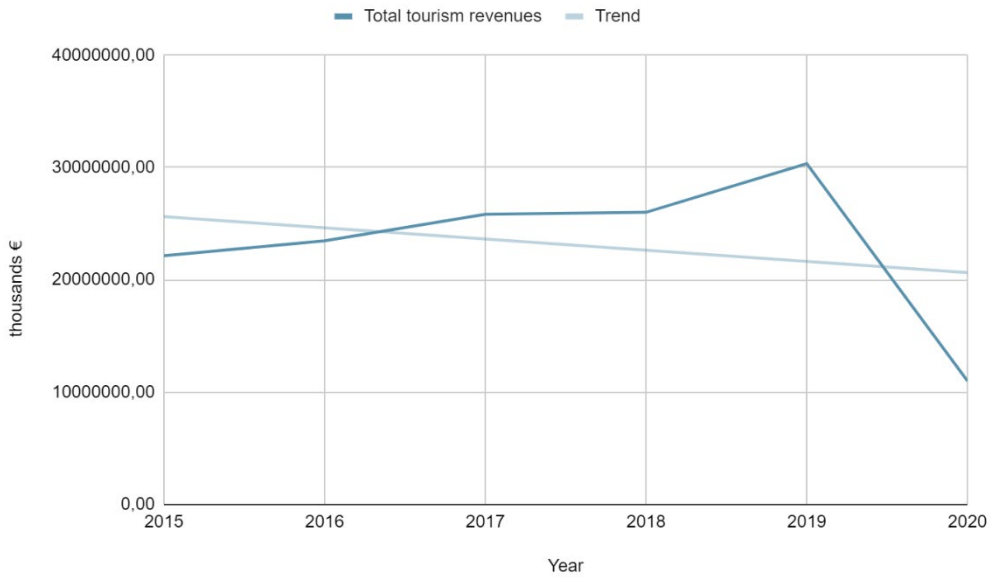
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

8-9-1 Total tourism revenues

Data Description

Available sources	eurostat / INE Instituto Nacional de Estadística / Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**Junta de Andalucía**
Competences	Regional Ministry of Tourism, Culture and Sport		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Junta de Andalucía	thousands €	2013-2021	No

Indicator evolution



Comments

The tourism revenue indicator is relevant for measuring progress on SDG target 8.9, as it reflects the economic impact of tourism, job creation, promotion of culture and local products, and conservation of natural and cultural heritage. International organisations, such as the World Tourism Organization (UNWTO), recommend using this indicator to assess the sustainable development of the tourism sector and its contribution to the SDGs. The 'Regional Ministry of Tourism, Culture and Sport of the Andalusian Government' considers several strategies to promote tourism in the region after the impact of the pandemic and the subsequent reactivation of the last few years. Among them is the 'General Plan for Sustainable Tourism in Andalucía GOAL 2027', focused on sustainability, digitalization, innovation and quality. It is also planned to create a single brand for cultural tourism in Andalucía, which will encompass heritage, artistic, historical and gastronomic resources, supported by a digital platform to facilitate information and reservations. Finally, it seeks to promote sports tourism, taking advantage of the region's infrastructure, climate and complementary offerings.

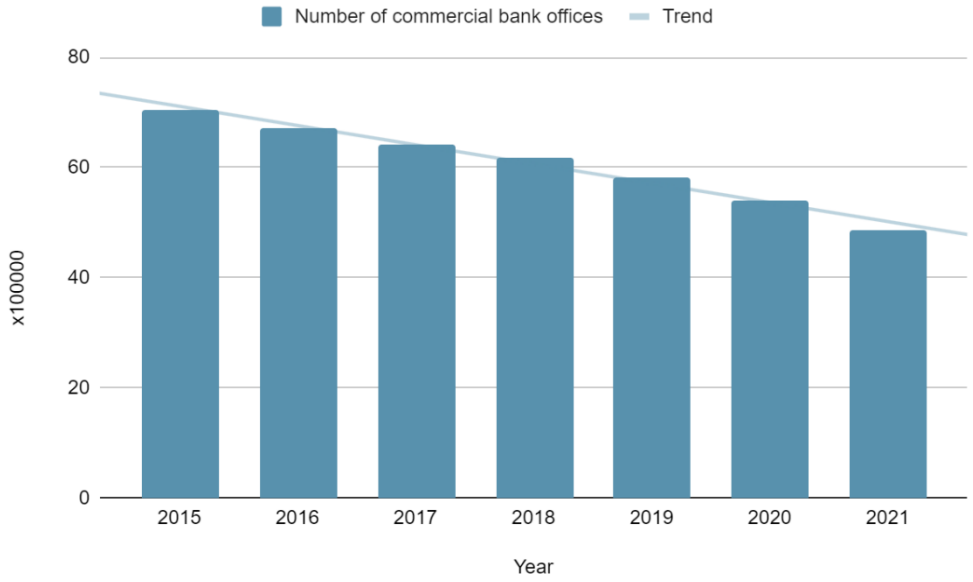
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

8-10-1 Number of commercial bank offices[11]

Data Description

Available sources			
	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**BdE**
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	x100000	2010-2021	No

Indicator evolution



Comments

The trend of the indicator is decreasing in the period under analysis, mostly as a result of the digital transformation of the banking sector, mergers and acquisitions following the crisis in the sector and changes in customer demand/preferences. The assessment of the number of bank branches as an indicator of sustainable development can be positive or negative depending on the point of view adopted. On the one hand, it can be considered that a greater number of bank branches implies greater financial inclusion and greater access to financial services for the population, which can favour economic growth, employment and social welfare. On the other hand, a smaller number of bank branches can be considered to imply greater efficiency and profitability of the financial sector, as well as a smaller ecological footprint and greater environmental sustainability. However, from a negative perspective, a significant decrease in the number of branches can result in the loss of jobs in the banking sector and affect local communities that depend on the presence of physical bank branches, such as small municipalities or those with ageing populations.

[11] Number of offices of credit institutions and financial credit establishments as a percentage of 100,000 inhabitants aged 15 and over.

5.6 Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

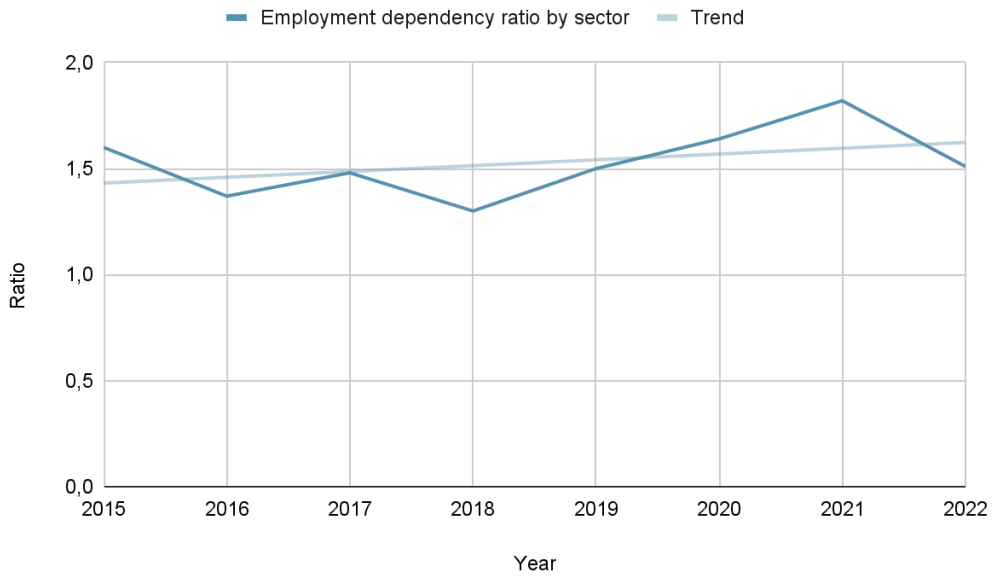
9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

9-3-1 Employment dependency ratio by sector

Data Description

Available sources			
Competences	Regional Ministry of Employment, Business and Self-Employment Competence shared with other Administration level		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	Index	2010-2021	No

Indicator evolution



Comments

The employment sector dependency indicator relates to this target because it measures the capacity of cities to adapt to shocks or changes affecting their economy and business fabric. A city with a diversified and balanced distribution of jobs will find it easier to access financial services, integrate into value chains and markets, and promote innovation than a city whose jobs are concentrated in a few specific sectors. On the other hand, it is an indicator that makes it possible to identify the strengths and weaknesses of a city's productive fabric and to design policies that encourage economic diversification and specialisation. On the other hand, this indicator can be used to determine the strengths and weaknesses of a city's productive fabric and to design policies that foster economic diversification and specialisation. As can be seen, it is an index with a cyclical variability, but which in Andalucía has not suffered excessively, considering the consequences of the pandemic. Andalucía has a higher value than the indicator for Spain, but it is in the middle range of the total number of Autonomous Regions, being a coherent and acceptable value within the Andalusian socio-economic context.

9-3-1 Employment dependency ratio by sector

Methodological notes	Vulnerability index based on employment diversity. Based on data from "Employment jobs by sectors" from Eurostat Urban Audit "Labour Market - cities and greater cities". This indicator represents the distribution of employment by sector. The optimal value of is around 1 representing an even distribution of jobs across sectors, while values above 4 imply that jobs are concentrated in a few sectors.

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

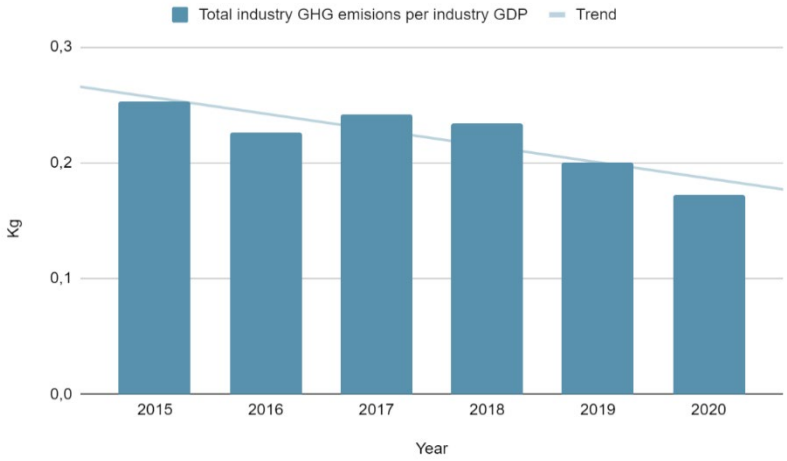
9-4-1 Total industry GHG emissions per industry GDP[12]

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Industrial Policy and Energy Regional Ministry of Sustainability, Environment and Blue Economy

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	Kg	2010-2020	No

Indicator evolution



Comments

This indicator measures the degree of efficiency and environmental sustainability of the manufacturing industry, which is one of the sectors that contributes most to greenhouse gas emissions. The trend in Andalucía has been slightly decreasing since 2015. This is due to the implementation of energy efficiency measures in the manufacturing sector, such as equipment modernization and process optimization. The Andalusian Government is implementing various strategies and actions to reduce CO2 emissions in the manufacturing sector. These include the implementation of the 'Programme for Sustainable Energy Development in Andalusia', which seeks to improve energy efficiency and the use of renewable energies in industrial companies through financial aid and technical advice. In addition, the 'CRECE Industry Action Plan 2021-2022' is being drawn up with the aim of boosting competitiveness, innovation and sustainability in the Andalusian industrial sector through digitalization, diversification, internationalisation and corporate social responsibility.

[12] Carbon dioxide (CO2) emissions of resident economic units per unit of real GDP, regardless of the geographic location where they actually take place.

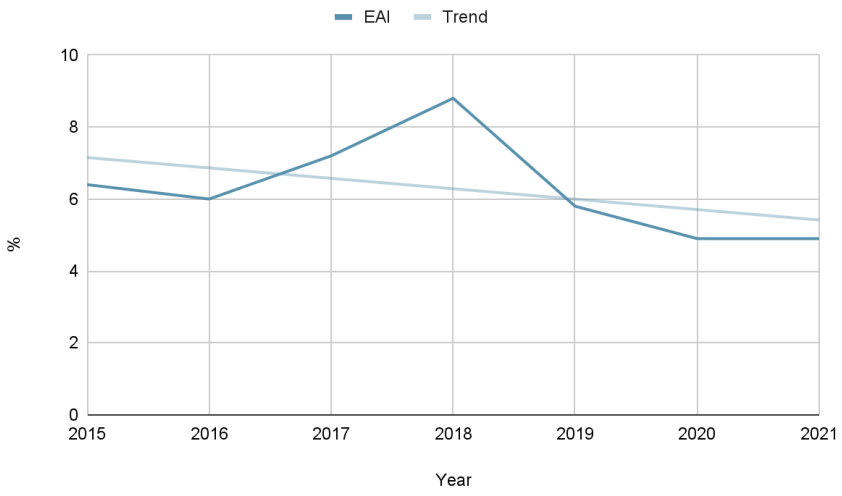
9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

9-b-1 Entrepreneurial activity index

Data Description

Available sources	eurostat / INE Instituto Nacional de Estadística / Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**GEM Spain**
Competences	Regional Ministry of Employment, Business and Self-Employment		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
GEM Spain	Index	2003-2021	Yes

Indicator evolution



Comments

Recent entrepreneurial activity in Andalucía has experienced a downward trend in the period from 2015 to 2021. This decline can be explained by several factors, such as the lack of access to resources, advice, training and contact networks for entrepreneurs; the lack of innovation and differentiation of entrepreneurial projects, which are concentrated in traditional sectors with low productivity, such as trade, hospitality and personal services; and the low qualification and motivation of potential entrepreneurs, who often undertake out of necessity rather than opportunity, and who lack specific skills and knowledge to develop their businesses. The value of this indicator may reflect a lower economic dynamism, a lower generation of employment and wealth, and a lower capacity to adapt and innovate in the face of changes in the environment. Likewise, in crucial years such as 2016 and 2021, some factors can be observed that may have influenced the behaviour of the indicator. In 2016 there was an upturn in the indicator, exceeding 8%, due to the increase in opportunities perceived by potential entrepreneurs following the end of the previous economic crisis. In 2021, the indicator remained at 5.5%, despite the negative impact of the pandemic on economic activity. This may be due to the increase in female entrepreneurial activity and the increase in more ambitious and innovative motivations among entrepreneurs in recent years.

9-b-1 Entrepreneurial activity index

Methodological notes	Percentage of the adult population involved in the central phase of the entrepreneurial process (nascent and new entrepreneurship), where recent entrepreneurial initiatives are located. Where nascent entrepreneurship consists of people who have paid wages for less than three months and new entrepreneurship consists of people who have paid wages for between three and 42 months. Three sources of information are used: a survey of the population aged 18-64, called APS (Adult Population Survey); a survey of experts in entrepreneurship, called NES (National Expert Survey); and a set of secondary sources of information (scientific articles, sectoral reports, international analyses) that make it possible to obtain a greater level of depth in the interpretation of the data.

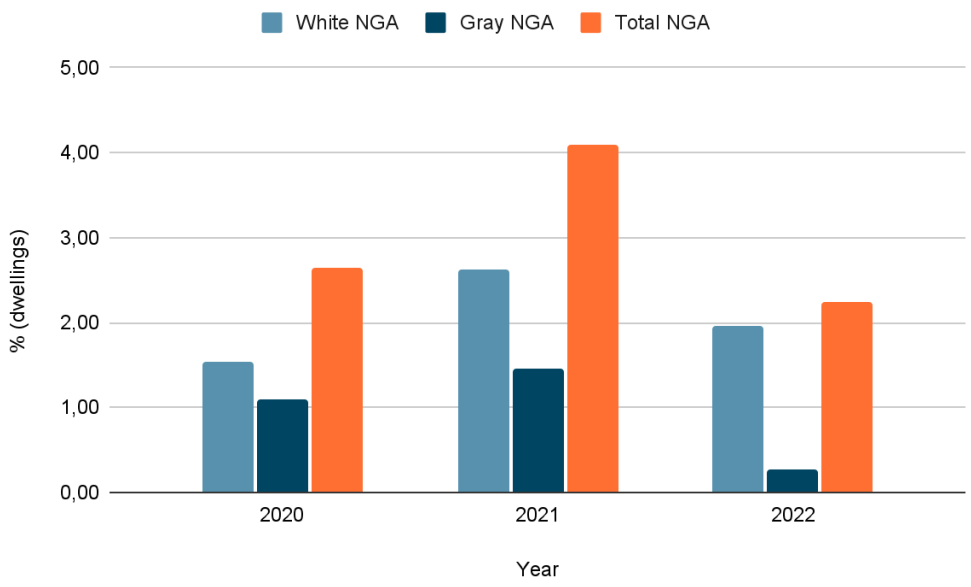
9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

9-c-1 White and Grey areas

Data Description

Available sources			
	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MITECO**
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with another Administration level		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
MITECO	%		Yes

Indicator evolution



Comments

The NGA white and grey areas indicator provides a useful indicator for measuring progress toward this target, as it reflects the degree of coverage and access to new-generation broadband networks. These networks enable access to advanced digital services, such as distance education, telemedicine, e-commerce or teleworking, which can contribute to the economic, social and environmental development of rural and remote areas. The reduction in Andalucía over the years implies greater coverage and access to ultrafast broadband for the population, which can favour digital inclusion, innovation, competitiveness and territorial development. The Regional Government of Andalucía is directly influencing the indicator aiming to boost the development and implementation of this technology in Andalucía, through the promotion of pilot projects, the creation of a 5G observatory and coordination with the National 5G Plan.

9-c-1 White and Grey areas

Methodological notes

Proportion of dwellings in white or grey NGA areas with respect to the total number of dwellings in the region.

The State aid rules define NGA white areas as those which do not have coverage of new generation broadband networks, nor forecasts for their provision by any operator within 3 years, based on credible investment plans. NGA grey areas are defined as those that only have next generation broadband coverage or plans for its provision within 3 years by a single operator.

5.7 Goal 10. Reduce inequality within and among countries

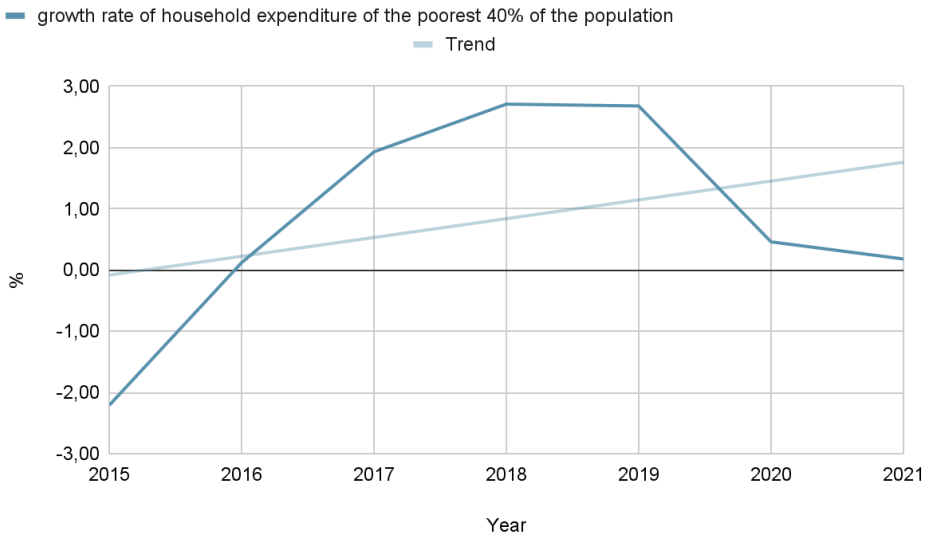
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average

10-1-1 Per capita growth rate of household expenditure of the poorest 40% of the population

Data Description

Available sources			
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2011-2021	Yes

Indicator evolution



Comments

This indicator is recognized and recommended by organisations such as the United Nations (UN), the World Bank and the Organization for Economic Cooperation and Development (OECD) as a key measure for assessing progress toward target 10.1, as it reflects the degree of improvement in the standard of living and material well-being of the poorest households relative to the population as a whole. The progressive increase it reflects in its trend, where it collapses from 2020 due to the pandemic (although it remains positive) reflects progress in reducing poverty and improving the quality of life of the most disadvantaged sectors. However, this is still a small value, and should be treated with caution when carrying out a detailed analysis of the situation in Andalucía in terms of poverty. The adaptation to the health and social crisis caused by the COVID-19 pandemic has meant an increase in public spending on extraordinary measures to guarantee the health, education and social protection of the citizens, from the Junta highlights the implementation of the Strategic 'Strategy for the Internationalisation of the Andalusian Economy 2021-2027' and the creation of the Council for the Fight against Economic Inequality in Andalucía.

10-1-1 Per capita growth rate of household expenditure of the poorest 40% of the population

Methodological notes	Average annualised growth rate over a five-year period of household expenditure per person for the poorest 40% of the population of the region (40% of people with the lowest expenditure per unit of consumption (modified OECD scale)). The number of consumption units of a household is calculated using the modified OECD scale, which assigns a weight of 1 to the first person aged 14 and over, a weight of 0.5 to the remaining persons aged 14 and over and a weight of 0.3 to persons under 14 The national figure is obtained by considering the average expenditure per person of the households of the poorest 40% of the population taking into account the national income distribution (national threshold).

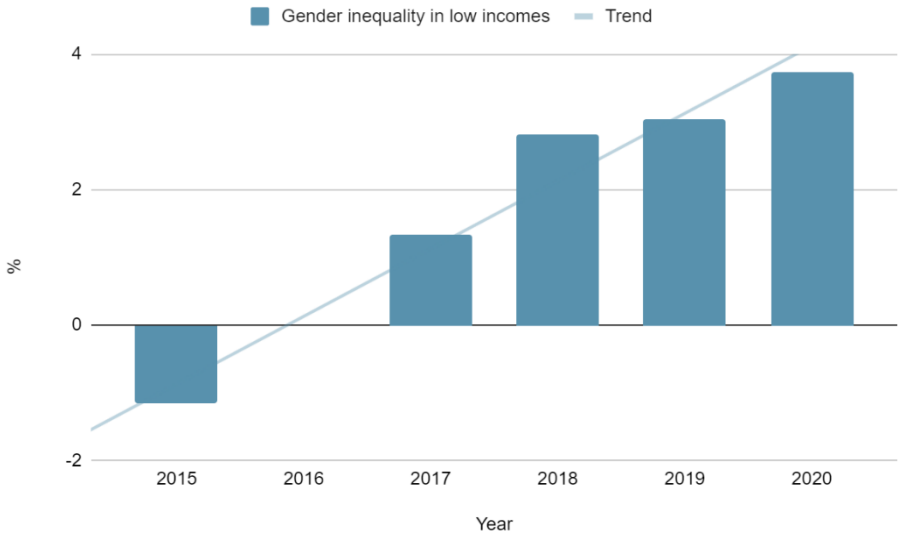
10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard

10-3-1 Gender inequality in low incomes

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos		
Competences	Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2015-2020	Yes

Indicator evolution



Comments

The indicator can be a good indicator for measuring progress toward this goal, as it reflects the degree of economic inequality between women and men in extreme poverty, which is a form of discrimination and social exclusion. A positive trend can be observed over time indicating that inequality between women and men has increased. This can be attributed to wage inequalities, occupational divisions and the burden of unpaid care. Andalucía has already developed an action plan against wage inequality between women and men in Andalucía and is constantly promoting equality between women and men through the development of campaigns, programs and projects that contribute to disseminating the values of equality, eliminating sexist stereotypes and generating knowledge about the reality of Andalusian women.

5.8 Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

11-7-1 Urban population without green areas in their neighbourhood

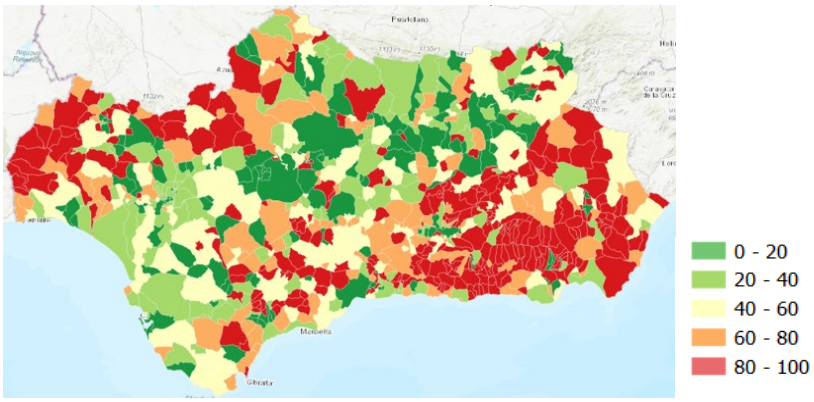
Data Description

Available sources			
Competences	Regional Ministry of Public Works, Territorial Articulation and Housing Competence shared with another Administration level		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2019-2021	No

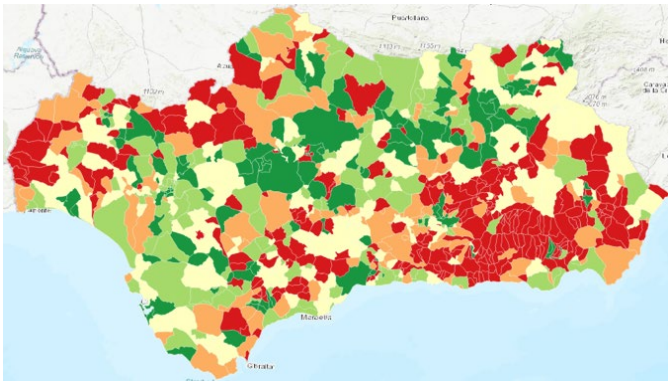
Indicator evolution

All urban population

2019



2021

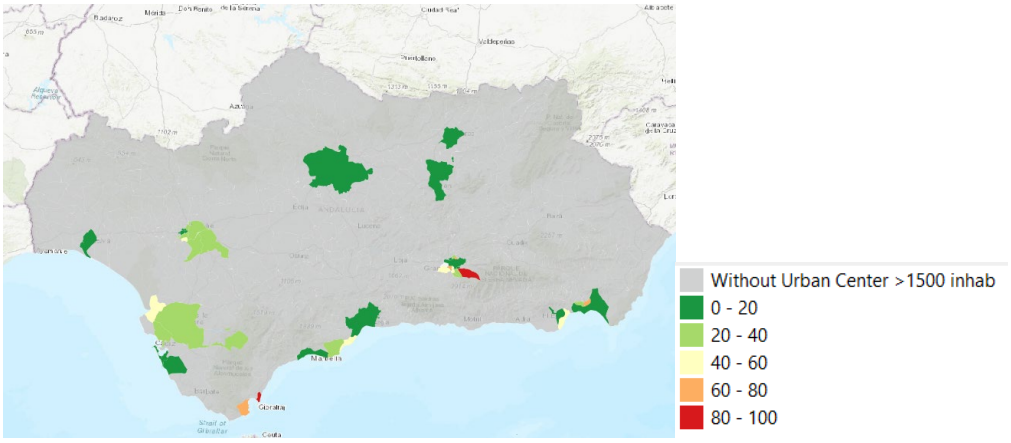


11-7-1 Urban population without green areas in their neighbourhood

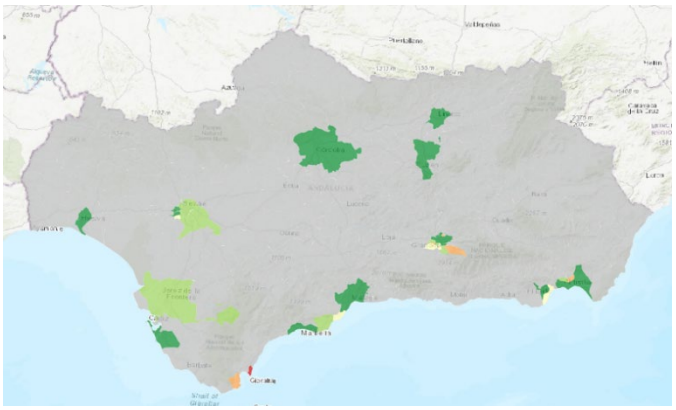
Indicator evolution

Only high-density urban centers in municipalities over 1500 inhabitants

2019: 22.65%



2021: 20.88%



Comments

As expected, the amount of population without access to green areas has decreased slightly between 2019 and 2021, due to more presence of green open areas. In absolute terms, there is a big difference between urban areas (In 2021: Granada 11,6%, Sevilla 22,4%, Málaga 11,6 %) and rural ones (in 2019, rural areas had 34,4%).

The proportion of the Andalusian population in urban centers that does not have a green area accessible at 400m has decreased between 2019 and 2021 by -1.76%, being 22.65% in 2019 and 20.88% in 2021.

11-7-1 Urban population without green areas in their neighbourhood

Methodological notes	Percentage of the population residing in the municipality that does not have an accessible green area of at least 0.25 ha within a 5-minute walk (400m) of their residence (portal), as per the updated methodology by Hugo Poelman. The indicator has been also calculated exclusively for the population located in urban centers (groups of 1km2 cells with high population density defined from the population grid of the GEOSTAT-2011 project), for all the municipalities that have at least 1,500 inhabitants for better comparability and matching international practices.

5.9 Goal 12. Ensure sustainable consumption and production patterns

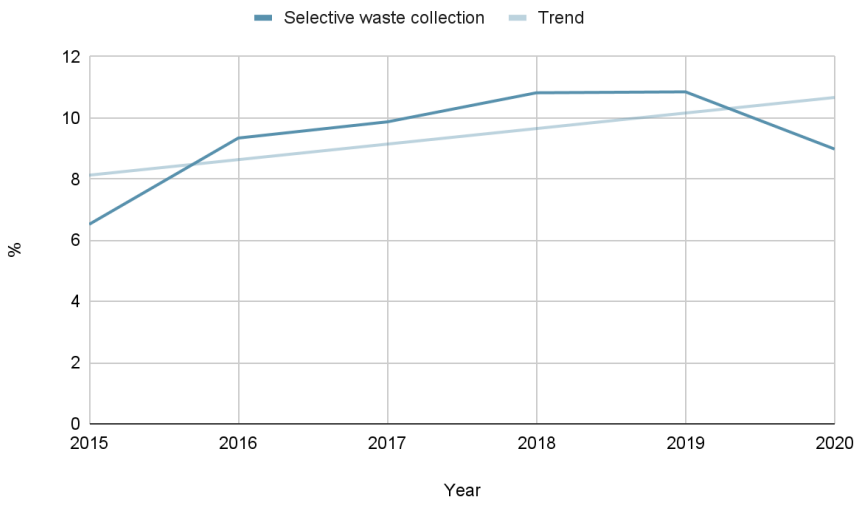
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

12-5-1 Selective waste collection

Data Description

Available sources			REDIAM
Competences	Regional Ministry of Sustainability, Environment and Blue Economy Competence shared with another Administration level		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
REDIAM	%	2006-2020	Yes

Indicator evolution



Comments	The use of this indicator is relevant because it provides information on the level of implementation of sustainable waste management practices and the effectiveness of separate collection systems. The REDS indicator set, the OECD and Eurostat consider it for the analysis of waste management and the circular economy at the international level. A higher proportion of separately collected waste indicates that more materials are being separated and recycled, which contributes to reducing the amount of waste sent to landfills and promotes the circular economy. The trend is slightly positive over time, with a loss of trend in 2020, due to landfill and the resulting shutdown of activity. The increase over the rest of the period shows the increased awareness and awareness of the Andalusian population about the importance of recycling waste to protect the environment, reduce the consumption of natural resources and promote the circular economy. Moreover, the implementation of regulatory measures to encourage selective waste collection in Andalucía, such as the Circular Economy Law of Andalucía which promoted the improvement of infrastructure and selective waste collection services in Andalucía, as well as collaboration between administrations, companies and civil society; or the current 'Andalusian Integrated Waste Plan', positively boost both this indicator and the implementation of transversal actions on the subject.

12-5-1	**Selective waste collection**
Methodological notes	Separate collection: collection in which a waste stream is kept separate, according to its type and nature, to facilitate specific treatment. They include: paper-cardboard, light and glass packaging, waste electrical and electronic equipment (WEEE) of domestic origin, portable batteries and accumulators, textile waste of municipal origin, waste medicines, used vegetable oils and the part subtracted from the organic fraction corresponding to selective collection. The indicator is split by type of waste.

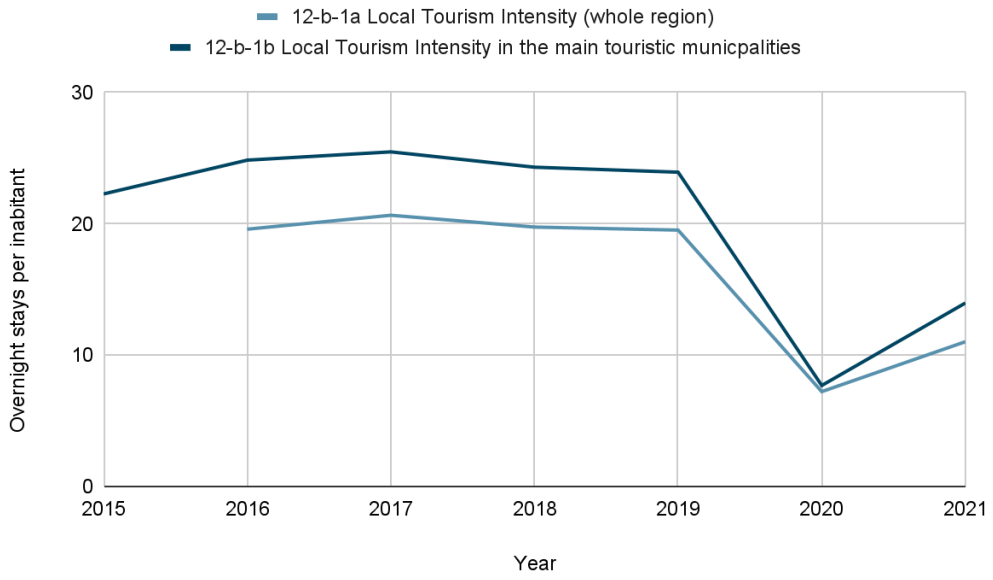
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

12-b-1 Local Tourism intensity

Data Description

Available sources			REDIAM
Competences	Regional Ministry of Tourism, Culture and Sport		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	%	2006-2020	Yes

Indicator evolution



Comments

Tourism intensity is a key indicator to assess the balance between the economic and social development of tourism and the preservation of the environment and local culture. It is also a standardised indicator that facilitates the comparison of data between different destinations. Organisations such as the World Tourism Organisation (WTO) recommend and use it to measure the sustainability of tourism. The trend is stable, showing a logical difference between the average and the most touristic areas of Andalucía, although not by a large magnitude. What is relevant in the series is the drop shown due to the COVID-19 pandemic that affected the tourism sector worldwide. This fact has a double interpretation as it implies a reduction in income, employment and economic activity derived from tourism in Andalucía, which is likely to have negative consequences for the sustainable development of the region. At the same time, it can also lead to a reduction in the environmental and social impacts of mass tourism, such as pollution, congestion and loss of cultural identity. However, the Andalusian Regional Government aims to balance the Andalusian tourism sector with strategies such as the 'General Plan for Sustainable Tourism in Andalucía GOAL 2027' and/or the implementation of the 'Tourism Sustainability Plans in Destinations Programme' that seeks to continue the process of transforming the sector into a more efficient, profitable and sustainable one.

12-b-1 Local Tourism intensity

Methodological notes	Ratio between the number of overnight stays in tourist accommodation establishments and the number of residents in a municipality. Overnight stays of tourists not resident in the Autonomous Community, including those resident abroad, as a percentage of the population. Resident Tourism Survey, National Statistical Institute (INE) Tourist Expenditure Survey, National Statistics Institute (INE). Population figures, National Statistics Institute (INE).

5.10 Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

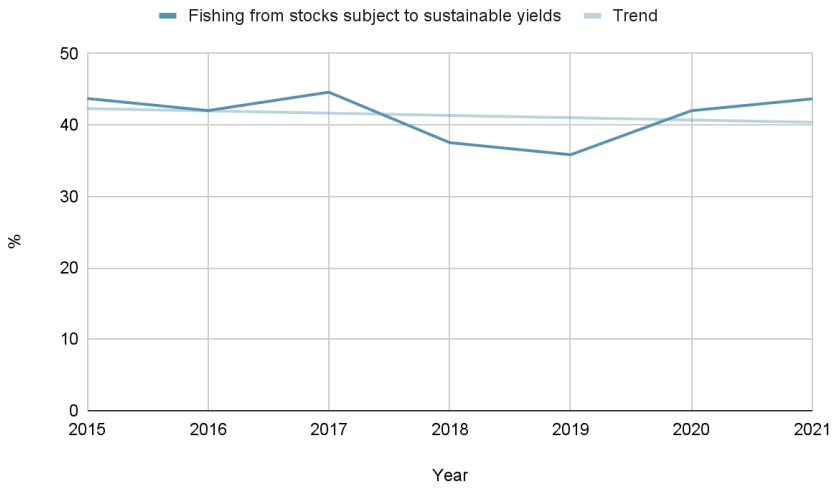
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

14-4-1 Fishing from stocks subject to sustainable yields

Data Description

Available sources			Competent Ministry
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
Regional Ministry of Agriculture, Fisheries, Water and Rural Development	%	1985-2021	

Indicator evolution



Comments

The setting of Total Allowable Catches and Fishing Quotas is an instrument established by international, national and regional bodies with the aim of avoiding overfishing and maintaining the biological levels necessary for the recovery of fish stocks between one fishing year and the next.

Therefore, a positive trend of this indicator is representative of an increase in the sustainability of fish production in the region. In this case, the trend is steady, without a clear evolution.

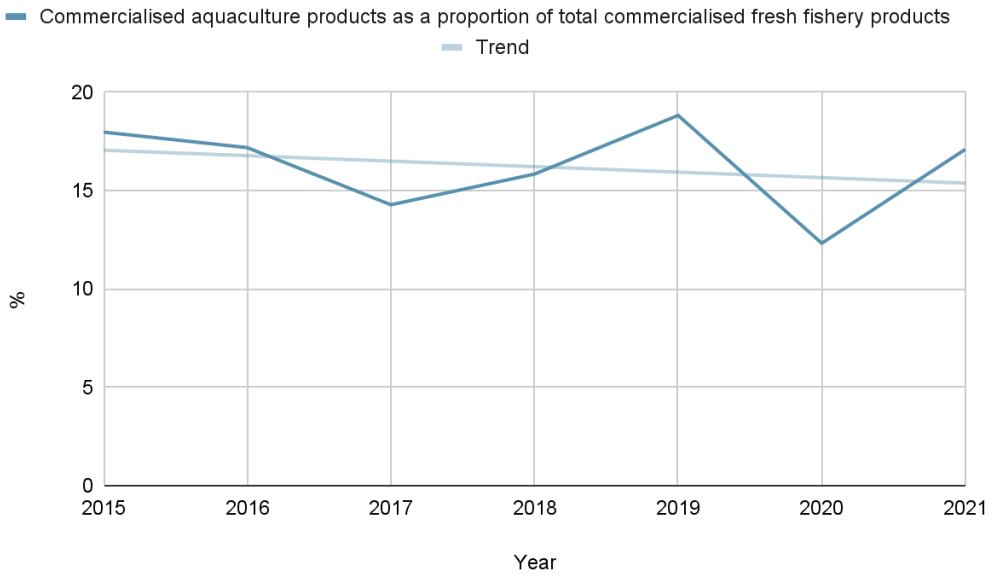
The indicator on fresh fish has been chosen as it allows the measurement of fishing sustainability within the scope of action of the Regional Ministry of Agriculture, Fisheries, Water and Rural Development, which exercises control over the activity through the Andalusian Autonomous Community Maritime Fisheries and Marine Aquaculture Inspection Plan.

14-4-2 Commercialised aquaculture products as a proportion of total commercialised fishery products

Data Description

Available sources			**Competent Ministry**
Competences	Regional Ministry of Agriculture, Fisheries, Water and Rural Development		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Regional Ministry of Agriculture, Fisheries, Water and Rural Development	%	1985-2021	

Indicator evolution



Comments

The indicator of marketed aquaculture products in relation to total marketed fresh fish products measures the sustainability of fish consumption in the region, as the environmental impact of aquaculture production is significantly lower than that of fishing.

Again, the choice has been made to apply an indicator on fresh fish as it allows the measurement of fishing sustainability within the scope of action of the Regional Ministry of Agriculture, Fisheries, Water and Rural Development, which exercises control over the activity through the Andalusian Autonomous Community Maritime Fisheries and Marine Aquaculture Inspection Plan.

5.11 Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

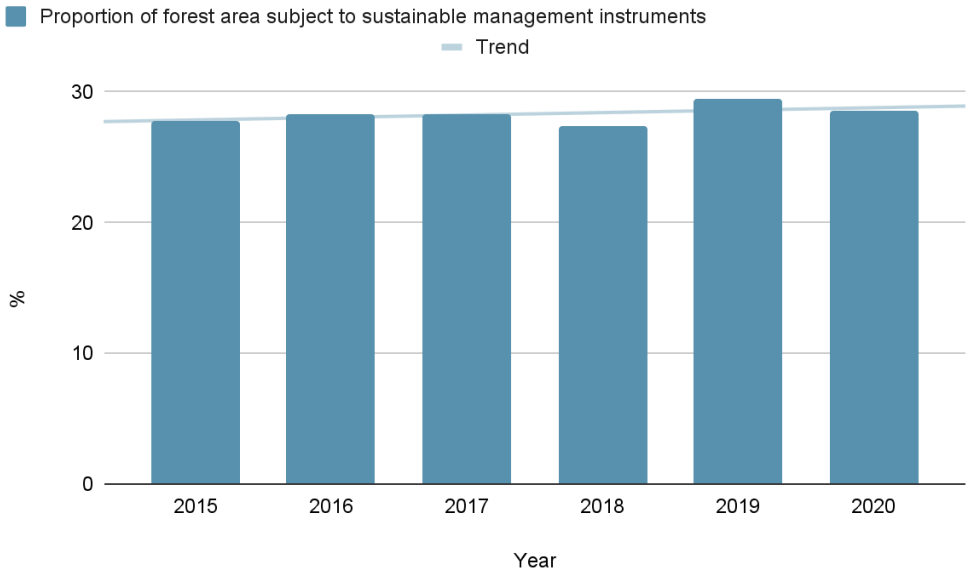
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

15-2-1 Proportion of forest area subject to sustainable management instruments

Data Description

Available sources	eurostat · INE Instituto Nacional de Estadística · Instituto de Estadística y Cartografía de Andalucía, Consejería de Economía, Hacienda y Fondos Europeos		**MITECO**
Competences	Regional Ministry of Sustainability, Environment and Blue Economy		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
IECA	%	2010-2020	Yes

Indicator evolution



Comments	The indicator measures progress towards forest management that protects forest resources, ecosystem services and biodiversity. In Andalucía, this indicator has remained constant between 2015 and 2020, at almost 30% of the total. This is a low value compared to other autonomous communities, implying that a significant part of Andalusian forests do not benefit from the advantages of sustainable management, such as higher productivity, profitability, conservation and adaptation to climate change. This is a complex and costly matter, not only in terms of the elaboration and implementation of the necessary instruments, but also because of the diversity and fragmentation of Andalusian forests. The 'Regional Ministry of Sustainability, Environment and Blue Economy' is planning and evaluating a new Andalusian Forestry Plan that takes into account aspects such as the General Instructions for the Management of Andalusian Mountains and their sustainable management.

15-2-1 Proportion of forest area subject to sustainable management instruments

Methodological notes	Surface of forest with a documented forest management scheme for a long period of time (10 years or more), with defined management objectives, and which is periodically revised. The document includes information in the form of texts, graphs, maps and tables, collected through a forest inventory at an individual operational scale (stand, etc.), with operations planned for each defined unit and aimed at achieving the management objectives". (SOEF 2011). Definition of "forest certification" "Is the assessment by an independent, qualified and accredited third party, who certifies that forest management practices meet a set of collectively agreed sustainability standards: Sustainable Forest Management certification covers forest inventory, management planning, silviculture, harvesting, as well as ecological, economic and social impacts of forestry activities. Chain of Custody certification assesses the traceability of forest-based raw materials and their derivatives through the different stages of the production process". (PEFC)

5.12 Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

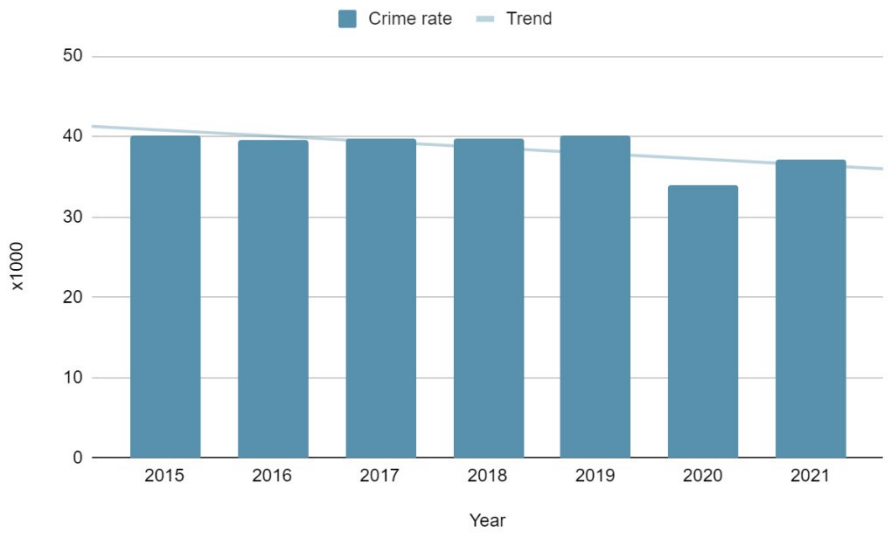
16.1 Significantly reduce all forms of violence and related death rates everywhere

16-1-1 Crime rate

Data Description

Available sources			MIR
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Competence shared with other Administration levels		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
INE	x1000	2010-2021	Yes

Indicator evolution



Comments

The trend in the crime rate remains stable during the period analysed with the exception of the year 2020 where a fall is produced due to the measures of confinement and restriction of mobility that were adopted to contain the pandemic. This explanation may have reduced the opportunities and incentives to commit certain types of crime, such as robbery with violence and intimidation, burglary and theft. It may also have increased other types of crime, such as those related to domestic violence or drug trafficking. However, the ratio decreases and maintains a small reduction during the last year analysed, 2021. This drop could be interpreted as positive from a public safety point of view, and provides an efficient metric for monitoring the follow-up of the SDG 16.1 target.

16-1-1 Crime rate

Methodological notes	Number of criminal offences per thousand inhabitants. The calculations for the rates are made using the population figures as of 1 July of each year from the National Statistics Institute (INE). For the known facts of intentional homicides and completed murders and total criminal offences that are used to calculate the respective rates, data from the National Police, Guardia Civil, regional police and local police that provide data to the Statistical System of Criminality are computed. Data from the Mossos d'Esquadra on robberies with force or with violence/intimidation in establishments, and robberies with violence/intimidation on public roads are not included until 2019; from 2020 onwards they are included.

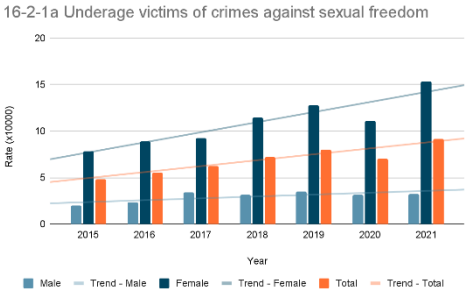
16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children

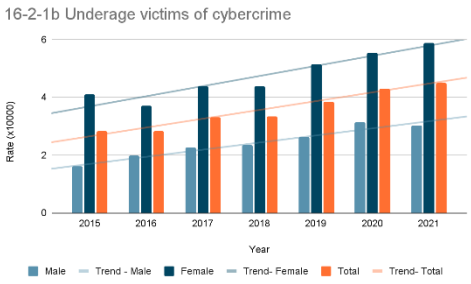
16-2-1 Violence against children

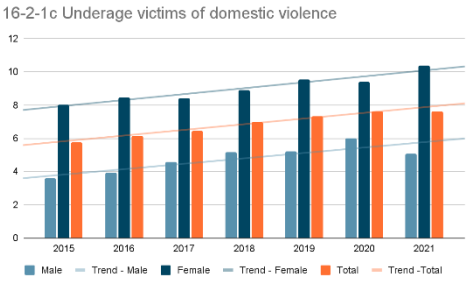
Data Description

Available sources			MDSyA2030
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification Regional Ministry of Social Inclusion, Youth, Families and Equality		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
MDSyA2030	X 10000 inhab	2008-2021	Yes

Indicator evolution







Comments

The trend shown by all disaggregated indicators is increasing over time, showing an increase in violence against children in Andalucía. Behind this rise over time there may be an increase in risk groups and factors such as the lack of economic and social resources for families and minors. The negative influence of social networks, internet and other media that may favour exposure to violent or inappropriate content. Also, the lack of awareness and prevention of child abuse and mistreatment by society, especially when it occurs in the family or institutional environment. This is a good indicator for monitoring target 16.2 as it allows not only to capture the impact of violence on this vulnerable group and to compare their situation with other age groups or regions, but also to identify the most frequent or serious forms of violence against children and to design specific measures to prevent or combat them. Andalucía has various strategies and actions to prevent and deal with violence against minors, including the service provided by the 'Observatorio de la Infancia y Adolescencia de Andalucía', which presents the Andalucía, which includes among its specific objectives the prevention and eradication of violence against minors.

16-2-1 Violence against children

Methodological notes	Population under 18 years of age victims violence as a proportion of the total population under 18 years of age. The indicator is provided disaggregated by type of crime: against sexual freedom (16-2-1a), cybercrime (16-2-1b) and domestic violence (16-2-1c). Data from the National Police, Guardia Civil, Policía Foral de Navarra and local police that provide data to the Crime Statistics System throughout the entire historical series are computed. With regard to the data from the Ertzaintza, they are included as of the year 2019. Regarding the data from the Mossos d'Esquadra, they are included as of 2020.

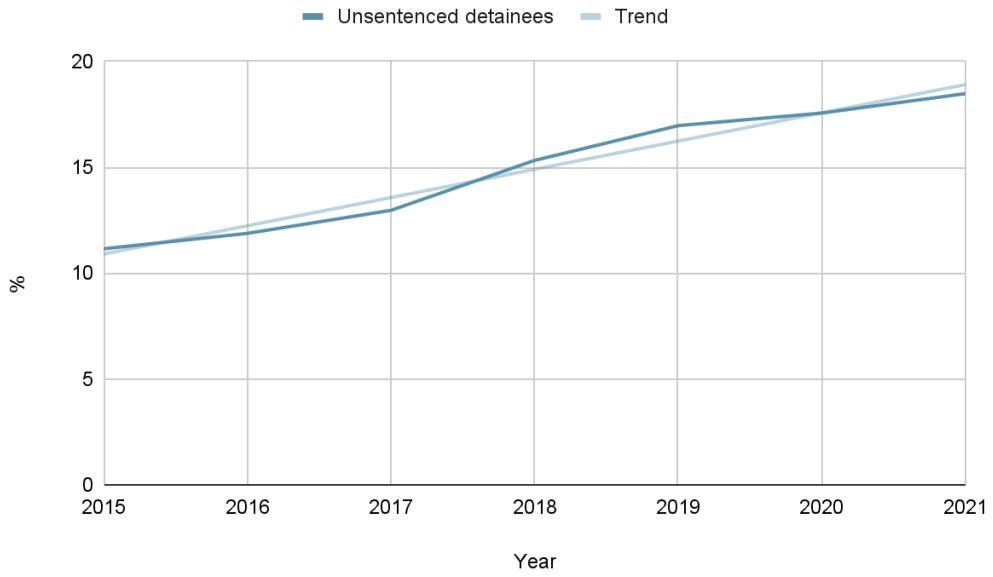
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all

16-3-1 Unsentenced detainees as a proportion of overall prison population[13]

Data Description

Available sources			
Competences	Regional Ministry of Justice, Local Administration and Civil Service		
Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	%	2010-2021	Yes

Indicator evolution



Comments

This indicator is aligned to a target that is difficult to monitor, but it is appropriate to the purpose of the target as it allows for an assessment of the degree of respect for the principle of the presumption of innocence and the functioning of the judicial system. Moreover, it refers to a situation that affects the human rights and procedural guarantees of persons deprived of their liberty, who are a vulnerable group with specific protection needs. In any case, the indicator could be considered wrong if it exceeds a certain threshold or if it shows a sustained upward trend over time, which is shown in this case. The increase shown since 2018 may be due to the entry into force of Organic Law 1/2018, which amended the Criminal Code and established new maximum terms for pre-trial detention depending on the type and seriousness of the offence, however it is an indicator that may be influenced by other factors that do not depend directly on the judicial system, and must be treated as an interpretative indicator in order to generate policies and strategies around it.

[13] Ratio of pre-trial detainees to total number of inmates

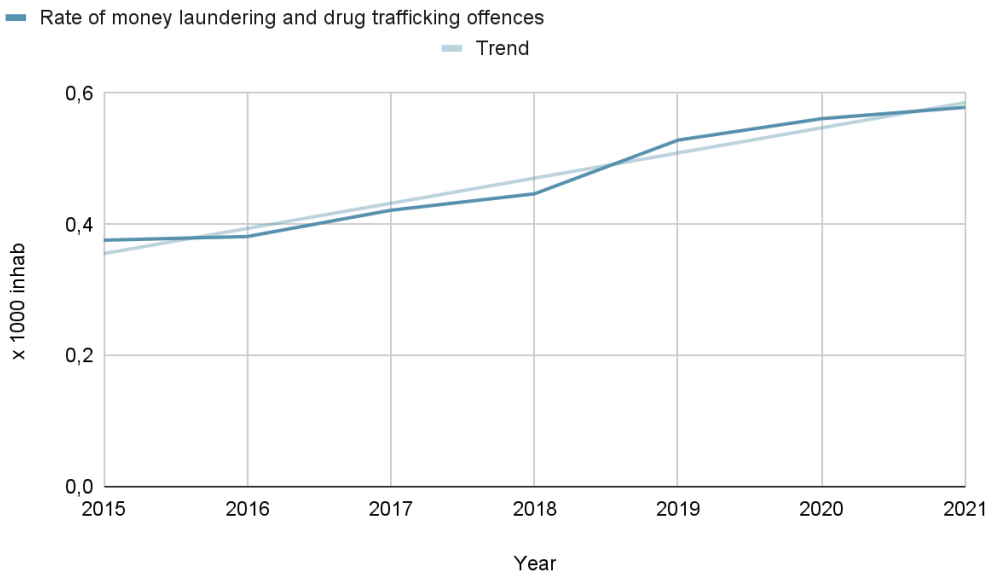
16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime

16-4-1 Rate of money laundering and drug trafficking offences[14]

Data Description

Available sources			MIR
Competences	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
MIR	X 100000		Yes

Indicator evolution



Comments

The trend of the indicator over the interval of years analysed is upward, implying an increase in the incidence of this type of crime in Andalucía over time, which implies a decline in citizen security and an obstacle to the ultimate purpose of the target it monitors. The indicator makes it possible to assess the level of criminal activity related to money laundering and drug trafficking, which are two of the main manifestations of transnational organised crime, and is therefore perfectly aligned with target 16.4. In this context, Andalucía is one of the autonomous communities most affected by the problem of drug trafficking and the money laundering derived from it. The Andalusian Regional Government runs the 'Observatorio Andaluz sobre Drogas y Adicciones (OADA)', which is the body in charge of collecting, analysing and disseminating information on the situation of drug use and addictions in Andalucía, as well as promoting research and training on this issue. In addition, the Autonomous Coordination of the National Plan on Drugs coordinates the actions of the Regional Government of Andalucía with the central government in the field of drugs and addictions.

[14] Criminal and administrative offences, which have been brought to the attention of the different Security Forces and Corps, either by means of a report filed or by police action carried out on their own initiative (preventive or investigative work), related to money laundering (art. 301 and 302 of the criminal code) and drug trafficking (art. 368 to 371 of the criminal code)

5.13 Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

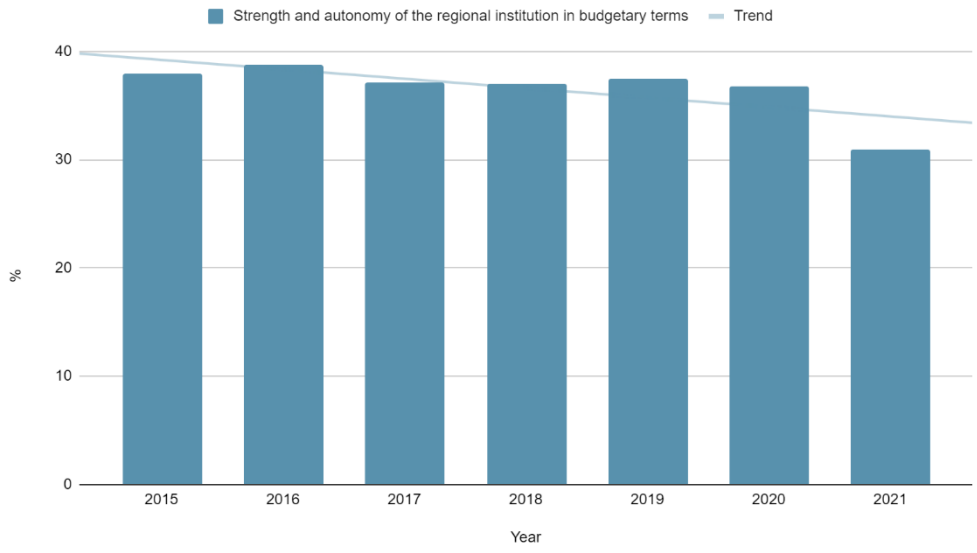
17.1 Strengthen domestic resource mobilisation, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

17-1-1 Strength and autonomy of the regional institution in budgetary terms[15]

Data Description

Available sources			Hacienda
Competences	Regional Ministry of Economy, Finance and European Funds		
Selected source	**Unit**	**Time coverage**	**Comparability (Spanish regions)**
Hacienda	%	2003-2021	Yes

Indicator evolution



Comments

The trend was constant, with a reduction in the last year analysed. This event, derived from the health and economic crisis caused by the COVID-19 pandemic, is visualised in the year 2021 with the progressive reactivation of the economy. An increase in this indicator may reflect the region's greater capacity and fiscal responsibility to generate its own resources and finance its public policies without depending so much on external transfers. The indicator is appropriate for this goal because it measures the degree of financial and fiscal autonomy of a region or country, as well as its ability to generate its own resources to finance its public spending and policies.

[15] Budgetary ratio of own resources revenue to total revenue. Direct taxes, indirect taxes, property taxes, fees and others are counted as own revenue. Based on budget settlement data at regional level.

17.3 Mobilize additional financial resources for developing countries from multiple sources

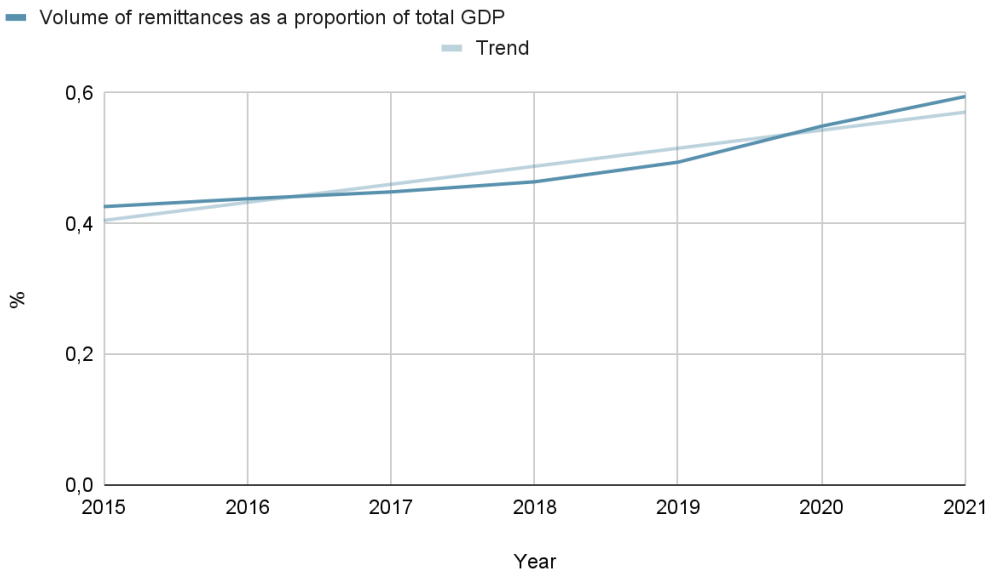
17-3-1 Volume of remittances (in United States dollars) as a proportion of total GDP

Data Description

Available sources	eurostat, INE Instituto Nacional de Estadística, Instituto de Estadística y Cartografía de Andalucía – Consejería de Economía, Hacienda y Fondos Europeos
Competences	Regional Ministry of Economy, Finance and European Funds Regional Ministry of Social Inclusion, Youth, Families and Equality

Selected source	Unit	Time coverage	Comparability (Spanish regions)
IECA	% (PIB)	2013-2021	No

Indicator evolution



Comments

The indicator is appropriate to this target because it measures one of the most important and stable sources of external financing for developing countries. It is monitored and proposed by the United Nations because it is an easy variable to calculate, compare and report, as it is based on official and standardised data on countries' balance of payments and gross domestic product. The trend is slightly upward, reflecting Andalucía's greater connection and integration with the world, as well as the greater generosity and social responsibility of its residents.

17-3-1 Volume of remittances (in United States dollars) as a proportion of total GDP

Methodological notes	Ratio of residents' current transfers abroad to GDP at current prices. Only non-EU countries are taken into account. Data sources: Annual Regional Accounts of Andalucía, Instituto de Estadística y Cartografía de Andalucía (IECA). Balance of payments, Bank of Spain Continuous Register Statistics, National Institute of Statistics (INE) Regional Accounts of Spain, National Statistics Institute (INE)

6. IDENTIFICATION OF SDGS AND SDG TARGETS THAT REQUIRE CUSTOMISED APPROACH

6.1 Competence-based analysis

Any result-oriented policy analysis would require a clear assignment of the indicators to the administration level with the related attribution, in order to correctly evaluate the adequacy and impact of the given strategies. This makes special sense in the Spanish regional context, where the share of these attributions is quite heavy.

'The Andalusian Path on the 2030 Agenda' report made a top-down analysis on the relation of each Regional Ministry competencies and the SDGs. This is a great starting point to link the dataset indicators with the competent Entity, but poses some difficulties:

— The report is very heterogeneous in terms of interpretation for each Ministry's attributions: some of them have been very broad considering all indirect influence, and others have only selected the SDGs where they have a very clear responsibility.

— The alignment is described only at SDG level (thus, many SDGs are shared between several Ministries)

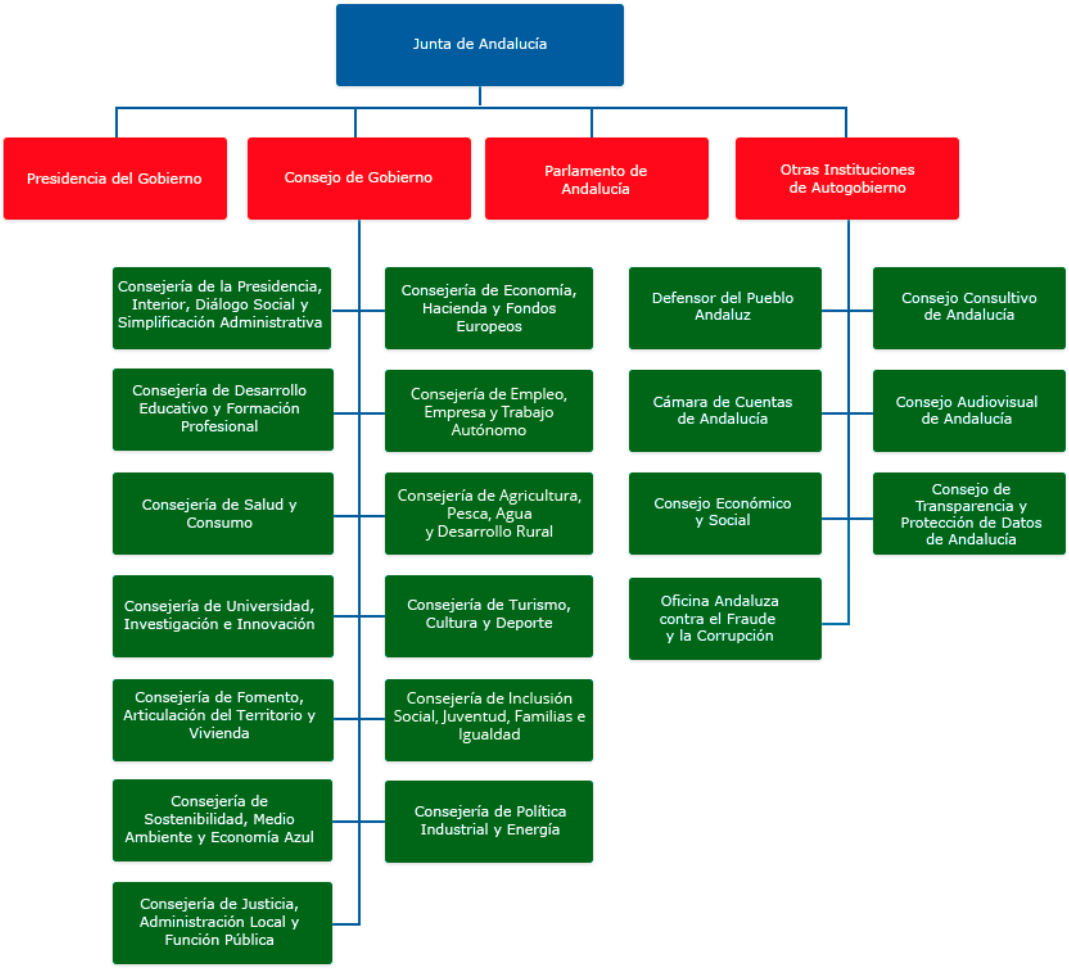
— It is not clearly stated if the attribution is exclusive or shared with other administrations: most SDGs are so broad that National and Local administrations can have part (or most) of the attributions.

— The Regional Government structure changed slightly after the report (2021), shifting competencies between Ministries.

Most of these issues are probably shared with any other European regional administrations reports about SDG policy coherence, but as it still remains a key issue, the assignation has been updated by selecting, on each indicator, which Regional Ministry (or ministries) has the competence, and if this is shared with other levels. The starting point for this work has been a deep analysis of each Entity website describing its attribution, and the Andalusian Statute of Autonomy.

This model can be developed (at least with some indicators where the alignment is very clear) for a better analysis of the indicators trend and expected values.

Figure 5. Andalusian Government Organization (as in 2023)



Source: Andalusian Government

Generally speaking, the Regional Ministries hold a balance in SDG alignment, as seen in table 6. All ministries have responsibilities related to the Agenda, and all SDGs are well covered, with some remarks:

— Regional Ministry of Tourism, Culture and Sport has been only linked to 2 indicators (in the additional set). This is a reminder of the need to take culture and sport in the 2030 Agenda implementation, as they are transversal aspects. Also, tourism is a main economic driver in many European regions and should be considered.

— Regional Ministry of Economy, Finance and European Funds has less links with indicators than expected. However, the influence of the economic departments is huge and in the background to most policies.

— The most related Ministries are the Regional Ministry of Social Inclusion, Youth, Families and Equality and the Regional Ministry of Sustainability, Environment and Blue Economy, an expected result as they are connected to key social and environmental issues, and have very transversal competences.

Table 8. Regional Ministries Competences and the SDGs

Regional Ministry	Indicators	SDG alignment
Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification	10	16
Regional Ministry of Educational Development and Vocational Training	8	4, 8
Regional Ministry of Health and Consumption	12	2, 3, 12
Regional Ministry of University, Research and Innovation	6	4, 5, 9
Regional Ministry of Public Works, Territorial Articulation and Housing	9	9, 11
Regional Ministry of Sustainability, Environment and Blue Economy	26	6, 9, 11, 12, 13, 14, 15
Regional Ministry of Justice, Local Administration and Civil Service	4	16, 17
Regional Ministry of Economy, Finance and European Funds	5	8, 17
Regional Ministry of Employment, Business and Self-Employment	15	1, 5, 8, 9, 10
Regional Ministry of Agriculture, Fisheries, Water and Rural Development	13	2, 6, 14, 15
Regional Ministry of Tourism, Culture and Sport	2	8, 12
Regional Ministry of Social Inclusion, Youth, Families and Equality	21	1, 3, 4, 5, 7, 10, 16, 17
Regional Ministry of Industrial Policy and Energy	9	7, 9

Source: author's elaboration

It is interesting to go back to 'The Andalusian Path on the 2030 Agenda' in order to compare the result of this alignment performed by the author to the original vision the Andalusian Administration had of its own competences. Table 7 compares some of the Regional Ministries alignment where (in principle) there has been less change in attributions within both Analysis:

Table 9. Competences comparison between 'The Andalusian Path on the 2030 Agenda' (2021) and the author's analysis (2023)

Regional Ministry (2021)	SDG alignment	Regional Ministry (2023)	SDG alignment
Consejería de Presidencia, Administración Pública e Interior	5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Regional Ministry of the Presidency, Interior, Social Dialogue and Administrative Simplification	16
Consejería de Hacienda y Financiación Europea	1, 3, 4, 5, 7, 8, 9, 10, 12, 13, 16, 17	Regional Ministry of Economy, Finance and European Funds	8, 17
Consejería de Fomento, Infraestructuras y Ordenación del Territorio	1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13	Regional Ministry of Public Works, Territorial Articulation and Housing	9, 11
Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible	4, 6, 11, 13, 14, 15, 16	Regional Ministry of Sustainability, Environment and Blue Economy	6, 9, 11, 12, 13, 14, 15
		Regional Ministry of Agriculture, Fisheries, Water and Rural Development	2, 6, 14, 15
Consejería de Igualdad, Políticas Sociales y Conciliación	1, 5, 10, 16, 17	Regional Ministry of Social Inclusion, Youth, Families and Equality	1, 3, 4, 5, 7, 10, 16, 17

Source: author's elaboration

As there is not an integral regional sustainable development strategy currently in force for Andalucía, this assignment of the different SDG indicators and targets should enable a framework to relate them to other vertical strategies designed by the competent Ministry. Some cases identified are:

— The Regional Ministries of Industrial Policy and Energy (including the Andalusian Energy Agency), and Sustainability, Environment and Blue Economy have shared responsibilities regarding targets 7.2 and 7.3, and SDG 13 (among others), which relate them to the indicators on Energy and Emissions. The Andalusian Law for Climate Change (and the Integral Plan associated) develop this in terms of commitments and goals.

— Regional Ministry of Health and Consumption, through the Andalusian Plan of Children Overweight relates to target 2.2 indicators.

6.2 Climate change and monitoring of sea conditions

Climate change is a key issue for the European long-term vision, hence represented in the original dataset by several indicators. Regions also find this topic of the highest relevance, and several efforts to mitigate and adapt are in progress at their level.

Andalucía is committed to monitoring coastal water conditions, and has developed a program for coastal strip protection, including the collection of information regarding biological conditions and their effects on fisheries and the extractive sector itself. New methods of real-time prospecting have been deployed, such as the Andalusian Fishing Vessel Location and Monitoring System (*Sistema de Localización y Seguimiento de Embarcaciones Pesqueras Andaluzas*, SLSEPA), combined with the collection and analysis of information related to the catches of the Andalusian fishing fleet (IDAPES System) and hydrographic and biological prospecting studies using immersion sampling, hydroacoustic techniques and underwater imaging. However, all the works carried out to date present a significant lack of information regarding the physicochemical and oceanographic phenomena that are essential to understand the processes that take place in the marine ecosystems. This lack of information is a consequence of not having continuous data collection methods for this type of information.

A recently launched project with European funding aims to solve this deficiency, by means of the installation on the Andalusian coast of an oceanographic and physical-chemical data capture system that allows the collection, storage and transmission of continuous data. This system is still in its early stages and only a few months of data have been produced. However, it might be a great source of information for climate change monitoring, and during the elaboration of this report it was considered to include water temperature data captured by the stations. That was finally discarded due to the short time series collected so far.

7. CHALLENGES IN DATA AVAILABILITY AND COLLECTION

7.1 General considerations

At the final point of the elaboration of this report, only a few indicators in the original dataset had data availability issues, most of them in regard to SDG 11. Three indicators could not be properly collected, and seven were proxies (however, the latter were not always due to data availability). All other indicators were available and could be collected, some of them with specific difficulties that are discussed below.

As summarised in the previous tables and indicator factsheets, there is availability for most of the originally proposed indicators at different levels:

Table 10. Indicators availability per source level

Total indicators	**83**	
Eurostat	30	36.14%
INE	32	38.55%
IECA	45	54.22%
Other (all levels)	29	34.94%

Source: author's elaboration

This is a challenge when collecting the data, as there are (sometimes significant) differences between them, and metadata have to be thoroughly compared to spot the differences. There is a balance to be made between choosing the European-wide, more comparable sources, and the most adapted and closer to the analysed issue regional sources. In general, our approach has been choosing primarily the regional ones in order to have a better understanding of the real data origin and its link to the Andalusian origin, but keeping track and clearly identifying small differences in methodologies.

Another aspect related to 'excess' of data availability is gender disaggregation. There are several indicators suitable for gender disaggregation (in all SDGs, and particularly in 4 and 8), and a clear mandate by both the project and the Andalusian proposal to include gender perspective in the report. Data was available for creating this disaggregation in many of the indicators. However, a clear and informative way of sharing the information without overloading the reader in indicators where there were already several degrees of disaggregation could not be found by the author.

7.2 Daily accessibility and transport performance

These two indicators were not collected for Andalucía, although Daily Accessibility already has an approximation in the Urban Data Platform. One of the goals for this report, coming from the Andalusian priorities, was focusing on the use of spatial data, and thus the approach for these specific indicators was trying to improve the accuracy of the current measure. In order to achieve that, base datasets used for these indicators were available:

- A database with the population census geolocated to the building level.
- A more precise and updated database of roads for the network analysis required in these indicators.

However, according to the definitions, we have not been able to find a way of applying the first advantage to the calculation of these two indicators: the methodology is based on an aggregation of population grids, and having totally accurate data was not significantly improving these grids. In order to apply the second advantage, network analysis algorithms considering the different characteristics of the roads (maximum speeds, mandatory directions…) needed to be applied.

It is worth noting that, besides the above discussed availability issues, these indicators are based on the performance of road infrastructure, mainly used by private vehicles. Therefore, they were not among Andalucía's main interests, and several proxies were discussed based on public transportation alternatives. More on this will be discussed below in the Recommendations section.

7.3 Indicators without a clear definition

Accurate indicator definition, methodology and context is key in data collection and this has been a challenge for some of the indicators proposed in the JRC set. Understanding the aim of the indicator, as well as its methodology, proved to be crucial in order to have a fruitful discussion with expert counterparts. In detail:

— Land use: although the indicator's name pointed to evaluating the balance of different land uses in the Region, its definition, analysis patterns and usefulness was not clear. Besides, several comments on the proposed database suggested alternatives on similar issues (green areas, for example) that in principle answered more relevant questions concerning target 11.3. Some of these alternatives were explored and an additional indicator has been proposed directly as a result of this exploration.

— Transparency index: a proper definition could not be found in the proposed reference (Transparency International), so we had to work on other sources to define the concept. There were two main options:

a) DYNTRA (Dynamic Transparency Index): a collaborative civic platform that creates several government quality indexes, (mostly in Spain, but also evaluating entities in other countries), with a public methodology based on questionnaires performed by independent, volunteer auditors on the public authorities, and periodically reviewed. The main DYNTRA outcome is its Transparency Index, created at several levels (including local entities and regions).

b) Andalusian Government Transparency information: Andalucía Government publishes specific transparency information for each area of government, within a specific web portal for this matter. However, although this information was analysed, it could not easily result in a valid comparable indicator.

— Water quality indicators: The reference provided for these indicators included indicators relating to two matters: compliance with drinking water potability regulations and the percentage of authorised wastewater discharges that are adequate or inadequate. Bearing in mind that the set of indicators already includes other ones related to the quality of drinking water and wastewater treatment, it has been decided to apply the quality indicators for surface, ground, transitional and coastal water bodies included in the Water Framework Directive (Directive 2000/60/EC) and therefore present in the reports of all the water basins management organisations. As discussed below, the division of competences in the area of management of the inter-region basins has meant an additional variation in the disaggregation of the indicators.

— Several indicators for SDG 4 were unclear in terms of the educational levels involved. Two criteria have been applied to narrow down and/or identify the correct levels:

a) The SDG target assigned to the indicators provides some guidance to the educational level planned by the JRC. For example, indicator Participation in education is aligned to target 4.3, so the data collected is regarding professional training.

b) Showing disaggregated data between different levels has been chosen as the right way to face the issue when possible and meaningful.

— Some doubts were raised while treating the indicators 'CO2 emissions', 'Carbon Footprint' and 'Greenhouse gas emissions', and finding data sources that would provide these data in an useful and separate way. Particularly, GHG emissions has been provided with several sub-indicators to better show emission intensity and reductions.

7.4 Issues concerning administrative divisions

Some indicators sources are not following the regional divisions adequate for this report. An example of this are SDG 6 indicators, where natural divisions are the hydrographic basins. Surface water and groundwater within the Andalusian territory are divided between 6 river basins, 3 of which are intra-region and 3 inter-region.

In the case of the intra-region basins ("*Cuencas Mediterráneas Andaluzas"; "Tinto, Odiel y Piedras*"; and "*Guadalete y Barbate*") the competences for hydrological planning lie within the Andalusian Government, including the management of the information and the responsibility for the indicators improvement.

The inter-region basins include the Guadalquivir basin, with 90.22% of its surface area within the Andalusian territory, and the Guadiana and Segura basins, with surface areas of 10.10% and 9.4% respectively within the Andalusian region. In this case, the competences to dictate legislation, as well as for the planning and concession of hydraulic resources and uses correspond to the National level. However, given the large surface area of the Guadalquivir basin within Andalucía and the influence that the Andalusian Government has on its management, it has been decided to include the data corresponding to this basin for the calculation of the indicators whenever possible.

Taking into account the territorial delimitation within the region and the distribution of competences in water quality matters, it has been decided to provide the indicators relating to water quality disaggregated by basin, given that the needs, current status and main uses and pressures vary considerably from one basin to another.

Another example was the SDG 1 indicator 'Affected people due to disasters': although a proxy counting casualties due to disasters has finally been chosen, an alternative data source was assessed (EM Data - The International Disasters Database), that could enable the calculation of this indicator according to the definition of the Indicator B1 in the Sendai Framework for Disaster Risk Reduction. The source included data on economic losses and people affected, in a wider way. However, this database is centred on specific natural disasters, providing geographic indication on where it happened but not giving enough information to disaggregate it. Many disasters affecting Andalucía are also affecting other regions (a good example are floods affecting South Eastern Spain) and made impossible the use of this source.

7.5 Specific indicators issues

After consultation with experts in the agricultural sector and rural development in Andalucía, the indicator 'Land Abandonment' was not considered relevant since the issue of agricultural land in Andalucía is more a result of the monopolisation of production than of land abandonment itself (see more on this in the indicator discussion). Due to this fact, there are no databases in Andalucía collecting information about abandoned land. Besides that, the objective of this indicator and how it was approaching target 15.1 was not clear: land degradation is covered by other indicators, and the indicator was found inadequate to measure other related matters that could be found relevant in Spain, such as depopulation of rural areas.

The indicator in SDG 6 'Population served by safely managed drinking water supply services' is a proxy, as a source with the exact proposed definition was not found. Instead, this indicator is only assessing water supply to over 50 inhabitants and 10 m3 of water per day, from water network service (excluding other means such as isolated wells).

The indicator 'Food waste' did not have a clear definition in the proposed documentation. However, during the research stage a very interesting definition by UNEP (United Nations Environment Programme) was found, that approached the food waste issue in a holistic way by considering waste across all the food value chain and along several sectors. Data availability for building such an index is very complicated at regional level, but we have been able to build of the dimensions, providing information on food waste in households based on the Household Food Wastage Quantification Panel by the Spanish Agriculture Ministry.

A source with history data that considered all possible levels of administrative protection was not found for the indicator 'Terrestrial protected areas as a percentage of total area'. Therefore, and in order to avoid possible overlaps in the protection surfaces, a proxy indicator including only protected areas in the *Natura 2000* network has been used.

There has been some discussion regarding the indicator 'Difference between the growth of the constructed area and the growth of the population'. It is very similar to the one proposed by the United Nations and disseminated by the National Institute of Statistics of Spain (relationship between the rate of land consumption and the rate of population growth), and some options have been evaluated for its implementation:

— Difference between the growth rate of the constructed area and the population growth rate. This is the indicator proposed by JRC

— Growth of the constructed area per capita, in relative terms and in absolute terms

— Growth in built area for each new inhabitant

However, these implementations presented some problems. Some of them show very high values when it comes to a ratio between rates and population growth is close to zero. Others are difficult to understand when the population or area decreases in the considered period. For this reason, it has been decided to build a simpler indicator: the constructed area per capita. We also believe that it is in line with the comment made by DG Regio in the Excel of original indicators: "We are in a process of replacing this indicator which is not the difference but ratio between 2 growth rates. We prefer something simpler such as imperviousness area per capita".

8. RECOMMENDATION TOWARDS THE DEVELOPMENT OF AN EU-WIDE REGIONAL INDICATOR SET FOR MONITORING THE SDGS

8.1 Administration engagement

SDG indicators provide society & citizens with context data and overall situation information. Administration's monitoring tasks require ownership and engagement in those areas where regional powers can be deployed.

Administration stakeholders' perspective provides a different approach towards indicators selection. Indicators usually report about the overall situation whereas administration counterparts contacted were primarily focused on the partial target/goal or domain laying under regional ruling or governance, being that part of the target the lever for regional SDG achievement.

In the institutional environment, collaboration and cooperation between Statistical units and administration stakeholders (area departments) has proven to be key in understanding regional reach over specific matters and sectors, therefore to identify SDG achievement levers and indicators to localize the SDG.

8.2 Filter relevant targets

As discussed at the beginning of this report, not all SDG targets are relevant at all levels. Despite the multi-actor character of the 2030 Agenda, which implies that the participation of all agents is necessary for the achievement of the SDGs, many VLRs, or local and national reports on the SDGs do not evaluate the relevance of all 169 targets. Some authors and references[16] have discussed how these relevant targets can be filtered. 3 criteria can be given for this selection:

— Regulatory analysis: as discussed in the previous section, regional administrations have specific competencies (sometimes very broad, but always limited), and a way to make a selection of 'regional' SDG targets is aligning them with the Region's legal framework.

— Ability to impact: same as local administrations, regions have limited competences, but closer contact with their citizens than national ones. Therefore, they can impact beyond their competences, and the list of relevant targets cannot be done only according to the sectors where they are competent.

— Already achieved targets and indicators: as remarked in some discussions throughout this report, some indicators already show a steady trend close to an 'achievement' threshold. This, of course, may vary across regions with different socio-economic situations, but it can be agreed that, to a certain extent, some SDG targets can be considered as achieved in most regions, and should not be included (or at least be optional) in a European regional dataset.

This target filtering is already implicit in the indicators proposal, as only a part of the targets are represented, but seems in some cases it is more due to the availability of data and proper methodologies than a real assessment of the role of the regions in the achievement of the SDGs.

8.3 Link to EU directives and regulations

Being so close to an administration with extensive powers and capabilities, which is in many aspects directly linked to the European Authorities and has the responsibility to carry on some of their mandates, has made us aware of

[16] Sisto, Raffaele (2022). Diseño y aplicación de una metodología de análisis de impacto de las políticas públicas sobre los objetivos de desarrollo sostenible. Tesis (Doctoral), E.T.S.I. Industriales (UPM). https://doi.org/10.20868/UPM.thesis.70174.

some indicators that directly emanate from those mandates. An example of this are the Directives on Energy Efficiency and Renewable Energies, that define some indicators and, furthermore, clear goals to be achieved within 2030 or other time ranges, applicable at regional level. This perspective should be applied in the development of the dataset, clearly stating which ones come from a mandatory European policy of application at this level.

8.4 Aggregation and disaggregation guidelines

Some of the suggested indicators (and a lot of the data for building up others) are available at subregional levels (province, local or in some cases in grids). Clear aggregation and disaggregation guidelines would help to manage this information in a common way.

Regarding Data Ecosystem enhancement for regional and local SDG monitoring, 22 of the proposed indicators are available at subregional levels (province, local or in some cases in grids) while data is available for calculating many of the remaining proposed indicators subregionally. Standardised aggregation and disaggregation guidelines would help to manage available information in a comparable way. In this regard, data source prominence moves from survey data to administrative and spatial data as scope of analysis moves from national to regional or local. This calls for a great deal of coordination or cooperation between administrative levels (regional and local) in order to assist and standardise data handling and management. Additionally, similar collaboration with local administration stakeholders to identify relevant indicators and levers at local scale is essential.

8.5 Use of spatial information

One of the priorities of the Andalusian request for participation in the Regions2030 project was exploring the use of spatial data. Although only a few of the originally proposed indicators are spatially oriented, differences have been detected between administrative spatial sources and satellite modelled images, in terms of over/under estimation of sealed soil and built-up area related to plastic temporary greenhouses and demolished & refurbished constructions. IECA and SCU across regional ministries handle extensive geolocalized data that can be aggregated to build very meaningful indicators.

The main challenge encountered for the calculation of accessibility indicators, once population and infrastructure georeferenced data is available, is road network information availability. This data is mainly privately held, OpenStreetMaps is the standard open option. Therefore, an analysis to evaluate OpenStreetMaps regional road network information coverage is required. For isochronous calculation there are open R and Phython solutions that can be customised.

There are several topics (and thus, SDG targets) where spatial data can be applied: accessibility to public services such as education or health, infrastructure, healthy behaviour patterns, human movements... In order to fully harness its potential, there is a need to define more methodologies and standardize some aspects: what are adequate walking and cycling times for each activity? Should we include driving related to indicators? How can we integrate public transportation (and intermodality)? Further research can be done and several indicators with this idea should be included in future developments.

We decided to include an additional indicator to illustrate some of these points 'Population without green areas in their neighbourhood', but others were explored such as proximity to bike lanes or accessibility of Health Centres. This indicator is an example of some of the issues raised by the use of geolocalized data and need to be addressed:

— Different behaviour at urban and rural levels: in this particular indicator, green areas benefits are covered by other facilities in the rural environment, such as natural spaces. Therefore, the mentioned indicator has been calculated for dense urban centers.

— Seasonality or partial availability of services should be addressed.

— Combine accessibility with use statistics: accessibility enables the use of the facilities, but other factors can also be of importance. The relation between these two aspects must be looked into.

8.6 Tourism, Culture and Sport

Culture and sport are topics that traditionally have not been well captured by the 2030 Agenda. However, there are several advances and approaches that can be used to cover them:

— The European Handbook for SDG VLRs proposes the 'Creative Cities Index' as an indicator for culture. Although it has an urban-centered definition, it is also of difficult application for mid or small cities. An alternative for regions should face the issue of finding very different situations in rural and urban areas for access to culture.

— Heritage protection, use and conditions are part of target 11.4, and indicators for measuring them can be defined.

— The accessibility approach described above can be used to find the share of population with reasonable access to cultural and sport facilities.

Tourism is a very relevant topic for Andalucía and other European regions, but no indicators were originally proposed. There are some challenges when dealing with this topic from the sustainability point of view, but there are several dimensions that can be considered here:

— Tourist pressure: comparing overnight stays or foreign visitors with the population is a simplistic approach that leaves many other aspects behind, but there is data available and some indicators can be built, as the ones that have been proposed in this report. The topic of choosing thresholds and correctly understanding the data has many faces, as the population in some places can be more resilient to tourism (and even actually not being able to thrive without it).

— Resources pressure: a more sophisticated approach should consider available resources and pressure differences between high and low seasons.

— Destination sustainability: combining both dimensions, there are several methodologies to assess tourist destinations in terms of sustainability. These approaches are mainly meant for certification but can have certain interesting variables.

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LIST OF BOXES

LIST OF FIGURES

LIST OF TABLES

ANNEXES

Annex 1. Database – Properties, Characteristics, and Structure.

This section provides a comprehensive description of the properties, characteristics, and structure of the database utilised within the scope of this research. The database consists of two primary sheets: "Codebook" and "Data." The following is an in-depth explanation of each sheet, along with description of the corresponding columns.

"Codebook" Sheet

The "Codebook" sheet plays a crucial role in furnishing descriptive and contextual information regarding the data contained within the database. Its structure comprises the following columns:

A. **SDG:** This column stores the code corresponding to the Sustainable Development Goal (SDG) to which the registered data pertains.
B. **SDG target:** In this column, the specific target or subgoal within the framework of the Sustainable Development Goals, to which the data applies, is identified.
C. **ID:** A unique identifier is assigned to each data record to facilitate its identification and referencing within the database.
D. **Name:** This column contains the name associated with each indicator record, enabling easy identification and comprehension.
E. **Download Source:** This column specifies the selected original source of the data included in the database.
F. **Data Source:** This column indicates the sources from which the dataset can be downloaded for the indicator.
G. **Type:** This column indicates the type of indicator represented by each data record. It specifies whether the indicator is original, additional, alternative, or a subindicator of the original. This classification provides valuable insights into the relationship and relevance of the indicator to the research objectives. It helps in distinguishing between primary indicators and supplementary or alternative ones within the original dataset, enabling researchers to appropriately interpret and analyse the data in the context of the study.
H. **Unit:** The unit of measurement used to quantify the data is detailed in this column, allowing for precise interpretation.
I. **Description:** A detailed description of the data contained in each record is provided, offering context and clarity regarding its significance.
J. **Link to Metadata:** This column includes a hyperlink or reference to the metadata corresponding to each data record, facilitating access to additional information and technical details.
K. **Comments to Metadata:** This column allows for the addition of comments or supplementary notes pertaining to the metadata associated with the data records.
L. **Link to Data:** A direct hyperlink or reference to the specific data stored in the "Data" sheet of the database is provided in this column.
M. **Comments:** This column provides a space to include additional comments or notes relevant to each data record.
N. **Status:** This column indicates the current status of each dataset, providing information on whether the data has been collected, discarded, is being evaluated, or represents a proxy for the concrete indicator. The status helps in understanding the reliability and validity of the data and its suitability for analysis within the context of the research.
O. **Available Eurostat:** This column indicates the availability of the data through Eurostat.
P. **Available INE:** This column indicates the availability of the data through the National Institute of Statistics (INE).
Q. **Available IECA:** This column indicates the availability of data through the Institute of Statistics and Cartography of Andalucía (IECA).
R. **Available Other:** This column indicates the availability of the data through other data sources of information.
S. **IECA SDG:** This column indicates whether the Institute of Statistics and Cartography of Andalucía (IECA) includes the indicator as part of its dataset for the specific Sustainable Development Goal (SDG) it provides.

T. **Comparable:** This column indicates whether the data is comparable across different Spanish regions (*Comunidades Autónomas* or CCAA). It serves to identify if the data can be compared consistently and meaningfully across various regional entities within Spain. The "Comparable" designation provides valuable insights into the regional comparability of the data and aids researchers in conducting regional analyses or identifying potential limitations in cross-regional comparisons.
U. **Ratio'ed:** This column indicates whether the indicator's definition has been modified to ratio adjustment or normalisation.

"Data" Sheet

The "Data" sheet contains the actual data records. It consists of the following columns:

A. **SDG:** This column corresponds to the Sustainable Development Goal (SDG) associated with each data entry.
B. **SDG target:** The specific target or subgoal within the Sustainable Development Goals framework to which the data pertains is identified in this column.
C. **ID:** Each data record is assigned a unique identifier for easy referencing and identification.
D. **Name:** This column stores the name or label associated with each data entry, facilitating comprehension and identification.
E. **Source:** The source from which the data was obtained is specified in this column.
F. **GEO_ID:** This column contains the geographical identifier associated with the data, facilitating regional or geographic analysis.
G. **GEO_Name:** The name of the geographical region corresponding to each data entry is recorded in this column.
H. **Year:** This column denotes the specific year to which the data corresponds.
I. **Value:** The actual numerical value or measurement of the data is stored in this column.

By analysing the aforementioned columns within the "Codebook" and "Data" sheets, researchers can access detailed information about the structure, properties, and characteristics of the database, facilitating meaningful analysis and interpretation within the scope of this study.

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