



# Identifying food policy coherence in Italian regional policies: The case of Emilia-Romagna

Francesca Monticone<sup>a,\*</sup>, David Barling<sup>b</sup>, Kelly Parsons<sup>c</sup>, Antonella Samoggia<sup>a</sup>

<sup>a</sup> University of Bologna, Department of Agricultural and Food Sciences, Bologna, Italy

<sup>b</sup> University of Hertfordshire, Centre for Agriculture, Food and Environmental Management Research, Hatfield, England, United Kingdom

<sup>c</sup> University of Cambridge, MRC Epidemiology Unit, London, England, United Kingdom

## ARTICLE INFO

### Keywords:

Food policy  
Policy coherence  
Policy analysis  
Content analysis  
Regional food system  
Regional government

## ABSTRACT

Achieving a coherent set of food-related policies is a challenge for policymakers worldwide, as food matters are addressed at more than one level of governance and across several policy domains. Policies in different domains can sustain each other by sharing the same objectives and actions or they can hinder each other, resulting in different levels of coherence. Focusing on the case study of the region Emilia-Romagna (Italy), the present research aims to answer the following research questions: to what extent is food mentioned in regional policies? Are the food-related objectives of Emilia-Romagna policies coherent with each other? Mixed methods were used in three subsequent research steps. Step 1 consisted of collating an inventory of regional policies where food is present. In Step 2, identified policies were analysed with quantitative content analysis, to examine their objectives, degree of targeting, which food supply chain step they focus on, and which policy instrument type they plan to use. Step 3 aimed to assess the coherence of the identified food-related policies' objectives among each other through expert interviews, analysed with thematic coding. Overall, regional policies reached a good degree of coherence around the common intention of making Emilia-Romagna thrive economically. However, some level of incoherence is present, as a systematic process that lowers incoherence in policymaking is not in place yet. Therefore, implementing the use of a Policy Coherence Matrix as a standardised practice for policy approval is recommended to coordinate food-related policies.

## 1. Introduction

Several factors affect how food systems are shaped worldwide. Governance is one of them.

Policies that influence food systems are developed both at various levels of governance, and in several policy domains. Every country handles food policy differently within government, as various departments and government agencies are engaged on food policy issues, both at national and regional level (Parsons, 2020). Various matters, such as agriculture, social support, trade, business, planning, health, environment, nutrition, and international development shape a country's food systems. Therefore, achieving a coherent set of food policies is a challenge.

Given their multifaceted nature, the policies impacting food systems can interact in several ways reaching differing degrees of, or lacking in, policy coherence. On one hand, policies influencing food systems – while pertaining to different domains – can sustain each other by sharing

the same objectives and actions or, on the other hand, they can be in contradiction and hinder each other.

The Italian context lacks studies on food policy coherence. This study aims to fill this gap, focusing on the region Emilia-Romagna as a case study. The aim is to understand coherence by identifying the policies where food is mentioned and later compare the objectives of such policies to evaluate if they are consistent with each other. The novelty of the present research lies in two main elements: first, the mixed-method approach, that combines content analysis with expert interviews, and second the development of the Policy Coherence Matrix, that allows the evaluation of regional policies' degree of coherence.

The regional level was chosen in favour of the national or municipal one because in Italy "Food" is one of the areas of "shared jurisdiction", those where "legislative powers are vested in the regions, except for the determination of fundamental principles, which is reserved for State legislation", while "Agriculture" fully belongs to the regional jurisdiction (Germanò et al., 2020; Losavio, 2020; Senato della Repubblica, no

\* Corresponding author.

E-mail address: [francesca.monticone2@unibo.it](mailto:francesca.monticone2@unibo.it) (F. Monticone).

date). The regional level is, therefore, the governance stage where national and supra-national (i.e. European Union) food-related legislations and directive are operationalised and adapted to the regional territory characteristics. Focusing on the regional governance, rather than on the multi-level governance, allows for a more in-depth analysis of one specific Region and its coherence across food-related policy domains. For the nature of their governance, Italian Regional governments cannot go beyond certain constraints imposed on them, either by the EU or by national laws. However, horizontal coherence, which is the focus of this study, is less influenced by this issue, compared to vertical coherence. In fact, each Region can – and does – apply its own standards to its policies, and Emilia-Romagna makes no exception.

Among Italian regions, Emilia-Romagna was chosen for the following reasons. It has a high level of agricultural production as well as an increased attention to nutrition and the three dimensions of sustainability – social, environmental and economic – both by the policy-makers and by companies (Art-ER, 2021). It is the second region by value of agricultural production, with 6.8 billion euros out of 59 billion total nationwide, and by value of food processing with 3.3 billion euros out of 32 billion at Italian level (CREA, 2020). The agro-food industry represents 13.9% of the total Emilia-Romagna export (Unione Europea, 2020). As far as business is concerned, 23% of the companies in the Region that can be labelled as “green” are in the agro-food sector (Art-ER, 2021). In terms of policies, many regional stakeholders signed the Labour and Climate Pact, a non-binding document which aims to help Emilia-Romagna reach the Agenda 2030 objectives in a collaborative way. Moreover, Emilia-Romagna recently implemented the Regional Strategic Document, a six-year plan (2021–2027) that connects funds and aims of different policies, but it is still in its early stages. The regional level may also be influenced to change by the local level. The mayor of the county city of the Region (Bologna) stated his plan to create a food policy for the municipality in his mandate, which may have repercussions at regional level too (Comune di Bologna, 2021). However, albeit such growing interest in addressing food in a holistic manner, a coherent set of food policies at regional level does not exist yet.

Therefore, the key research questions addressed in the present study are:

1. To what extent food issues are mentioned in regional policies in Emilia-Romagna?
2. Are the food-related objectives of Emilia-Romagna policies coherent with each other?

### 1.1. Setting food policy boundaries

Given the broad scope of food-related matters, two criteria were used to set boundaries in the present research:

- Institutional delineation: the analysis was restricted to policies approved by the Regional Assembly;
- Functional delineation: the analysis was restricted to policies that can influence the food system.

The criteria were drawn from Lundqvist's (1996) distinction between three approaches that are used in policy studies: functional, institutional and purpose-based. Since the functional approach risks of being too broad (Candel & Daugbjerg, 2020), it is further narrowed down by taking into account only policies that address at least one of the food supply chain step (production, processing, distribution and retail, consumption), or one of the food system outcomes (social, environmental sustainability, health, etc) theorised in previous literature (Ericksen, 2008; Ingram, 2011; Parsons et al., 2019; Woodhill, 2019). On the contrary, the selection by *purpose* – including only those policies that *intentionally* influence the food system (Candel & Daugbjerg, 2020) would have only covered policies strictly on food. This would have been in contradiction with the aim of the present study, which is understanding to what extent food is mentioned in Emilia-Romagna regional

policies, even those not purposely addressing food matters (i.e. planning policies would have been left out).

### 1.2. Theoretical framework: The concept of policy coherence

The concept of policy coherence stemmed from the “policy integration” discourse, adopted first by marine policy scholars, and later in climate studies (Meijers & Stead, 2004; Underdal, 1980). Food studies scholars over the years have supported the need for an integrated approach to food governance, in order to ensure a good degree of policy coherence (Barling et al., 2002; Matthews, 2008; Lang et al., 2009; MacRae, 2011; IPES Food, 2019; De Schutter et al., 2020; Sibbing et al., 2021; Arcuri et al., 2022; Parsons & Barling, 2022; Jones et al., 2023).

Policy coherence gathered momentum in the 1990s, and since then several scholars attempted to provide its definition. One of the earliest is from OECD (2003), that defines it as a “systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives”. In food studies, the most comprehensive was provided by Parsons & Hawkes (2019): “food policy coherence can be defined as the alignment of policies that affect the food system with the aim of achieving health, environmental, social and economic goals, to ensure that policies designed to improve one food system outcome do not undermine others”. Policy coherence has four dimensions: internal, external, vertical and horizontal (Nilsson et al., 2012). Internal coherence happens within a single policy, when the aims are reflected in the actions. External coherence consists of the alignment of the aims of two or more different policies. When policies in the same governance level are analysed, the coherence is horizontal, when at different governance levels is called vertical.

A limited number of studies on food policy coherence were written in the last two decades (Matthews, 2008; Brooks, 2014; Harahap et al., 2017; Ruckert et al., 2017; Thow et al., 2018; Baker et al., 2019; Battams & Townsend, 2019; Esdaile et al., 2019; Friel et al., 2019; Morgan & Fanzo, 2020; Muscat et al., 2021; Garton et al., 2022; Zembe et al., 2022). The main topics addressed were health and nutrition policies followed by food security and agriculture. On the former, the coherence between nutrition policies and trade agreements was assessed in several countries (Ruckert et al., 2017; Thow et al., 2018; Baker et al., 2019; Battams & Townsend, 2019; Friel et al., 2019; Garton et al., 2022). On the latter, Matthews (2008) analysed coherence between the Common Agricultural Policy (CAP) and the EU's development objectives, while Harahap et al. (2017) tested Indonesian land allocation policies in relation to agriculture, climate and forestry policies objectives. Similarly, Brooks checked the implications of OECD countries agricultural policies on global food security (2014), while Muscat et al. (2021) addressed the coherence of agro-food and bioeconomy policies. Two recent reports from international organisations answered similar research questions, addressing in one case whether the CAP is coherent with the EU climate action (Alliance Environnement, 2018) and in another case whether free trade policy is damaging for human nutrition (United Nations System Standing Committee on Nutrition, 2016). Overall, the body of literature on policy coherence is quite varied and provides a good overall picture for policymakers and academics alike.

### 1.3. Methodological framework: The analysis of policy coherence

As the literature does not provide a single fixed approach to analyse policy coherence, the present study drew from different sources to establish a methodology and a new toolkit for coherence analysis. Sources used to review methodologies for policy coherence analysis go beyond those in the domain of food studies mentioned in section 1.2.

Multiple studies start with an inventory of policies on the research topic, retrieved either by browsing official websites or through public databases (Esdaile et al., 2019; Thow et al., 2018; United Nations System Standing Committee on Nutrition, 2016; Zembe et al., 2022). Other

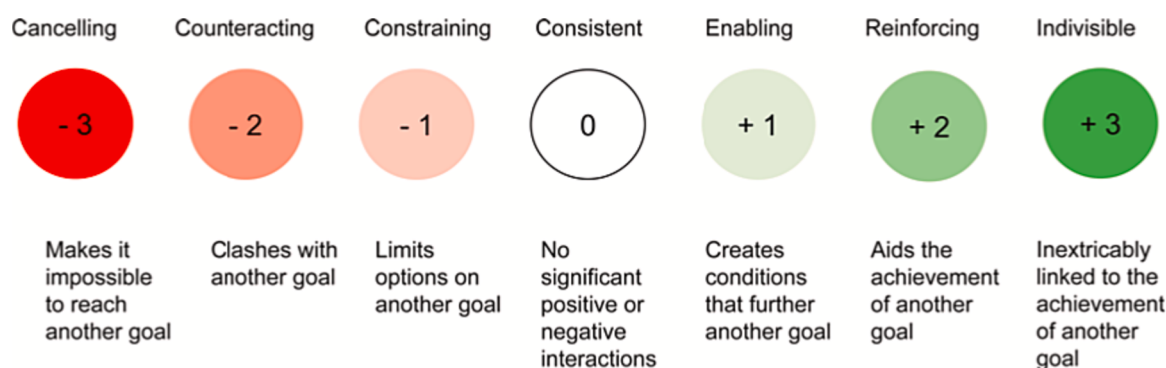


Fig. 1. Policy coherence scoring (Muscat et al., 2021).

studies use interviews with key informants to create a body of policies to comment on (Baker et al., 2019; Battams & Townsend, 2019; Friel et al., 2019). Since using official websites allowed for the creation of a comprehensive database, the Emilia-Romagna official database was adopted in Step 1 of the present research (see 2.1).

Coherence assessment follows the inventory creation. For this step too, scholars adopted two main approaches. One approach consists of qualitative methods, as researchers discuss the retrieved documents using various analytical frameworks to assess both policy context and policy content (United Nations System Standing Committee on Nutrition, 2016; Harahap et al., 2017; Esdaile et al., 2019).

The second approach identified in the literature matches document analysis with expert interviews (Thow et al., 2018; Muscat et al., 2021; Garton et al., 2022; Zembe et al., 2022). The interviews helped bringing a real-life practice view to the research, which is especially relevant in the case of policy studies. For this reason, this second approach was chosen for the present study as well. To add structure to the expert interviews, a Policy Coherence Matrix (PCM) was developed (Muscat et al., 2021). A PCM is a table where the horizontal axis consists of the policies that the study aims to compare and the vertical axis the reference policies with which they are to be compared. The resulting table cells contain the scoring of the coherence of each intersection. The first PCM developed by Duraipappah & Bhardwaj (2007) was then consistently improved by Nilsson et al. (2018), who allowed a scoring of interactions on a 7-point scale, which rates policies from -3 to +3 (Fig. 1).

There are several ways to populate a PCM. Muscat et al. (2021) distributed an online survey to experts, who scored the effect of one policy domain of their expertise on agro-food policy goals. Other than the coherence score, they also filled a confidence score, according to their level of certainty in assessing coherence. Following the survey, focus groups were also carried out, where experts commented on the survey results. In the report assessing whether the Common Agricultural Policy (CAP) delivers a “coherent contribution to climate action”, the European Commission (2018) presented a PCM analysing the external coherence of the CAP with other EU policies related to climate action. Such table was completed by the authors with desk-based information from literature review as well as case studies data. In the present study, we chose to populate the PCM through expert interviews to make it more robust, and not only based on the authors’ own interpretation of the documents. Experts had to provide a coherence score for policies in their domain and the final score was calculated through the arithmetic mean of the experts’ scores. The confidence score was not necessary as interviewees were only asked about their own area of expertise.

## 2. Methodology and empirical strategy

Data collection and data analysis included three steps (Table 1).

Step 1 consisted of the inventory of regional policies. This step included the identification of all the policies currently implemented in Emilia-Romagna where food is mentioned.

In Step 2, quantitative content analysis of the policies was carried out, using coding to identify their objectives, degree of targeting, food supply chain step addressed by the policy and policy instrument type. Policy instruments are the interventions used by government bodies to reach policy goals, ranging from financial resources to inspections, through education and training (Sibbing et al., 2021).

Step 3 aimed to assess the coherence of the identified food-related objectives of policies among each other (divided by domain) through expert interviews, analysed by thematic coding.

### 2.1. Data collection

To answer the research questions, a quantitative content analysis of policies was carried out.

#### 2.1.1. Step 1 – Policies inventory

Policy coherence analysis starts with the creation of a database that includes all the relevant policies. Therefore, the first step encompassed the retrieval of documents from the Emilia-Romagna policy database: Demetra. Such database is the online repository where the Regional government stores its policy documents (approved laws, proposed laws, decrees, proceedings, etc.) and makes them available to the public. The following keywords were used for the search: “aliment\*” (food-related) OR “agr\*” (agriculture-related).

The inventory consists of policies fitting the inclusion criteria explained in 1.1. Only laws were included (and not proceedings, strategies, or plans) for both methodological and policymaking reasons. As their text structure is the same, having only laws allowed for a more consistent content analysis. Also, laws are more likely to be enforced and are the main tools for policymaking at regional level.

A clear map of food-related policies currently active in Emilia-Romagna resulted from this step.

### 2.2. Data analysis

#### 2.2.1. Step 2 – Policy documents content analysis

The codebook developed by Sibbing et al. (2021), combined with further sources, allowed for dataset analysis (Table 4). The “Goal focus area” code encompasses the various domains that policies relate to. It was drawn from Sibbing et al. (2021), plus 4 sub-codes were added from the most frequent words found in the policy documents through a word frequency query run in NVivo12 (Table 1 – Step2d). These 4 self-developed codes added specificity about the regional competencies since Sibbing et al. (2021) focused only on the urban level. The “Degree of targeting” specifies whether the objective identified in the “Goal focus area” code is the main priority of the policy or only a secondary target. The “Policy instrument type” identifies the tools mentioned in the documents to reach policy objectives. The authors developed a fourth code regarding the “Food supply chain step”, to better tailor Sibbing et al. (2021) on the regional level (Ericksen 2008; Ingram 2011; Parsons et al.

**Table 1**

Research steps methodology description (source: authors).

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Aim:                                | a. Retrieve documents from Emilia-Romagna policy database (Demetra), through the keywords “aliment*” OR “agr*”. Of the resulting documents, include only the following: policies that were approved by the Regional Assembly and that were active as of April 2022; policies that addressed at least one of the food supply chain step (production, processing, distribution and retail, consumption), or one of the food system outcomes (social, environmental sustainability, health, etc) theorised in previous literature (Ericksen, 2008; Ingram, 2011; Parsons et al., 2019; Woodhill, 2019)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Creation of a policies inventory    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Step 2                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Aim:                                | a. Upload documents identified in step 1 to NVivo 12. Assign a name to each document: RL (Regional Law) + year of approval + law number (descriptive codes).<br>Input interpretative codes from the codebook developed by Sibbing et al. (2021) in NVivo12 (Table 4).<br>To consolidate the <i>Goal focus area</i> code drawn from Sibbing et al. (2021), identify the most frequent words with NVivo 12 (500 most frequent, exact matches, minimum length 4 characters) and select the most frequent ones. Thus, the list of codes for <i>Goal focus area</i> was drawn both from Sibbing et al. (2021) and from the NVivo word frequency query that allowed the addition of a number of aims (Table 4).<br>Run a query with each child code of the <i>Goal focus area</i> parent code (Table 5 for the dictionary of synonyms used). If the document contains aims targeting the functioning of the food system, merge results in an existing code (search in all files, spread coding to surrounding paragraph). If the document does not contain such aims, it is excluded from the analysis.<br>Code the paragraphs resulting from 2e on the other codes: <i>Degree of targeting</i> , <i>Food supply chain step</i> , <i>Policy instrument type</i> .<br>When coding is complete, transfer data to Excel and carry out content analysis. |
| Policy documents content analysis   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Step 3                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Aim:                                | a. Identify 6 policy domains based on the coding in step 2. Such policy domains were created by grouping <i>Goal focus areas</i> codes by theme (i.e. the domain Agricultural policy consisted of the codes Animal production, Fishing, Vegetable production, Short/local chains). Each policy was included in a domain based on the coverage of each of the relevant codes.<br>Create the Policy Coherence Matrix based on 3a. Interview two or three stakeholders for each policy domain to score the PCM and deep dive into specific policies.<br>The coherence score resulted from the mean calculation of the values indicated by the interviewees in the same policy domains, following the Aggregation of Individual Priorities approach (Forman & Peniwati, 1998). Results were displayed to divide the coherence score of stakeholders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Compilation of the screening matrix |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Table 2**

Results of policy documents search on the Demetra database (source: authors).

|                                       | “agr*” | “aliment*” |
|---------------------------------------|--------|------------|
| Laws in force                         | 304    | 172        |
| Repealed laws                         | 58     | 13         |
| Annexes (not laws)                    | 31     | 22         |
| Total                                 | 215    | 137        |
| Total after the removal of duplicates | 256    |            |
| Total uploaded to NVivo               | 75     |            |
| Total after coding                    | 66     |            |

2019). The software NVivo 12 supported coding, which consisted of descriptive categorisation and interpretative coding (see Table 1 for a detailed description of coding steps). Coding was carried out by the first author and peer review with one additional researcher was conducted to reach consensus on the coding structure.

With coding results, content analysis – both conceptual and relational – was carried out. Conceptual analysis allowed for the identification of the presence and frequency of certain topics in the documents. Relational analysis was, then, used to delve further into the analysis by examining the relationships among concepts (Columbia Public Health, 2022). Both are needed in this study to prepare for stakeholder interviews and Policy Coherence Matrix ideation in Step 3.

### 2.2.2. Step 3 – Interviews and policy coherence Matrix

Evaluation of external and horizontal policy coherence was carried out using expert opinion.

Two or more stakeholders (at least one policymaker working in the Emilia-Romagna region and one expert working outside the Regional government) for each of the following policy domains were interviewed, resulting in 25 interviews in total:

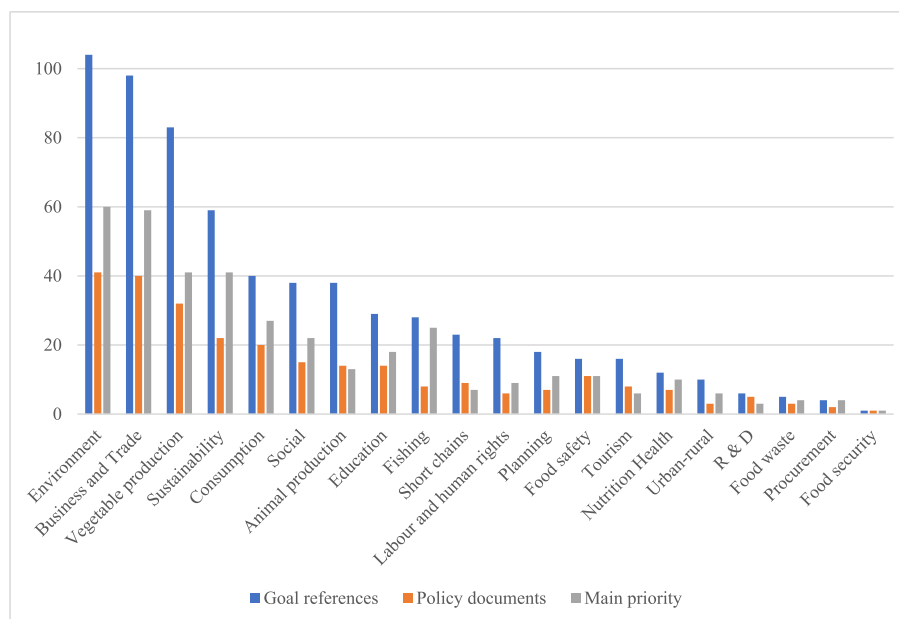
1. Agricultural policy
2. Economic and trade policy
3. Environmental policy
4. Nutrition and consumer-oriented policy
5. Infrastructure and planning policy
6. Social policy

Stakeholders were policymakers, such as regional government officers and politicians, as well as academics and practitioners. Each interviewee was questioned as representative of their organisation, meaning they are expected to answer the questions as “corporate actors” (Coleman, 1998). First, interviewees discussed about their work and about the regional policies they deal with: prompts about further policies identified in the previous steps of the research were given by the interviewer, where necessary, but interviewees were free to add policies they were aware of to the original body identified by the researchers in the first step. Stakeholders then commented on the internal consistency of the objectives of the various policies they mentioned (coming from step 2), i.e. whether their objectives are aligned. Second, a graphical representation (radar graphs with data from Step 2 – Fig. 11) of the overlaps between the policies in the respondent’s area of expertise and the other domains was presented to them, in order to collect their reactions and comments on whether they have seen the same overlaps in their work in the field.

To conclude, they provided ratings to fill the Policy Coherence Matrix (PCM) (Muscat et al., 2021). In the PCM, the policy aims, drawn from the content analysis carried out in Step 2 and divided by six policy domains, were presented in the PCM axes. Each expert only rated the policies in their own area of expertise. To fill the PCM, stakeholders had to score each interaction between the row (their area of expertise) and the columns (the other domains) to assess whether they were incoherent (negative), neutral (zero) or synergetic (positive), based on the scale from –3 to +3 (Fig. 1). Calculating the mean of the scores of the experts interviewed in each policy domain, six PCMs resulted from the interviews – one for each policy domain. If a low degree of coherence emerged, interviewees discussed the pathways and opportunities to increase it.

Interviews addressed not only policy contents but also policy contexts, as interviews helped bringing a real-life practice view to the research. Each interview was recorded under permission.

To conclude, interviewees recommended other stakeholders to interview, allowing for snowball sampling.



**Fig. 2.** The graph summarises the *Goal focus areas* coding of policy documents. “Policy documents” indicates the sources (i.e. the documents uploaded on NVivo), “Goal references” indicates the number of selections within that source that have been coded to that specific node, “Main priority” indicates whether that specific code was also the main priority in the policy document (source: authors).

### 3. Results

#### 3.1. Policies inventory

A total of 476 laws emerged from the first search (Table 2). Resulting documents were then cleaned eliminating the regulations, the repealed laws, the documents including only annexes and the duplicates. The authors read the 256 resulting documents to check whether they addressed at least one of the food supply chain steps (production, processing, distribution and retail, consumption), or one of the food system outcomes (social, environmental sustainability, health, etc) theorised in previous literature (Ericksen, 2008; Ingram, 2011; Parsons et al., 2019; Woodhill, 2019), and only 75 documents remained as in scope. Additional refinement during coding led to the final body of 66, as 9 further documents were out of scope. Results presented in the following sections concern the final 66 policy documents.

#### 3.2. Policy documents content analysis

##### 3.2.1. “Goal focus area” code results

All the 66 selected documents are Regional Laws approved by the Regional Assembly and active as of April 2022. Their focus ranges from food production to consumption, with the most frequent being on agricultural and environmental aspects. In terms of food consumption, some laws focused on a specific dimension, such as criteria for public procurement (RL 28/2009) and others more broadly on health, such as RL 29/2002 on nutrition education. On the food production side, they range from specific laws on plant protection (RL 3/2004) or beekeeping (RL 2/2019) to wider environmental topics, such as the “Mountain Law” (RL 2/2004) which supports the socio-economic development of mountainous areas in a sustainable way. The social aspect ranges from the promotion of Solidarity Economy (RL 19/2014) to food waste recovery (RL 12/2007).

As shown in Fig. 2, “Environment” (number of references = 104), “Business and Trade” ( $n = 98$ ) and “Vegetable production” ( $n = 83$ ) were identified as the overarching themes, being addressed by more than half of the policy documents. This shows how most of the regional legislation on food is oriented towards the upstream step of the food supply chain – production and processing – where governmental intervention is more

needed. As shown in Table 3, regulations on agro-food production and commercialisation (“Vegetable Production” and “Business and trade”) have a strong co-occurrence with environmental and “Sustainability” concerns, as for example they regulate the use of pesticides. Given the high number of stakeholders involved in the upstream part of the food supply chain (i.e. producers, processors, land workers, etc.), the Region’s role is of coordination: strategic planning, together with providing financial resources, are the main policy instruments used to address environmental and agro-food production matters. For example, according to the “Mountain Law” (RL 2/2004) the Region encourages the socio-economic development of mountainous areas stimulating private initiative in the tourist and cultural domains. Most of the co-occurrences in Table 3 are straightforward, such as those between “Sustainability” (42) and “Environment” or “Vegetable production” and “Business and Trade” (48). However, the lack of co-occurrences in some cases, such as “Social” and “Food security” (0) or “Short chains” and “Food waste” (0), were less predictable, but confirm how some topics (such as the consumption side of the chain and social and environmental sustainability) only recently received legislative attention.

14 policy documents had 38 mentions of “Animal production”, which covered several sub-topics, such as safety of animal products, wildlife balance, hunting regulations, GMOs and beekeeping. “Environment”, “Sustainability” and “Education” were co-occurent with the “Animal production” goal (Table 3). Strategic planning, financial resources, mapping and participatory governance were the most adopted policy instrument type in this domain, as the Region plays an important role in the coordination of animal production activities, from the creation of management boards to the provision of subsidies. Only 8 policy documents regulated “Fishing”, marking the Region’s fishing areas and rules.

The downstream part of the food supply chain was less present in the Region’s policies, as “Consumption” had 40 references, “Social” 38, “Education” 29 and “Labour and human rights” 22 (Fig. 3). While the former included mostly consumer protection policies, and the latter workers protection, “Social” ranges from the promotion of Corporate Social Responsibility, of Solidarity Economy (RL 19/2014) and of social initiatives in agriculture (RL 1/2022). “Education” covers the promotion of sustainability and nutrition education in schools (RL 27/2009 and RL 29/2002, respectively) as well as of educational farms (RL 4/2009).

**Table 3**  
Goal focus areas co-occurrences (source: authors).

[illegible]

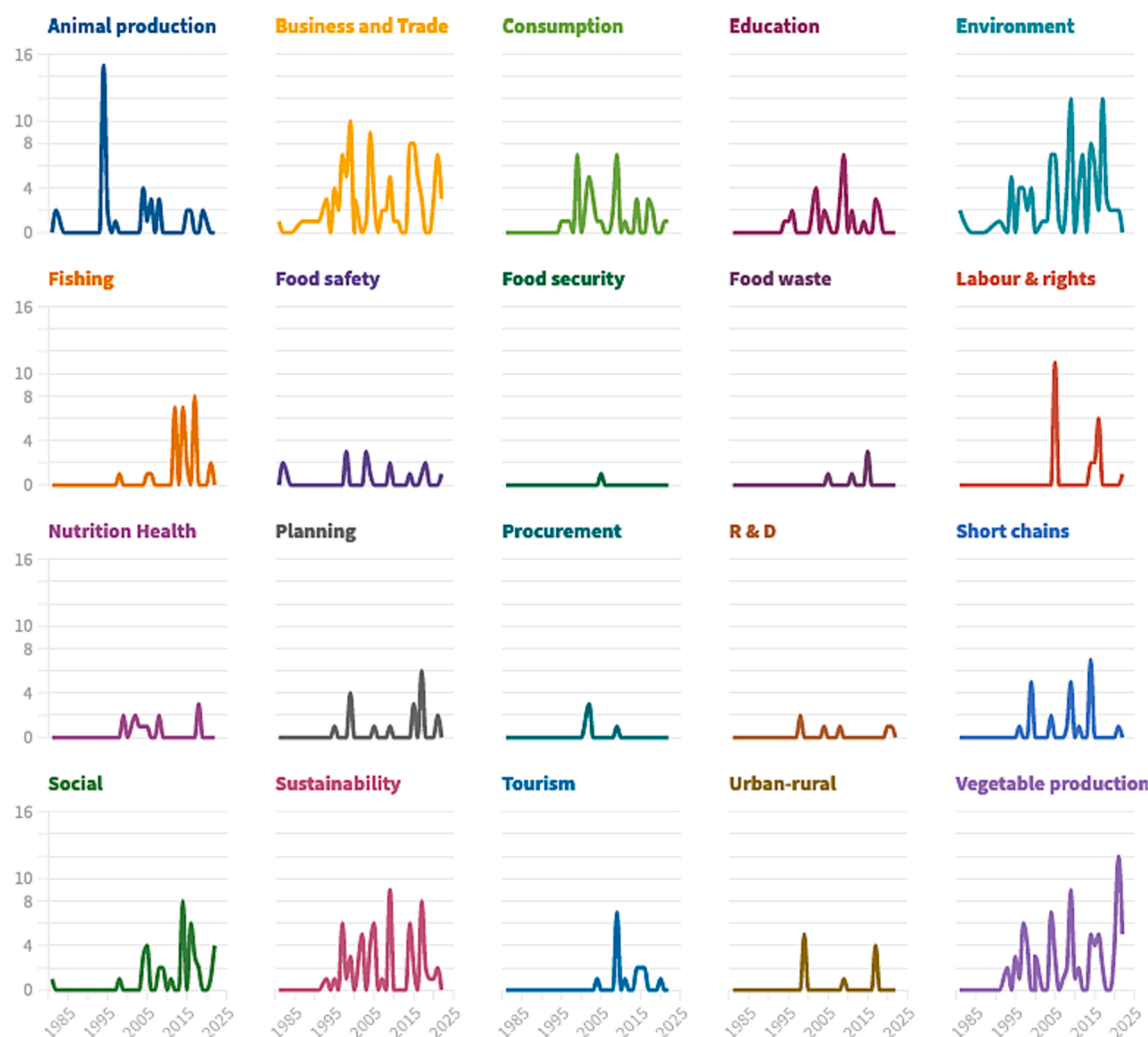


Fig. 3. Policy documents' goal focus areas over the years (source: authors).

More specific interventions were also included, such as those favouring young farmers access to the land and food waste donation to charity. The limited number of policies in these fields suggests that they were only recently addressed and often with softer instruments than those found in the legal database (such as awareness campaigns, training courses and participatory governance – i.e. boards and consultation groups –). Medium co-occurrences were present in this case with nutrition policies, as well as with sustainability ones.

References to short food supply chains and urban–rural linkages were quite limited (23 and 10, respectively). The latter often overlaps with “Planning” ( $n = 18$ ), which in turn overlaps with “Tourism” ( $n = 16$ ). For example, RL 24/2017 pursues the protection of agricultural lands and their agri-food productive capacities, safeguarding their traditional productions, and also enhancing *peri*-urban agriculture and agricultural parks. In this case, the Region only has a strategic planning role as the responsibility in this matter is with the municipalities, which dictate the regulation of urban transformations that are functional to agricultural activity.

Only 7 documents included references to “Nutrition” and 11 to “Food safety”. Such policies (e.g. RL 29/2002) pursue the improvement of consumers behaviour, enhancing knowledge and consumption of sustainable agri-food products. The main policy instruments used in this domain are communication and education, as the Region remains in charge of the dissemination of information on cultural aspects of food productions and their territory of origin. Participatory governance is also crucial, as the Regional Assembly established a multi-sectoral table

for coordination of health promotion and prevention policies (cfr RL 19/2018).

The least addressed were policy goals with a link to R & D ( $n = 6$ ), “Food waste” ( $n = 5$ ), “Procurement” ( $n = 4$ ) and “Food security” ( $n = 1$ ). The promotion of equal access to food and, therefore, of food security was mentioned as a general guideline in the Emilia-Romagna Statute (RL 13/2005) but never followed up in an *ad hoc* policy. Public procurement of food was addressed mainly by the RL 29/2002 and the RL 28/2009, which introduced environmental sustainability criteria (Green Public Procurement). RL 12/2007 was one of the three policy documents addressing food waste, promoting its recovery and distribution to social solidarity activities.

The analysis of the *Goal focus areas over time* (Fig. 3) shows how production-related topics have always been present in the food policy discourse in Emilia-Romagna. On one hand, regulations on trade and business, food safety and the environment have always been crucial for the development of the agro-food sector, which is a core part of the Region's economy. On the other hand, goals with a societal value, such as education, consumer protection, and social issues have more recently gathered momentum, as they became debated in the public discourse. What results is a diverse timing of policymakers' attention to certain topics, some more intense, especially in recent years, others always minor.

### 3.2.2. “Policy instrument type” code results

As mentioned above, the abundance of stakeholders involved in the

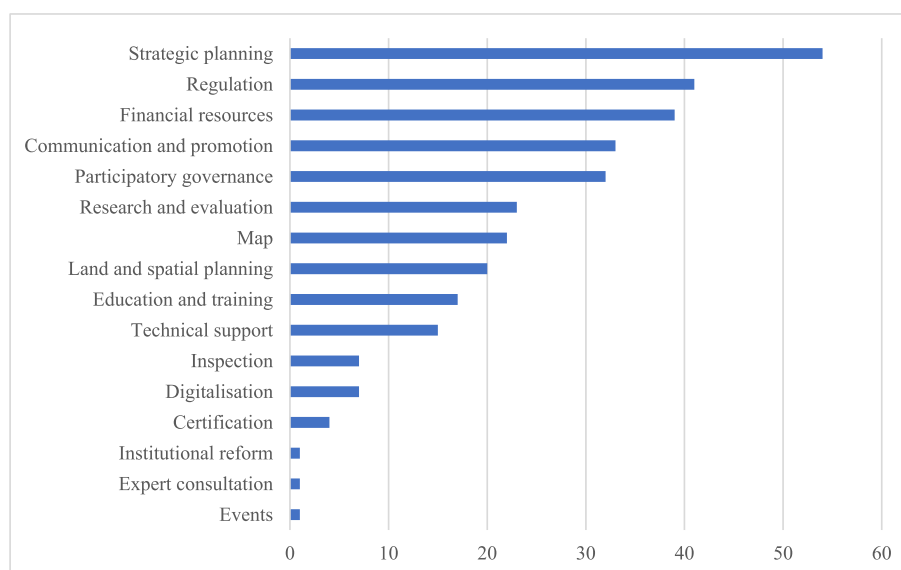


Fig. 4. Policy documents instrument types (source: authors).

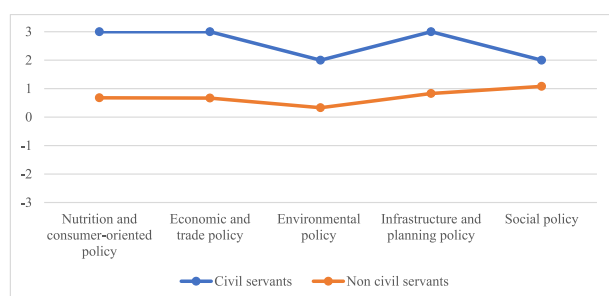


Fig. 5. Results of the Agricultural Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).

food supply chain meant that the Region has a coordination role, making strategic planning the most mentioned policy instrument in the policy documents. “Strategic planning” was coded in the text when Regional coordination activities (such as plans, programmes, working groups, etc.) were mentioned as instruments to implement a law. It was also quite a ubiquitous policy instrument, as almost all policy domains contained some references to it, from vegetable production to social policies (Fig. 4).

Regulations and financial resources were used mostly in the production-side of the food chain, to control, for example, the degree of animal welfare and food production hygiene standards. Softer policy instruments, such as communication, research and mapping, were more common on the consumers side, as well as on social and sustainability issues. Both mapping and participatory governance imply a coordination role played by the regional authority that recalls that of strategic planning.

Among the least present in every domain, were digitalisation and institutional reforms, whose presence would be an innovative overhaul that the regional policies have not fully addressed yet.

### 3.3. Compilation of the policy coherence matrix

A total of 25 stakeholder interviews was carried out between June and December 2022. Of those, 14 were Officers and Directors of the Emilia-Romagna regional authority and regional agencies, while 11 were from NGOs, agricultural and industrial unions, cooperatives associations, expert organisations and public procurement companies

(Table 6). Each of them was asked to score policy coherence (Fig. 1) and six PCMs resulted from the interviews – one for each policy domain (Table 7). In the following sub-sections, the 6 PCMs results are provided separately, and each sub-section includes first an introduction on how that policy domain is addressed in Emilia-Romagna, second a focus on the policy content, and third a focus on policy processes. Coherence scores were disaggregated by civil servants and non-civil servants to show the difference of perceptions inside and outside the Regional bodies.

#### 3.3.1. Results of the agricultural policy coherence Matrix

The agricultural sector is historically crucial for Emilia-Romagna economy, as the total value of regional agricultural production exceeded 5.4 billion euros in 2021 (Fanfani & Boccaletti, 2022). Policies in this domain are therefore mostly focused on the promotion of agricultural produce and on the development of support services for the agri-food system. Some policies lean towards sustainability, such as the LR 28/1997 on organic production, as well as on societal benefits, such as RL 1/2022 on social agriculture.

The agricultural PCM shows that agricultural policies are coherent with those about nutrition and consumers, economy and planning (Fig. 5). However, this is the PCM with the highest discrepancies between civil servants and non-civil servants’ opinions: the degree of coherence is much higher for civil servants than for experts working outside the regional authority. For both, the coherence with environmental policies is the lowest. Together with being the ones with more intersections (Table 3), this shows how the co-occurrences between agricultural production and environmental issues are still critical, despite increasing the sustainability of food production being a current concern. Some farmers and their unions have criticised the scarce coherence between agricultural and environmental policies, especially because the latter have recently become the most important and burdensome ones, following the EU guidance. For example, “the drop of pesticides use by 50% by 2030 asked by the EU, it’s hard to apply in the fields in such a short period of time. If the environment is the priority without attention to the farmers’ needs, it becomes problematic.” One civil servant, on the contrary, highlighted how most regional plans are tested for sustainability through the Environmental Impact Assessment (EIA), with a series of indicators that change according to the policy subject. Such opposite perspectives show that policy coherence is ultimately biased, being entrenched in which priorities stakeholders personally envision in the food system (Barling et al., 2002; Parsons, 2021). The cross-cutting

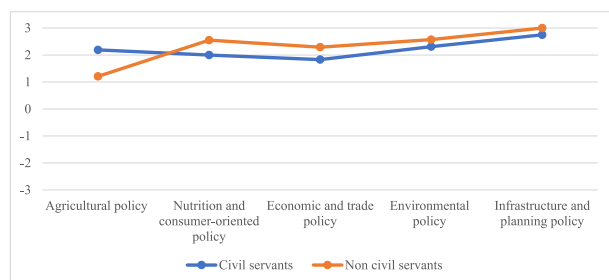


Fig. 6. Results of the Social Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).

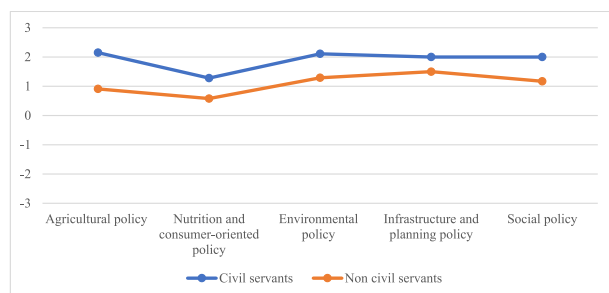


Fig. 7. Results of the Economic Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).

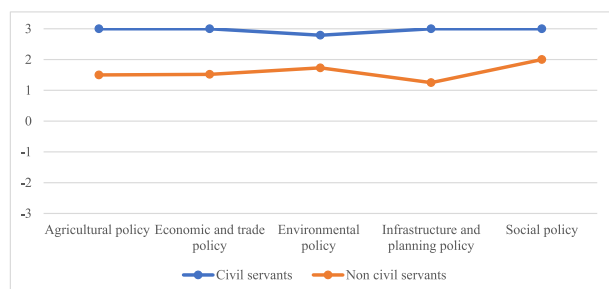


Fig. 8. Results of the Nutrition and consumer Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).

nature of food policy and the consequent stakeholders difficulty in delineating food policy in a consistent way are also hindering policy coherence – as in finding a common approach in spite of different perspectives (Candel & Daugbjerg, 2020).

In terms of policy processes, coordination between agriculture and other fields is emerging, despite the complexity of the administrative machine which tends to silo and not overlap roles. However, some level of interconnection can be reached: “the Law on Social Agriculture, or the one on leftover food recovery, are good examples of cooperation, but they’re sporadic initiatives.”.

According to one of the interviewees, a step forward to improve coherence between different domains was the Labour and Climate Pact, which was signed by a wide variety of stakeholders and tries to make the Region’s environmental policies coherent with socio-economic ones. However, being a non-binding document, it is a declaration of intent rather than a legal action with serious impacts, and therefore not included in our policy inventory. This shows how softer and overarching policies like the Labour and Climate Pact may help reaching a good degree of coherence by guiding policymaking.

### 3.3.2. Results of the social policy coherence matrix

Food policies in the social sector cover a variety of topics, such as

education and public procurement (RL 29/2002), good employment (RL 17/2005) and legality (RL 18/2016). In particular, sustainable public procurement is a key asset for Emilia-Romagna, which is the third region in Italy for organic school canteens (Bertino et al., 2018).

As shown in Fig. 6, the overall coherence was rather high, and the difference between civil servants and experts was slightly pronounced. In this PCM, except for one case (agricultural policies), non-civil servants rated coherence higher than civil servants. However, the difference is so small that it can be attributed to single interviewees’ perceptions.

In terms of policy content, the Regional Law 4/2009 on the multifunctionality of farms, and those on sustainability and nutrition education in schools (RL 27/2009, RL 29/2002) are in line with the overall objective of favouring agricultural activities and promoting Geographical Indications and Protected Designation of Origin products, moving towards excellence and innovation. Whereas the law on social agriculture (RL 1/2022) is less aligned with such overall aims: it focuses only on agritourism – and not on educational farms –, and social farming is considered solely a healthcare activity, and not as an economic opportunity as well.

In terms of policy processes, an example of vertical incoherence emerged in this domain, between the national and regional level. An interviewee provided the following example: “the national law that allowed wineries to distribute meals was in contradiction with the norm on agritourism (RL 4/2009) that stated the opposite, giving only to the latter the permission to cater meals.” Additional communication between the two levels of governance was needed to address incoherence.

### 3.3.3. Results of the economic policy coherence matrix

Several policies concentrate on the agro-food industry, as it is a highly important focus area for the region Emilia-Romagna, which can boast a variety of production sectors and high-quality products and services. The regional agribusiness system has a high degree of specialisation, as the agri-food sector is one of the strategic focuses of the Smart Specialisation Strategy (S3), the framework delineating the spending of European funds. However, innovation is the only cross-sectoral objective of the Region’s economic policies.

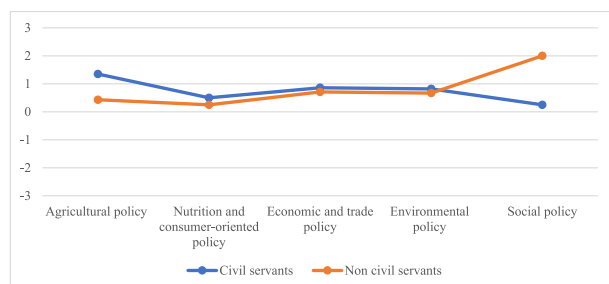
As shown in Fig. 7, the economic PCM has an overall good level of coherence, with the lowest ones being nutrition and agricultural policies. The incoherence between economic and nutritional policies can be linked to the regional promotion of the consumption of GI and PDO products (mostly processed meats) which should rather be limited according to dietary guidelines (Bouvard et al., 2015).

Economic and environmental interests often reach internal coherence, but disregarding external one, as only local sustainability is protected. On this matter, the example of potato cultivation is explanatory: “it is disappearing in the Region because certain pesticides were banned, but then potatoes are imported from countries where that pesticide is allowed, to the detriment of local agricultural enterprises.”.

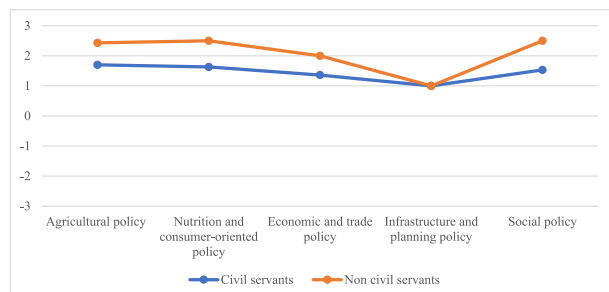
In terms of policy processes, the incoherence between the food industrial and agricultural sectors are due to historically competing interests. While agriculture was the focus of the Region’s policies from the start, the industrial sector came under regional jurisdiction later. To date, they still struggle to progress together, as there are no institutionalised processes to ensure that various sectors cooperate with each other. Similarly, collaboration between the Economic and Agriculture Department happens only for export promotion and internationalisation of Small and Medium Enterprises.

### 3.3.4. Results of the nutritional and consumer-oriented policy coherence matrix

In terms of nutritional and consumer-oriented policies, Emilia-Romagna laws are guided by the concept of One Health, which aims to reach cross-cutting objectives, ensuring optimal health for people, animals and the environment. Such intersectionality is well represented by the RL 19/2018, aimed to explicitly promote health in terms of both



**Fig. 9.** Results of the Planning Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).



**Fig. 10.** Results of the Environmental Policy Coherence Matrix disaggregated by civil servants and non-civil servants (source: authors).

personal and community well-being.

As shown in Fig. 8, coherence is overall high, especially with social policies. Some disconnect with agricultural policies was noted by interviewees: “for example, a few years ago, some regional health guidelines were issued to ban cured meats and cheeses in vending machines, which raised a backlash from local producers who make a living out of those products.” On the contrary, the recent food safety guidelines on food processing for small producers were seen as an accomplishment towards a higher degree of coherence. “Thanks to these guidelines, small-scale producer can now sell directly to consumers, without too much bureaucracy and middlemen. But it took 10 years to reach an agreement on this.” Some incoherence with environmental policies was also highlighted, especially in terms of public procurement, where the Health Department aims to combine nutritional qualities with minimum environmental criteria, “but it is not easy as there are limitations to how much can be produced.”.

In terms of policy processes, a medium level of collaboration between the Agriculture and Health Department was reached on health and sustainability matters. However, there are still some points of disagreement. Typical and traditional productions are meant to remain the same, but their production is not environmentally sustainable, therefore against the concept of One Health. As one of the interviewees explains: “overall, there should be more exchange between Departments, we should know more about what we do. If I have to score our level of cooperation from 1 to 3, it would be a 1.”.

### 3.3.5. Results of the planning and infrastructure policy coherence matrix

Regional planning policies mainly regulate tourism (e.g. RL 23/2000), landscape planning and land use (e.g. RL 24/2017).

Overall, they have a lower level of coherence compared to other PCMs, as the average is 0.8 for both civil servants and non (Fig. 9). The coherence with social policies is the highest for non-civil servants, but mostly for historical legacies, as planning policies were first enacted to solve social conflicts in cities. Loss of agricultural grade land and fertile soil and touristic promotion are the main focuses in this domain. While promotion of GI and PDO products as touristic attractions is where the

**Table 4**

Codebook used for coding in NVivo12 (source: authors).

| Interpretative codes | Code                   | Code options                                                               | Reference           |
|----------------------|------------------------|----------------------------------------------------------------------------|---------------------|
|                      | Goal focus area        | Animal production                                                          | Sibbing et al. 2021 |
|                      |                        | Consumption                                                                | Sibbing et al. 2021 |
|                      |                        | Business & Trade                                                           | Sibbing et al. 2021 |
|                      |                        | Education                                                                  | Sibbing et al. 2021 |
|                      |                        | Environment                                                                | Sibbing et al. 2021 |
|                      |                        | Fishing                                                                    | Self-developed      |
|                      |                        | Food safety                                                                | Self-developed      |
|                      |                        | Food security                                                              | Sibbing et al. 2021 |
|                      |                        | Food waste                                                                 | Sibbing et al. 2021 |
|                      |                        | Labour/Human Rights                                                        | Sibbing et al. 2021 |
|                      |                        | Nutrition/Health                                                           | Sibbing et al. 2021 |
|                      |                        | Planning                                                                   | Sibbing et al. 2021 |
|                      |                        | Procurement                                                                | Self-developed      |
|                      |                        | Short/local chains                                                         | Sibbing et al. 2021 |
|                      |                        | Social                                                                     | Sibbing et al. 2021 |
|                      |                        | Sustainability                                                             | Sibbing et al. 2021 |
|                      |                        | Tourism                                                                    | Self-developed      |
|                      |                        | Urban-rural                                                                | Sibbing et al. 2021 |
|                      |                        | Vegetable production                                                       | Sibbing et al. 2021 |
|                      | Degree of targeting    | Main priority                                                              | Sibbing et al. 2021 |
|                      |                        | Additional goals (General abstract policy aims or Specific policy targets) |                     |
|                      |                        | Processing and packaging                                                   |                     |
|                      |                        | Distribution and retail                                                    |                     |
|                      |                        | Consumption                                                                |                     |
|                      | Policy instrument type | Certification                                                              |                     |
|                      |                        | Communication and promotion                                                |                     |
|                      |                        | Digitalisation                                                             |                     |
|                      |                        | Education and training                                                     |                     |
|                      |                        | Events                                                                     |                     |
|                      |                        | Expert consultation                                                        |                     |
|                      |                        | Financial resources                                                        |                     |
|                      |                        | Inspection                                                                 |                     |
|                      |                        | Institutional reform/human capacity                                        |                     |
|                      |                        | Land and spatial planning                                                  |                     |
|                      |                        | Regulation                                                                 |                     |
|                      |                        | Map                                                                        |                     |
|                      |                        | Research and evaluation                                                    |                     |
|                      |                        | Participatory governance                                                   |                     |
|                      |                        | Pilot                                                                      |                     |
|                      |                        | Procurement                                                                |                     |
|                      |                        | Strategic planning                                                         |                     |
|                      |                        | Technical support                                                          |                     |
|                      | Food supply chain step | Production                                                                 | Ericksen 2008       |
|                      |                        | Processing and packaging                                                   | Ingram 2011         |
|                      |                        | Distribution and retail                                                    | Parsons et al. 2019 |
|                      |                        | Consumption                                                                |                     |

**Table 5**

List of words and synonyms used for NVivo text search (source: authors).

| Goal focus area child codes | Words used in text search                                                    |
|-----------------------------|------------------------------------------------------------------------------|
| Animal production           | Pascol*, Faun*, Specie, Zootecni*                                            |
| Consumption                 | Consum*                                                                      |
| Business & Trade            | Economi*, Business, Impres*, Mercat*, Commerci*, Prodott*, Produzion*        |
| Education                   | Istruzione, Educazion, Cultur*, Scuola, Scolastic*                           |
| Environment                 | Natur*, Ambient*, Mont*, Ecosistem*, Acqua, Idric*                           |
| Fishing                     | Pesc*, Ittic*                                                                |
| Food safety                 | Igien*                                                                       |
| Food security               | "Sicurezza alimentare"                                                       |
| Food waste                  | Spreco, Scarto                                                               |
| Labour/Human Rights         | Occupat*, Lavor*, Diritti, Sindacat*, Sfruttamento                           |
| Nutrition/Health            | Sanit*, Salute, Nutri*                                                       |
| Planning                    | Pianificazione, Progettazione                                                |
| Procurement                 | Approvvigionament*, Mense, Ristorazione, Refezione                           |
| Short/local chains          | "Filier* local*", "Filier* cort*"                                            |
| Social                      | Social*                                                                      |
| Sustainability              | Biologic*, Sostenibil*, Vegetarian*                                          |
| Tourism                     | Enogastronomic*, Gastronomic*, Agriturismo*, Turismo                         |
| Urban-rural                 | Urban*                                                                       |
| Vegetable production        | Agricol*, Rural*, "Produzion* vegetal*", Fung*, Tartuf*, Fitosanit*, Sement* |

**Table 6**

Stakeholders' interviews list (source: authors).

| Policy domain                          | Codes                                                                      | Institution                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agricultural policy                    | Animal production<br>Fishing<br>Vegetable production<br>Short/local chains | <ul style="list-style-type: none"> <li>Department for Agriculture and Agri-Food, Hunting and Fisheries</li> <li>Art-ER (Regional Society for sustainable growth)</li> <li>Confagricoltura (farmers' union)</li> </ul>                                                                                            |
| Nutrition and consumer-oriented policy | Consumption<br>Food safety<br>Food security<br>Nutrition/Health            | <ul style="list-style-type: none"> <li>Department for Health Policy</li> <li>Food procurement company (CAMST)Not Applicable (freelance)</li> </ul>                                                                                                                                                               |
| Economic and trade policy              | Business & Trade                                                           | <ul style="list-style-type: none"> <li>Department for economic development and green economy, employment, trainingArt-ER (Regional Society for sustainable growth)</li> <li>Camera di Commercio (Chamber of Commerce)</li> <li>Confindustria (Cooperatives association)</li> </ul>                               |
| Environmental policy                   | Environment<br>Food waste<br>Sustainability                                | <ul style="list-style-type: none"> <li>Department for the Environment, Soil and Coastal Protection, Civil Protection</li> <li>Art-ER (Regional Society for sustainable growth)</li> <li>CREA (National research centre for agro-food)</li> <li>Not Applicable (freelance)</li> </ul>                             |
| Infrastructure and planning policy     | Planning<br>Tourism<br>Transport<br>Urban-rural                            | <ul style="list-style-type: none"> <li>Department for mobility and transport, infrastructure, tourism, trade</li> <li>Department for mountains, internal areas, spatial planning, equal opportunities</li> <li>Not Applicable (freelance)</li> </ul>                                                             |
| Social policy                          | Education<br>Labour/Human rights<br>Social<br>Procurement                  | <ul style="list-style-type: none"> <li>Department for Culture and Landscape</li> <li>Department for School, University, Research, Digital Agenda</li> <li>Agenzia Prevenzione Ambiente Energia Emilia-Romagna (ARPAE) (Environment and Energy Agency)</li> <li>Ri.Nova (Private Research Consultancy)</li> </ul> |

highest level of coherence is reached with agricultural policies, soil consumption is a disputed matter. The former is regulated by RL 23/2000, which disciplines food and wine tourist itineraries in Emilia-Romagna, while the latter by RL 24/2017, which regulates land protection and land use. Protected Denominations of Origin (PDOs) play an important role in the promotion of the Region's gastronomy, and while they strongly support the agricultural supply around GI and PDO productions, they do not focus on the environmental sustainability of the products. The issue of soil consumption was a matter of criticism for the interviewees as, for example, the good target to limit land use set by the Region can lead to massified urban centres. As a result, less agricultural spaces are occupied, but less liveable urban centres are created.

In terms of policy processes, it was often noted a discrepancy between policies on paper and in practice. One of the interviewees highlighted that: *"Often planning policies are not supported by good policy instruments. For example, rooftop gardens are a good idea to go towards sustainability, but they have subsequent maintenance problem, so it's important to create directives on how they should be built and then check how they are built, which is often not the case."*

### 3.3.6. Results of the environmental policy coherence Matrix

In Emilia-Romagna, environmental policies cover a wide range of issues, such as the shift to organic production and the limitations to soil consumption.

Overall, environmental policies are deemed to be coherent with other policies, especially nutritional and agricultural ones, at least on paper (Fig. 10). This PCM is the only one where non-civil servants highlighted an overall higher level of coherence compared to civil servants (Fig. 11). According to the content analysis carried out in Step 2, the main topic of possible incoherence was between the promotion of GI and PDO products (mostly cured meats), which is one of the milestones of agricultural and economic policies, and the ecological transition that guides environmental policies. However, this issue was dismissed by interviewees, who defended GI and PDO products as inalterable: *"Quality products may be environmentally unsustainable, but they cannot be changed, as they would become different products. If they were organic, for example, they would come out differently in terms of organoleptic characteristics. The shift to organic and integrated productions can be done – and has been done – only for non-GI and PDO products."*

Regarding farmers' objection on environmental policies being imposed top-down on them, civil servants recognised that this was an issue, and that some would then be reluctant to put them into practice. For this reason, the Regional authority pays agronomists to help farmers adjust to the new rules.

In terms of policy processes, while interviewees mentioned several procedures that are in place to assess various policies sustainability (such as the Environmental Impact Assessment mentioned in 3.3.1), it is clear that some core environmental objectives are still not addressed, or addressed in silos. For example, intensive supply chains traditionally key of the regional economy are hard to make more sustainable, despite the efforts.

## 4. Discussion and policy implications

The present study aimed to investigate to what extent food is mentioned in regional policies in Emilia-Romagna and whether the objectives of such policies are coherent with each other.

Three main points of discussion emerge from the results.

First, the overall good degree of coherence reached by regional policies is mainly due to the common intention of making the Region thrive economically, which is strongly felt among civil servants and shared to a certain extent with experts working outside the institution. This emerged mainly from the expert interviews but was also confirmed by the content analysis, where some policy domains clearly prevailed. Albeit a shared positive evaluation of coherence, an explicit discrepancy emerged between civil servants and experts' opinions. The former

**Table 7**

The super matrix including all the 6 PCMs, one for each policy domain. Scores were calculated through the mean of the scores indicated by the experts interviewed for each domain, following the Aggregation of Individual Priorities approach (Forman & Peniwati, 1998). In the table, they were disaggregated by civil servants and non-civil servants (source: authors).

| AGRICULTURE MATRIX                     |                |                    | ENVIRONMENT MATRIX                 |                |                    | PLANNING MATRIX                        |                |                    |
|----------------------------------------|----------------|--------------------|------------------------------------|----------------|--------------------|----------------------------------------|----------------|--------------------|
| Domains                                | Civil servants | Non civil servants | Domains                            | Civil servants | Non civil servants | Domains                                | Civil servants | Non civil servants |
| Nutrition and consumer-oriented policy | 3              | 0.68               | Agricultural policy                | 1.7            | 2.43               | Agricultural policy                    | 1.35           | 0.43               |
| Economic and trade policy              | 3              | 0.67               |                                    | 1.63           | 2.5                | Nutrition and consumer-oriented policy | 0.5            | 0.25               |
| Environmental policy                   | 2              | 0.33               | Economic and trade policy          | 1.36           | 2                  | Economic and trade policy              | 0.86           | 0.71               |
| Infrastructure and planning policy     | 3              | 0.83               | Infrastructure and planning policy | 1              | 1                  | Environmental policy                   | 0.82           | 0.67               |
| Social policy                          | 2              | 1.08               | Social policy                      | 1.53           | 2.5                | Social policy                          | 0.25           | 2                  |
| ECONOMIC AND TRADE MATRIX              |                |                    | NUTRITION AND CONSUMER MATRIX      |                |                    | SOCIAL MATRIX                          |                |                    |
| Domains                                | Civil servants | Non civil servants | Domains                            | Civil servants | Non civil servants | Domains                                | Civil servants | Non civil servants |
| Agricultural policy                    | 2.15           | 0.91               | Agricultural policy                | 3              | 1.5                | Agricultural policy                    | 2.19           | 1.21               |
| Nutrition and consumer-oriented policy | 1.28           | 0.58               | Economic and trade policy          | 3              | 1.52               | Nutrition and consumer-oriented policy | 2              | 2.55               |
| Environmental policy                   | 2.11           | 1.29               | Environmental policy               | 2.79           | 1.73               | Economic and trade policy              | 1.83           | 2.29               |
| Infrastructure and planning policy     | 2              | 1.5                | Infrastructure and planning policy | 3              | 1.25               | Environmental policy                   | 2.31           | 2.57               |
| Social policy                          | 2              | 1.17               | Social policy                      | 3              | 2                  | Infrastructure and planning policy     | 2.75           | 3                  |

provided a higher evaluation than the latter of the coherence among different policy domains and of the cooperation among Departments. This is consistent with the results of Parsons (2021), which identified that civil servants and those working outside government have different policy priorities and perspectives on coherence, due to their different visions of the food systems and values (Candel & Daugbjerg, 2020). Overall, key guiding principles of food-related regional policymaking emerged from the results: the valorisation of GI and PDO productions, the preservation of agricultural land and an increased attention to environmental sustainability. However, despite such common overall values, some level of incoherence is still present, as a systematic process that ensures coherence is missing, as found by other scholars in similar research studies (Lang et al., 2009; MacRae, 2011; IPES Food, 2017).

Second, the body of food-related policies consistently increased in recent years, making coherence an urgent matter. What emerged from the content analysis was that especially recently, food-related policies are dominated by the production-side of the food supply chain and by sustainability. The former is crucial for the regional economy. The latter is ideally a transversal issue, but it often remains on paper, being stated in non-legally binding documents (such as the Climate and Labour Pact) or imposed by top-down EU regulations that fail to take into account the regional peculiarities. It could be argued that this result is biased by the fact that the three main topics related to the food supply chain (“agriculture”, “industry” and “trade”) fall under the exclusive competence of the Region (Germanò et al., 2020), therefore making them more predominant. However, even the topics of exclusive or shared competences of the State (such as “protection of competition” and “health protection”, respectively) will have to be transposed at regional level, therefore making all policy competences relevant (Germanò et al., 2020; Losavio, 2020). The same can be said for policy instruments. The choice of the regional level was an adequate focus for the present study as it is a *meso*-level allowing to create policies better tailored on the need of specific territories, and the Region’s role as coordinator of the many stakeholders involved in the food systems is crucial. The city-region level is also increasingly being the focus of food policymaking, as it provides both a participative approach closer to the citizens’ needs, as well as tailor-made features (FAO, 2023).

Third, what emerged from the interviews – which were especially designed to bring a real-life practice view to the research – went beyond

policy content. Interviewees supported the results of our content analysis when presented with the radar graphs (Fig. 11), showing that the co-occurrences identified in the documents are reflected in the practice on the grounds. However, they allowed to complete the analysis, by highlighting the lack of coherence in the policy process. They suggested that what hinders policy coherence is often a matter of processes and of slowness of the system. For example, the tender system to access regional funds. According to one interviewee, combining the tender system – that is very slow – with policies that address urgent matters is difficult. In particular, the interviewee emphasised how national laws are especially slow and delay the activation of regional policies that are generally more streamlined. The national level is also blamed by interviewees for complicating agriculture with an excessive law-making, overlapping with the legislative scope of policies that already exist. Such result echoes those of scholars attributing the lack of coherence to the “silo” approach that characterises food policymaking, together with the intrinsic cumbersomeness of the process (Arcuri et al., 2022; Barling et al., 2002; De Schutter et al., 2020; Sibbing et al., 2021).

Going beyond the scope of the present research, which only addresses horizontal coherence, some civil servants also mentioned the issue of vertical coherence, which is allegedly more difficult to reach. For example, the National Recovery and Resilience Plan (PNRR) (Law Decree n. 59/2021) was brought up by one interviewee for being in contradiction with the regional plans on agro-photovoltaic. The PNRR includes supports photovoltaic installations on the ground without limiting the areas where they can be installed and without compensation for the land taken away from cultivation, which are normally granted by regional laws. There is definitely scope for further research on food-related policies at national level in Italy and their relationship with the various regional authorities.

The present study has methodological and policymaking implications. It introduces an innovative toolkit for the evaluation of policy coherence, providing a methodological input that will consolidate the academic literature currently available. The PCMs and relative scoring were inspired by previous literature and improved. Given that current policy instruments to assess coherence used at regional level are theoretical and based on an *a priori* approach – such as the Regional Strategic Document, a six-year plan (2021–2027) that connects funds and objectives of different policies – a matrix-based tool for analysis is an



Fig. 11. Radar graphs shown in interviews (source: authors).

improvement, as it allows for a more specific objectives-focused assessment. The proposed methodology is, in fact, transferrable for use in thematic areas other than food (at different policy levels). Comparing results of policy coherence in different Regions and countries will allow researchers to develop a set of best practices, which can have managerial implications for food policymakers as well. Cooperation between researchers and policymakers at various levels of governance is, therefore, recommended.

The present study has two potential limitations. First, for time constraint and homogeneity of analysis, only policies in the form of laws were included in the first step of the research. The downside of such choice is that some topics will be more covered than others (agriculture

and nutrition, respectively). However, thanks to the expert interviews, some other regional policies, such as programmes, schemes and guidelines, were added to provide a more comprehensive account of food-related policies. Such policies were not added to the dataset analysed through content analysis but provided important insights on policy processes.

Second, the number of interviewees reached is not homogeneous in each policy domain, as for example in the economic domain six people were interviewed, while on planning policies it was possible to consult only three people, making it unbalanced. However, this is also a result itself. Several possible interviewees, especially in the environmental and economic domain, turned down the interview as they deemed their

expertise and/or work activity was not focused on food, when the interview objective was exactly to see the interactions between food and other domains. This did not happen for example in the agricultural or nutritional domain, where the link to food is more obvious.

## 5. Conclusion

The present research contributes to the study of food policy coherence at regional level in Emilia-Romagna. It was found that food issues are present in a variety of regional policies in domains ranging from agriculture to nutrition laws. Such policies often cover cross-cutting themes, and it remains unclear whether coherent approaches formulated in theory are also implemented in practice. More often than not, coherence is left to the personal connections and interactions of policymakers and practitioners working on the ground.

To conclude, it is recommended that a food system approach is applied to food-related policymaking at regional level. Implementing the use of a PCM as a standardised practice for policy approval would improve policy coherence. To tackle the cross-sectoral challenges of the current food systems, a coherent approach must be the priority.

## CRediT authorship contribution statement

**Francesca Monticone:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. **David Barling:** Conceptualization, Methodology, Writing – review & editing, Supervision. **Kelly Parsons:** Conceptualization, Methodology, Writing – review & editing, Supervision. **Antonella Samoggia:** Conceptualization, Methodology, Writing – review & editing, Funding acquisition, Supervision.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The research leading to these results received funding from the European Union Horizon 2020 under Grant Agreement No 862663.

## Appendix A

See Table 4–7.  
See Fig. 11.

## Appendix B. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.foodpol.2023.102519>.

## References

- Alliance Environnement, 2018. *Evaluation study of the impact of the CAP on climate change and greenhouse gas emissions*. European Commission.
- Arcuri, S., Minotti, B., Galli, F., 2022. Food policy integration in small cities: the case of intermunicipal governance in Lucca, Italy. *J. Rural. Stud.* 89, 287–297. <https://doi.org/10.1016/j.jrurstud.2021.12.005>.
- Art-ER, 2021. Osservatorio greenER. Art-ER.
- Baker, P., Friel, S., Gleeson, D., Thow, A.-M., Labonte, R., 2019. Trade and nutrition policy coherence: a framing analysis and Australian case study. *Public Health Nutr.* 22 (12), 2329–2337. <https://doi.org/10.1017/S1368980019000752>.
- Barling, D., Lang, T., Caraher, M., 2002. Joined-up food policy? The trials of governance, public policy and the food system. *Soc. Policy Adm.* 36 (6), 556–574. <https://doi.org/10.1111/1467-9515.t01-1-00304>.
- Battams, S., Townsend, B., 2019. Power asymmetries, policy incoherence and noncommunicable disease control—a qualitative study of policy actor views. *Crit. Public Health* 29 (5), 596–609. <https://doi.org/10.1080/09581596.2018.1492093>.
- Bertino, R.M., Mingozzi, A., Mingozzi, E., 2018. Focus Bio Bank – Mense Scolastiche 2018 – Biologico by Bio Bank—Issuu. *Bio Bank*. [https://issuu.com/biobank/docs/focus\\_bio\\_bank\\_mense\\_2018](https://issuu.com/biobank/docs/focus_bio_bank_mense_2018).
- Bouvard, V., Loomis, D., Guyton, K.Z., Grosse, Y., Ghissassi, F.E., Benbrahim-Tallaa, L., Guha, N., Mattock, H., Straif, K., 2015. Carcinogenicity of consumption of red and processed meat. *Lancet Oncol.* 16 (16), 1599–1600. [https://doi.org/10.1016/S1470-2045\(15\)00444-1](https://doi.org/10.1016/S1470-2045(15)00444-1).
- Brooks, J., 2014. Policy coherence and food security: The effects of OECD countries' agricultural policies. *Food Policy* 44, 88–94. <https://doi.org/10.1016/j.foodpol.2013.10.006>.
- Candel, J., Daugbjerg, C., 2020. Overcoming the dependent variable problem in studying food policy. *Food Security* 12 (1), 169–178. <https://doi.org/10.1007/s12571-019-00991-2>.
- Coleman, J. (1998). *Foundations of Social Theory*. Harvard University Press. <https://www.ibs.it/foundations-of-social-theory-libro-inglese-james-coleman/e/9780674312265>.
- Columbia Public Health, 2022. Content Analysis Method and Examples. <https://www.publichealth.columbia.edu/research/population-health-methods/content-analysis>.
- CREA. (2020). *Annuario dell'agricoltura italiana*.
- De Schutter, O., Jacobs, N., Clément, C., 2020. A 'Common Food Policy' for Europe: How governance reforms can spark a shift to healthy diets and sustainable food systems. *Food Policy* 96, 101849. <https://doi.org/10.1016/j.foodpol.2020.101849>.
- di Bologna, C., 2021. La Grande Bologna. Linee di mandato 2021–2026. <https://www.comune.bologna.it/notizie/linee-mandato-2021-2026>.
- Duraiappah, A., Bhardwaj, A., 2007. Measuring policy coherence among the MEAs and MDGs. International Institute for Sustainable Development. <https://www.iisd.org/publications/report/measuring-policy-coherence-among-meas-and-mdgs>.
- Esdaile, E., Thow, A.M., Gill, T., Sacks, G., Golley, R., Love, P., Wen, L.M., Rissel, C., 2019. National policies to prevent obesity in early childhood: using policy mapping to compare policy lessons for Australia with six developed countries. *Obes. Rev.* 20 (11), 1542–1556. <https://doi.org/10.1111/obr.12925>.
- Fanfani, R., Boccaletti, S., 2020. Il sistema agroalimentare dell'Emilia-Romagna. Unioncamere e Regione. Emilia-Romagna.
- FAO, 2023. Building sustainable and resilient city region food systems: Assessment and planning handbook. FAO. <https://doi.org/10.4060/cc5184en>.
- Forman, E., Peniwati, K., 1998. Aggregating individual judgments and priorities with the analytic hierarchy process. *Eur. J. Oper. Res.* 108 (1), 165–169. [https://doi.org/10.1016/S0377-2217\(97\)00244-0](https://doi.org/10.1016/S0377-2217(97)00244-0).
- Friel, S., Baker, P., Thow, A.-M., Gleeson, D., Townsend, B., Schram, A., 2019. An exposé of the realpolitik of trade negotiations: Implications for population nutrition. *Public Health Nutr.* 22 (16), 3083–3091. <https://doi.org/10.1017/S1368980019001642>.
- Garton, K., Swinburn, B., Thow, A.M., 2022. The interface between international trade and investment agreements and food environment policymaking: a conceptual framework. *Front. Pol. Sci.* 4. <https://www.frontiersin.org/articles/10.3389/fpos.2022.996017>.
- Germanò, A., Basile, E. R., Ragionieri, M.P., 2020. Diritto agroalimentare. Le regole del mercato degli alimenti e dell'informazione alimentare (2<sup>a</sup> edizione). Giappichelli.
- Harahap, F., Silveira, S., Khatiwada, D., 2017. Land allocation to meet sectoral goals in Indonesia—an analysis of policy coherence. *Land Use Pol.* 61, 451–465. <https://doi.org/10.1016/j.landusepol.2016.11.033>.
- IPES Food, 2017. Unravelling the Food–Health Nexus: Addressing Practices, Political Economy, and Power Relations to Build Healthier Food Systems.
- IPES Food, 2019. Towards a Common Food Policy for the EU. <http://www.ipes-food.org/pages/CommonFoodPolicy>.
- Jones, S.K., Monjeau, A., Perez-Guzman, K., Harrison, P.A., 2023. Integrated modeling to achieve global goals: lessons from the Food, Agriculture, Biodiversity, Land-use, and Energy (FABLE) initiative. *Sustain. Sci.* 18 (1), 323–333. <https://doi.org/10.1007/s11625-023-01290-8>.
- Lang, T., Barling, D., Caraher, M., 2009. Food policy: integrating health, environment and society. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198567882.001.0001>.
- Losavio, C., 2020. Agricoltura, pesca e caccia: Oggetto e delimitazione di tre materie di potestà residuale regionale. *Rivista giuridica on-line – ISSIRFA – CNR*. <http://www.ipof.it/agricoltura-pesca-e-caccia-oggetto-e-delimitazione-di-tre-materie-di-potestà-residuale-regionale/>.
- Lundqvist, L.J., 1996. Environmental politics in the Nordic countries: Policy, organisation, and capacity. In: *Governing the environment: Politics, policy, and organization in the Nordic countries* (Vol. 5, pp. 13–27). Nordic Council of Ministers.
- MacRae, R., 2011. A joined-up food policy for Canada. *J. Hunger Environ. Nutr.* 6 (4), 424–457. <https://doi.org/10.1080/19320248.2011.627297>.
- Matthews, A., 2008. The European union's common agricultural policy and developing Countries: the struggle for coherence. *J. Eur. Integr.* 30 (3), 381–399. <https://doi.org/10.1080/07036330802141998>.
- Meijers, E., Stead, D., 2004. Policy integration: What does it mean and how can it be achieved? A multi-disciplinary review. 15.
- Morgan, A.E., Fanzo, J., 2020. Nutrition transition and climate risks in Nigeria: moving towards food systems policy coherence. *Curr. Environ. Health Reports* 7 (4), 392–403. <https://doi.org/10.1007/s40572-020-00292-3>.
- Muscat, A., de Olde, E.M., Kovacic, Z., de Boer, L.J.M., Ripoll-Bosch, R., 2021. Food, energy or biomaterials? Policy coherence across agro-food and bioeconomy policy domains in the EU. *Environ Sci Policy* 123, 21–30. <https://doi.org/10.1016/j.envsci.2021.05.001>.
- Nilsson, M., Zamparutti, T., Petersen, J.E., Nykvist, B., Rudberg, P., McGuinn, J., 2012. Understanding policy coherence: analytical framework and examples of sector-environment policy interactions in the EU: understanding policy coherence. *Environ. Policy Gov.* 22 (6), 395–423. <https://doi.org/10.1002/eet.1589>.
- Nilsson, M., Chisholm, E., Griggs, D., Howden-Chapman, P., McCollum, D., Messerli, P., Neumann, B., Stevance, A.-S., Visbeck, M., Stafford-Smith, M., 2018. Mapping interactions between the sustainable development goals: lessons learned and ways

- forward. *Sustain. Sci.* 13 (6), 1489–1503. <https://doi.org/10.1007/s11625-018-0604-z>.
- OECD, 2003. *Policy coherence: Vital for global development*. OECD Publications.
- Parsons, K., Barling, D., 2022. England's food policy coordination and the Covid-19 response. *Food Security* 14 (4), 1027–1043. <https://doi.org/10.1007/s12571-022-01280-1>.
- Parsons, K., Hawkes, C., 2019. Brief 5: Policy coherence in food systems. *Rethinking Food Policy: A Fresh Approach to Policy and Practice*. Centre for Food Policy.
- Parsons, K., 2020. Who makes food policy in England? A map of government actors and activities (Rethinking Food Governance Report 1). Food Research Collaboration. <https://foodresearch.org.uk/publications/who-makes-food-policy-in-england-map-government-actors/>.
- Parsons, K., 2021. How connected is national food policy in England? Mapping cross-government work on food system issues (Rethinking Food Governance 2). Food Research Collaboration. <https://foodresearch.org.uk/publications/how-connected-is-national-food-policy-in-england-mapping-cross-government-work-on-food-system-issues/>.
- Ruckert, A., Schram, A., Labonté, R., Friel, S., Gleeson, D., Thow, A.-M., 2017. Policy coherence, health and the sustainable development goals: a health impact assessment of the Trans-Pacific Partnership. *Crit. Public Health* 27 (1), 86–96. <https://doi.org/10.1080/09581596.2016.1178379>.
- Senato della Repubblica. (no date). *La Costituzione—Articolo 117 | Senato della Repubblica*. <https://www.senato.it/istituzione/la-costituzione/parte-ii/titolo-v/articolo-117>.
- Sibbing, L., Candel, J., Termeer, K., 2021. A comparative assessment of local municipal food policy integration in the Netherlands. *Int. Plan. Stud.* 26 (1), 56–69. <https://doi.org/10.1080/13563475.2019.1674642>.
- Thow, A.M., Greenberg, S., Hara, M., Friel, S., duToit, A., Sanders, D., 2018. Improving policy coherence for food security and nutrition in South Africa: a qualitative policy analysis. *Food Security* 10 (4), 1105–1130. <https://doi.org/10.1007/s12571-018-0813-4>.
- Underdal, A., 1980. Integrated marine policy. *Mar. Policy* 4 (3), 159–169. [https://doi.org/10.1016/0308-597X\(80\)90051-2](https://doi.org/10.1016/0308-597X(80)90051-2).
- Unione Europea, 2020. Il Quadro socio-economico dell'Emilia-Romagna.
- United Nations System Standing Committee on Nutrition, 2016. Enhancing coherence between trade policy and nutrition action Discussion paper.
- Zembe, A., Nemakonde, L., Chipangura, P., 2022. Policy coherence between food security, disaster risk reduction and climate change adaptation in South Africa: A summative content analysis approach. *J. Disaster Risk Studies* 14 (1). <https://jamba.org.za/index.php/jamba/article/view/1173>.