Revista Internacional de
Doctrina y Jurisprudencia

Volumen 29, Junio de 2023

SUSTAINABLE WATER USE FOR AGRICULTURAL PRODUCTION - SELECTED LEGAL ASPECTS

Izabela Lipińska
Poznan University of Life Sciences, Poland
Faculty of Economics
Department of Law and Organization of Agribusiness Enterprises
E-mail: Izabela.lipinska@up.poznan.pl

María José Cazorla González
University of Almería, Spain
Faculty of Law
Department of Law
E-mail: mcazorla@ual.es

*ISSN 2255-1824

RESUMEN: La cuestión de la escasez de agua en la agricultura es compleja y require de un enfoque holístico debido al papel que desempeña el agua en la producción agrícola de cada país europeo, aunque en este trabajo sólo se analizan las diferentes condiciones geográficas y climáticas de España y Polonia. Ambos Estados se enfrentan al problema de la sequía y del uso no siempre adecuado del agua en el marco de la actual PAC. Es por ello, que en objetivo de este trabajo es análizar los instrumentos legales para mejorar el estado cuantitativo y cualitativo, tanto a nivel regional como a nivel local, del uso y la gestión del agua en la agricultura de ambos países.

Palabras clave: uso del agua; política de aguas; sequía; ayudas en caso de catástrofe; Política Agrícola Común (PAC).

ABSTRACT: The issue of water scarcity in agriculture is complex and requires a holistic approach due to the role water plays in agricultural productionin each european countries, although in this paper only analize the different geographic and climatic conditions of the Spain and Poland. Both States face the problem of drought and improper use of water under the current CAP. Therefore, the objective of this paper is to analyse the legal instruments to improve the quantitative and qualitative status, both at regional and local level, of water use and management in agriculture in both countries.

Keywords: water use; water policy; drought; disaster support; Common Agricultural Policy (CAP).

Revista Internacional de
Doctrina y Jurisprudencia

Volumen 29, Junio de 2023

I. INTRODUCTION

The subject of the article is issues related to the use of water in agricultural manufacturing activities. In particular, it is about sustainable spending of it in the face of climate change and the need to protect the environment. Although it is not treated as a primary factor of production, it is not possible without it, while consuming significant amounts of it.

Globally, agriculture is responsible for the largest consumption of water. Agricultural activities account for almost 70% of the world's water withdrawal, and in some developing countries the figure is as high as 95%.[1] According to calculations, it takes about 13,000 to 16,000 liters of water to produce 1 kg of beef, about 4,800 liters to produce 1 kg of pork, 3,500 - 5,700 liters - a kilogram of chicken, depending on factors such as the production system production system and feed. In addition, it takes 5,000 liters of water to obtain 1 kg of yellow cheese, 1,300 liters to produce 1 kg of bread, and, for example, 1,000 liters to obtain 1 liter of milk.

In Europe, about 40% of the total amount of water is used, mainly for land irrigation - that is, for production purposes[2] Irrigation systems can collect surface water (from rivers, lakes or reservoirs), groundwater (from springs or underground aquifers) or treated water (from desalination, drainage). They supply plants by various methods, such as flooding fields, through micro-irrigation (precision irrigation) or the use of sprinklers. The need for irrigation is only due to the natural needs of crop production, with increasingly frequent weather anomalies, including the occurrence of drought. As the EEA reports, about 30% of the EU's land area is exposed to permanent or temporary water deficits. Severe droughts are experienced by, among others: Greece, Portugal and Spain, but water scarcity is also becoming a significant problem in northern regions, including Germany or Poland.

The size of irrigated areas is expected to increase in the near term if the trend in food production patterns continues while climate change continues. It is worth adding that, apart from agriculture, all sectors of the economy use water - albeit in different ways and in different amounts. No less, it is impossible to ensure food security, without the use of water. So the question arises about the priority of both states. So, should one, no matter what, obtain according to needs an adequate amount of food, or should one maintain an adequate state of water, which translates into environmental aspects. The answer to the question posed is an attempt to formulate the concept of its sustainability and to identify legal instruments that can serve this at both the regional and local levels.

1 ROSSI R., *Irrigation in EU agriculture*, European Parliamentary Research Service 2019, pp. 1-12.

2 EEA, *Water use in Europe - Quantity and quality face big challenges,* 2018 <https://www.eea.europa.eu/signals/signals-2018-content-list/articles/water-use-in-europe-2014> accessed: 10.04.2023.

*ISSN 2255-1824

The issues under discussion are not new, and have so far been addressed by representatives of various sciences, such as economics and agriculture. From the legal side, the aspects discussed are taken up primarily from the side of environmental protection, including water protection in its broadest sense.[3] No less in favor of addressing the issue at hand are many considerations, including cognitive, economic, or social ones.

As for cognitive considerations, there is no doubt that water should be treated as a special public good, which is subject to protection and has a certain value. It would seem to be infinite, nevertheless its usefulness is shaped by the state of water (in terms of fitness). However, it is a good threatened not only by the worsening climate crisis, but also by the way water resources are managed. Therefore, the legislator establishes appropriate legal norms, which include the necessary requirements for minimizing the dangers of its quantitative and qualitative use.[4] In economic terms, as mentioned above, the use of water determines the production of raw materials and food, but also affects the overall development of rural areas, as well as the agri-food industry. On the social side, on the other hand, it allows the existence of the agricultural producer and guarantees the sustainability of farming. It is worth emphasizing that in addition to the indicated considerations in terms of production, one should take into account even broader aspects related to them, namely relating to the need to protect it as an element of the environment.

*ISSN 2255-1824

In further consideration, it should be assumed that, first, the use of water for agriculture and agricultural activities is widespread, continuous and necessary. Secondly, agricultural activity goes beyond the sphere of ordinary economic activity, as it implements a number of obligations for the protection of the environment, including the protection of water resources. Third, in ensuring food security, it is necessary to adopt various legal instruments that will both affect production processes and serve agricultural producers in a crisis situation related to temporary water shortages.

The purpose of the article is to identify legal instruments that affect the sustainable use of water resources in agriculture. In particular, the aim is to answer the question of whether the instruments proposed by the legislator are effective and serve to implement the concept of sustainable use of water in agricultural activities.

The issue under discussion is very broad, so due to the framework of the article it is limited only to aspects of agricultural production relating to the use of certain innovative methods in agriculture, such as precision agriculture in the face of the existing risk of drought. The solutions adopted in Spain and Poland will be analyzed against the background of the general assumptions of the common agricultural policy.

II. SUSTAINABLE WATER USE FOR AGRICULTURE IN EU LAW

Sustainable use of water in agriculture is undoubtedly served by normative solutions adopted at the EU level for more than 30 years. The first significant documents, admit-

3 PUSLECKI D., *Water quality in domestic law* (in:) *Contemporary challenges of agrienvironmental law – comparative legal aspects* (ed. Izabela Lipinska), Nitra 2023, pp. 123-127.

4 Water quality can deteriorate due to so-called diffuse pollution, the source of which is the fertilizers or pesticides used.

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

tedly political in nature, were two directives: on urban waste-water treatment[5] and the nitrates directive.[6] Both were essentially aimed at improving water quality.[7]

In another, the so-called Water Framework Directive of 2000, the legislature introduced legal standards for the amount of water resources. It outlines qualitative objectives for the protection of surface water, while for groundwater the emphasis is on protection from pollution and over-extraction. On the latter point, in order to achieve good quantitative status of groundwater, the directive limits abstraction to that part of the annual recharge that is not needed to sustain aquatic ecosystems (Article 4(1) of the directive). The solutions in the directive were intended to promote an ecosystem approach to water management. The legislator referred to the need to promote the sustainable use of water, based on the long-term conservation of available water resources. In addition, according to Art. 1, its goal was to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater that: (a) prevent further deterioration and protect and improve the condition of aquatic ecosystems; (b) strive for increased protection and improvement of the aquatic environment through, inter alia, specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or progressive elimination of discharges, emissions and losses of priority hazardous substances; (c) ensure the progressive reduction of groundwater pollution and prevent further pollution of groundwater, and (d) contribute to reducing the effects of floods and droughts.

Under the provisions of the Water Framework Directive, member states were required to develop and implement river basin management plans. They contain detailed information on monitoring, main risks, targets, exemptions from requirements and actions for the next six-year period.[8] The implementation of the plans is subject to monitoring, and its goals were expected to be achieved in 2015 and 2027. According to the Commission's report on the implementation of the directive in the period 2009-2015, the situation improved in most Member States, but nevertheless the quantitative status of groundwater bodies was not satisfactory. The next revision took place in 2019.[9] The Commission's assessment of the implementation of the Water Framework Directive at the time (for the previous two years) showed that it should have been done much earlier, with the commitment of more resources.[10]

Sustainable management of natural resources, including water, has been elevated to one of the objectives of the 2014-2020 CAP.[11] Currently, the CAP promotes sustainable agricultural systems, ensures compliance with EU regulations and encourages good manage-

5 Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment, OJ L 135, 30.5.1991, pp. 40-52.

6 Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources, OJ L 375, 31.12.1991, p. 1-15.

7 See: ETO, *Sprawozdanie specjalne 20/2021: Zrównoważone wykorzystanie zasobów wodnych w sektorze rolnictwa – zamiast promować bardziej efektywne korzystanie z wód środki w ramach WPR najprawdopodobniej doprowadzą do wzrostu zużycia*, Europejski Trybunał Obrachunkowa 2021, pp. 7-18.

8 Member states submitted their plans to the Commission first in 2009 and then in 2015. Every three years, the Commission evaluates the progress made. The Water Framework Directive assumes that all groundwater bodies will reach good quantitative status by 2015, with the deadline extended to 2027 at the latest for justified exceptions.

9 See: *Water Framework Directive*, https://environment.ec.europa.eu/topics/water/water-framework-directive_en> accessed 17.04.2023.

10 ETO, *Sprawozdanie specjalne 20/2021…,* op. cit., p. 11.

11 See *Wspólna polityka rolna w skrócie* < https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_pl> accessed 17.04.2023. See more widely: ETO, *Sprawozdanie specjalne Włączenie celów polityki wodnej UE do WPR: częściowy sukces*, Europejski Trybunał Obrachunkowa 2014, pp. 1-68.

*ISSN 2255-1824

ment practices. Thus, it ensures that agriculture contributes to EU water policy. In addition, the new CAP (2023-27) aligns agriculture with the goals of the European Green Deal, and one of its key aspects is water protection. The new legal arrangements are included in Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013.[12]

Under the principle of interdependence, meaning the interaction between compliance with EU regulations and the support provided to farmers, payments received by CAP beneficiaries are linked to a set of basic management requirements and GAEC . With regard to water, these principles relate to: a) the Nitrates Directive (which is linked to payments); b) buffer zones along watercourses (GAEC4); c) compliance with irrigation licensing procedures (GAEC2); d) protection of groundwater from contamination (GAEC3).[13] Agricultural producers acquire the right to receive a green direct payment if they follow mandatory practices that benefit water, which include: diversification of crops and maintenance of permanent grassland to improve soil structure and strengthen its water-holding capacity, as well as reducing the use of pesticides and fertilizers in pro-environmental areas, which in turn reduce the risk of pollution.[14]

The issue of improving water management and increasing water use efficiency are also key areas of focus for rural development (Article 69 of Reg. 2021/2115). These activities are covered under the second pillar of the CAP. In broad terms, their three tracks can be delineated. The first refers, among other things, to supporting farmers who undertake additional activities leading to sustainable water use. For example, under agri-environment-climate measures, farmers who commit to adopting measures that protect water quality can receive support dedicated to this can be used to cover the costs of capital-intensive changes, such as more efficient irrigation systems (Article 74 of Reg. 2021/2115). In addition, Water Framework Directive payments support farmers who adapt their land as part of river basin management plans. And, there is also a common monitoring and evaluation framework that collects several data indicators relevant to water (water quality and availability).

III. SUSTAINABLE WATER USE FOR AGRICULTURE IN NATIONAL LAW – SPAIN VERSUS POLAND

Properly regulated water relations, in addition to environmental issues, provide farmers with numerous benefits, including improved crop viability and quality and increased yields, which should also be served by appropriate legislation. In accordance with the

12 OJ L 435, 6.12.2021, p. 1-186.

13 See: ALMEIDA S., *European Union framework for water quality*, (in:) *Contemporary challenges of agrienvironmental law – comparative legal aspects* (ed. Izabela Lipinska), Nitra 2023, pp. 115-120.

14 See: DONGO D., GIAMMELLO Y. P., *Water pollution. Antibiotics, drugs, pesticides in the new EU monitoring plan* <https://www.greatitalianfoodtrade.it/en/sicurezza/inquinamento-acque-antibiotici-farmaci-pesticidi-nel-nuovo-piano-di-monitoraggio-ue> accessed 17.03.2023; LI Z., FANTKE P., *Toward harmonizing global pesticide regulations for surface freshwaters in support of protecting human health*, "Journal of Environmental Management" 2022 Vol. 301, pp. 1-14.

*ISSN 2255-1824

assumption adopted at the EU level, member states choose the legal instruments appropriate to their needs, which in the next period of CAP implementation took the form of strategic plans.

In Poland, the issues in question are regulated at the level of the entire state, and the basic normative act in this regard is the Act of July 20, 2017. Water Law. [15] According to Article 1, it shapes the principles of water management in accordance with the principle of sustainable development, in particular the formation and protection of water resources, the use of water and the management of water resources.

It is worth noting that Poland is classified as a water resource-poor country. Average water resources are about 60 billion cubic meters, and in dry seasons this level decreases to 40 billion cubic meters.[16] The SWOT analysis prepared for the implementation of the Strategic Plan shows that there is a poor state of technical infrastructure (mainly land reclamation), low retention capacity, and insufficient surface activities are being undertaken to enable rational water management.[17] In addition, there is an inadequate level of implementation of sustainable water management practices in agriculture, including those relating to the adaptation of agrotechnology and crop technology to climate change.[18] At the same time, there is a regional increase in the risk of water erosion of soils as a result of increased climatic emergencies.

*ISSN 2255-1824

In response to the problems and needs identified, the legislature has adopted certain normative solutions. First of all, they are aimed at water quality. First of all, it refers to the boiling of buffer zones along watercourses, which means prohibiting the use of fertilizers and plant protection products on agricultural land near surface water at a distance of at least 5 meters. The plan also supports organic farming, integrated crop production methods and biological crop protection. This should contribute to reducing the use of chemical inputs that harm water quality. In addition, investment aid is proposed for farmers to support the purchase of machinery and equipment to reduce the use of pesticides and fertilizers and promote mechanical and biological pest control.

In addition to those mentioned, interventions also target specific types of water pollution, such as the eco-scheme on carbon farming and nutrient management; the eco-scheme on biological plant protection.

As for Spain, it faces serious challenges in meeting environmental and climate goals. In broad terms, water conservation issues in Spain are shaped by Royal Legisla-

15 Polish Journal of Law, 2022 item 2625 with amendments. This is not a comprehensive regulation. Apart from it, water issues are shaped by the Law of April 27, 2001 - Environmental Protection Law (Polish Journal of Law 2022, item 2556), the Law of July 10, 2007 on fertilizers and fertilization (Polish Journal of Law 2007, item 147), the Law of December 14, 2012 on waste (Polish Journal of Law 2023, item 295), the Law of February 3, 1995. on the protection of agricultural and forest land (Polish Journal of Law 2022, item 2409), the Law of November 26, 2013 on plant protection products (Polish Journal of Law 2023, item 340), and the Law of April 16, 2004 on nature protection (Polish Journal of Law 2022, item 916).

16 NIK, *Przeciwdziałanie niedoborom wody w rolnictwie*, Warszawa 2020, p. 7.

17 MIDLER E., HOBEIKA M., RIEDEL A., PAGNON J., *Environment and climate assessment of Poland's CAP Strategic Plan, Policy report*, Institute for European Environmental Policy and Ecologic Institute, Brussels 2023, pp. 39-46.

18 PRANDECKI K., WRZASZCZ W., *Challenges for agriculture in Poland resulting from the implementation of the strategic objectives of the European Green Deal*, „Ekonomia i środowisko" 2022 No 4(83) 2022, pp. 149-178.

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

tive Decree 1/2001 of July 20, 2001, approving the revised text of the Water Law[19] and the law of July 5, 2001 of the National Hydrological Plan.[20] Its purpose, set forth in Article 1, is to regulate the public water domain, the use of water, and the exercise of powers attributed to the State in matters related to this exercise of powers attributed to the State in matters related to this domain within the powers set forth in the domain within the powers set forth in Article 149 of the Constitution. In terms of legislation, coordination and licensing of hydrological resources and uses, when water flows through more than one Autonomous Region, exclusive competence is vested in the State. In contrast, the competence for the design, construction and use of exploitation systems, canals and irrigation systems of interest to the Autonomous Region and mineral and thermal waters is vested in the Regions themselves, which de facto undertake land irrigation activities.

The SWOT analysis carried out showed that Spain's water resources balance indicates difficulties in meeting future demand, while areas with high water deficits are expanding, which has an impact on limiting its availability for agricultural activities. This is accompanied by progressive pollution of surface and ground water due to nitrates of agricultural origin, especially in the Mediterranean slope.[21] It is worth noting that Spain's agricultural sector accounts for 82.1% of water consumption. In fact, irrigation is a fundamental part of the agrifood system: irrigated area in Spain accounted for 22.9% of the cultivated area in 2021. (7.8% of the total geographic area), but its production contributes just over 50% of final crop production.[22]

Combating desertification and erosion and improving water management are now a priority, both in terms of quantity and quality. In line with the strategic plan, Spain is strengthening its framework of measures of a regulatory nature to ensure better synergy between the various tools being implemented and to achieve environmental goals.[23] Accordingly, some measures have been taken in the implementation, as in Poland, of eco-schemes. These include the creation of buffer strips, carrying out crop rotation appropriate to water conditions and the mode of production, as well as the development of organic farming. At the same time, it should be emphasized that each region adopts and implements its own strategic plan corresponding to local needs.

The Council of Ministers 24 January 2023[24], at the proposal of the Ministry for Ecological Transition and the Demographic Challenge (MITECO), has approved the Third Cycle Hydrological Plans a document that defines the lines of action for managing

19 Real Decreto Legislativo 1/2001, de 20 de julio, por el que se aprueba el texto refundido de la Ley de Aguas, «BOE» núm. 176, de 24/07/2001.

20 Ley 10/2001, de 5 de julio, del Plan Hidrológico Nacional, «BOE» núm. 161, de 06/07/2001.

21 Informe sobre el plan estratégico de la PAC 2021, 2023ES06AFSP001.

22 GARRIGA J. M., *The use of water in agriculture: making progress in modernising irrigation and efficient water management*, https://www.caixabankresearch.com/en/sector-analysis/agrifood/use-water-agriculture-making-progress-modernising-irrigation-and-efficient accessed 16.02.2023.

23 *Factsheet: At a glance: Spain's CAP Strategic Plan* <https://agriculture.ec.europa.eu/system/files/2023-04/csp-a-a-glance-spain_en.pdf> accessed 28.04.2023.

24 Real Decreto 35/2023, de 24 de enero, por el que se aprueba la revisión de los Planes Hidrológicos de las demarcaciones hidrográficas del Cantábrico Occidental, Guadalquivir, Ceuta, Melilla, Segura y Júcar, y de la parte española de las demarcaciones hidrográficas del Cantábrico Oriental, Miño-Sil, Duero, Tajo, Guadiana y Ebro: Real Decreto 35/2023 completo (incluye anexos con las disposiciones normativas de todos los Planes) and Parte expositiva y de articulado general del Real Decreto 35/2023 (sin anexos).

*ISSN 2255-1824

water resources in Spain from now until 2027.[25] The approval of these plans marks the culmination of a long process to modernise hydrological planning in Spain, in which solutions to the main water management problems in our country have been identified and presented.

Thus, the plans have been drawn up in response to the challenges of climate change such as extreme phenomena, droughts and floods. They are also fully aligned with European policies such as the Green Pact, the "Zero Pollution" Plan and the new European Directive on the quality of water for human consumption. These measures seek to mitigate the risk of floods and droughts, contribute to achieving environmental objectives and protect biodiversity while making progress in adapting to climate change.

To this end, more than 6,500 measures are established with an investment of 22,844 million euros, distributed as follows:

- More than €10.6 billion, i.e. 46.7% of the total will be financed by the General State Administration.
- Almost €8.3 billion (36.3%) will be borne by the Autonomous Communities and Cities.
- More than 2.3 billion EUR (10.2%) will be financed by the Local Administration.
- The remaining 6.7%, more than 1.5 billion EUR, will be financed by other financing agents.

*ISSN 2255-1824

Among these investments, some stand out, such as the more than 6,600 million EUR earmarked for actions to improve sanitation and treatment; more than €2,200 million for improving water supplies; more than 5,000 million EUR to be invested in irrigation infrastructures; more than 2,000 million EUR for flood risk management and almost 1,300 million EUR for the restoration and conservation of the Public Hydraulic Domain.

Spain is experiencing significant development in efficient irrigation techniques. This is linked to a plan developed and implemented in recent years to achieve sustainable and productive agriculture. However, irrigation modernization has not been accompanied by water savings. As it turns out, there is often a simultaneous intensification of crops, resulting in higher yields per m3 of water used for the agricultural producer.[26]

The Recovery, Transformation and Resilience Plan (RRTP), approved in 2021 and endowed with almost 69,528 million EUR in non-refundable transfers, makes Spain the main beneficiary of the Recovery and Resilience Mechanism, and has laid the foundations for a programme of structural reforms and transformative investments.

Cohesion policy funds and the FEMPA complement, reinforce and consolidate this investment programme, from a territorial cohesion perspective, with the objective of convergence of the territories towards the EU average[27].

25 See: https://www.miteco.gob.es/es/agua/temas/planificacion-hidrologica/planificacion-hidrologica/PPHH_tercer_ciclo.aspx) accessed 18.05.2023.

26 GARRIGA J. M., *The use*…, op. cit.

27 ARRIBAS CÁMARA, J.; PUENTE REGIDOR, M; and SÁNCHEZ JIMÉNEZ, V., *Complementariedad y sinergias entre fondos europeos y Plan de Recuperación, Transformación y Resiliencia en España*, Journal La Ley

With a total allocation of 35,562 million EUR, Spain is the third largest beneficiary of EU cohesion policy funds in the period 2021-2027, behind only Poland and Italy. [28] It is implemented by the Public Corporation for Agricultural Infrastructure (Seiasa). The plan prioritizes activities with a high impact on environmental sustainability or an important innovative component, such as the use of technology and digital tools in irrigation communities to achieve more efficient irrigation. Irrigation modernization, it is understood, should help meet the requirements of the EU Water Framework Directive, as it contributes to the protection of surface water by reducing its abstraction for irrigation.

In addition to the investment plan, measures and incentives for reform are also being taken. For example, a National Irrigation Council and an Irrigation Sustainability Observatory have been established.[29] It is a kind of Spain-wide governance mechanism that enables all representatives of public authorities and interested sectors to promote and facilitate cooperation, consultation and information exchange on all aspects of irrigation. The Irrigation Sustainability Observatory itself, in turn, is expected to provide objective data on the economic, social and environmental impact of irrigation in the country.

IV. LEGAL DETERMINANTS OF THE APPLICATION OF PRECISION AGRICULTURE IN IRRIGATION VERSUS DROUGHT

Effective and efficient use of water can be served by applied agricultural techniques. These can include optimized irrigation equipment and digitally assisted irrigation. These provide opportunities for better water management by accurately measuring the amount of water delivered to plants at precisely measured times. Such technologies include drip irrigation and field sensors. The former, compared to classical sprinkling, saves 10 to 35 percent of water for crops, 28 to 46 percent for orchard crops and 17 to 43 percent for fruits and vegetables. In contrast, field sensors that determine irrigation needs save 20 to 25 percent of water for crops and orchard crops and 45 to 50 percent for fruits and vegetables. In addition to the above-mentioned agricultural applications, mention should also be made of hydroponics, or soilless plant growing methods and techniques that make even more efficient use of water than traditional soil cultivation.[30]

The use of precision agriculture falls within the so-called ecoschemes designed at the EU level. They should be regarded as specific practices that should cover at least two areas of climate action, the environment, animal welfare and the fight against antimicrobial resistance. Their final design is left to member states due to existing differences in geography, climate, or even farming culture. They may include, among other things, irrigation. Since the regional goal is the good condition of water bodies, specific support

Unión Europea, No 107, October 2022.

28 See: *Spain launches an ambitious plan to improve irrigation* <https://cemas.global/en/spain-launches-an-ambitious-plan-to-improve-irrigation/> accessed 5.04.2023.

29 Real Decreto 854/2022, de 11 de octubre, por el que se crean la Mesa Nacional del Regadío y el Observatorio de la Sostenibilidad del Regadío, «BOE» núm. 245, de 12/10/2022.

30 See: Operacje typu „Modernizacja gospodarstw rolnych", w ramach poddziałania „Wsparcie inwestycji w gospodarstwach rolnych", obszar nawadniania w gospodarstwie. Poradnik dla wnioskodawców, Warszawa 2023.

*ISSN 2255-1824

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

is provided for the modernization and development of irrigation infrastructure. In particular, the aim is to ensure that water use in agriculture does not jeopardize the stated goal.

Accordingly, in Article 69 of Reg. 2021/2115, the legislator has provided for various types of interventions related to rural development, including support for investments in irrigation. According to Article 74 of Reg. 2021/2115, Member States may grant support for investments in irrigation in new and existing irrigated areas, provided that the conditions of Article 73 are met, including providing for them in strategic plans. According to the adopted solution, investments in irrigation are supported only if the Member State has sent the Commission a river basin management plan, as defined by the Water Framework Directive (2000/60/EC) for the entire area where the investment is to be made, as well as for any other areas where the investment may have an impact on the environment.[31]

Accordingly, Member States may grant support for investment in the improvement of an existing irrigation installation or irrigation infrastructure component only if: a) it is assessed ex ante as offering potential water savings reflecting the technical parameters of the existing installation or infrastructure; b) the investment has an impact on groundwater bodies or surface water bodies whose status in terms of water quantity has been determined as less than good for water quantity reasons in the relevant river basin management plan, effectively reduces water use, contributing to the achievement of good status of these water bodies, as defined in Article. 4(1) of the Water Framework Directive. At the same time, Member States are required to set percentages of potential water savings and effective water use reduction as an eligibility condition in their strategic plans. In addition, they may grant support for investments in the use of reclaimed water as an alternative source of water supply only if the supply and use of such water is in compliance with Regulation (EU) 2020/741 of the European Parliament and of the Council.[32]

Member States may also grant support for investments that will lead to a net increase in the irrigated area affecting a given groundwater body or surface water body only if: a) the status of the water body in terms of water quantity has not been determined to be less than good in the relevant river basin management plan; and b) the environmental impact analysis shows that the investment will not have a significant negative impact on the environment; this environmental impact analysis is carried out or approved by the competent authority and may also apply to a group of farms.

However, the subsidy is limited to: a) 80% of the eligible costs of irrigation investments made on the farm; b) 100% of eligible costs for off-farm infrastructure investments for agricultural irrigation; and c) 65% of eligible costs for other on-farm irrigation investments.

It is worth emphasizing that in providing investment support, Member States should take particular account of the cross-cutting objective of modernizing agriculture and rural areas by fostering the development of knowledge, innovation and digitization

31 Measures coming into effect within the framework of a river basin management plan in accordance with Article 11 of this Directive that are relevant to the agricultural sector shall be specified in the relevant action program. It is important that a water metering system is or is to be installed as part of the investment to measure water consumption at the level of the supported investment.

32 Regulation (EU) 2020/741 of the European Parliament and of the Council of 25 May 2020 on minimum requirements for water reuse (Text with EEA relevance) PE/12/2020/INIT, OJ L 177, 5.6.2020, p. 32-55.

*ISSN 2255-1824

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

and their dissemination in agriculture and rural areas, as well as encouraging their use. This applies in particular to investments in precision agriculture related to new technologies for the precise use of water.

As it seems, the indicated new irrigation techniques may be of key importance in the future for sustainable agricultural development, food security, especially in the context of climate change and agricultural and nonagricultural water demand. However, they require specific financial support for producers, as they go far beyond the costs of simple irrigation.

In connection with increasingly frequent periods of drought, which cause excessive drying of soils, which in turn negatively affects the height and quality of yields, in order to improve water management and increase water resources for the needs of cultivated crops, the possibility of making investments in on-farm irrigation was introduced under the "Modernization of farms" type of operation. For this purpose, a separate area of support, the so-called "on-farm irrigation area," was set aside in the previous CAP implementation period 2014-2020. It will be implemented until 2025. A separate aid limit has been set for it, and the requirements specific to this type of aid, and thus the access criteria and criteria for selecting operations, have been adequately defined. Within the farm irrigation area, three categories of operations (investments) can be distinguished, i.e.: a) those involving the improvement of an existing irrigation installation, b) those involving the expansion of the irrigated area, or c) operations involving a combination of the improvement of an existing installation and the expansion of the irrigated area.

Aid may be granted for an operation: a) involving only investments directly related to the conduct of agricultural activities and irrigation; b) economically justified, including in terms of the reasonableness of its costs; c) meeting the requirements set forth in the laws applicable to investments made as part of the operation; d) if the investment covered by the operation meets the conditions of the EU, provided that the coefficient of potential water savings is at least 10%. In the area of irrigation, in Poland, aid is granted in the form of reimbursement of part of the eligible costs, which include, for example, the costs of purchasing: new machinery and equipment; construction, purchase or installation of elements of technical infrastructure, installation of equipment for obtaining energy from renewable sources, purchase of computer hardware and software for irrigation on the farm, fees for patents or licenses. The support limit is PLN 100,000 (about EUR 22,000), and corresponds to 50% of the eligible costs incurred.

As for Spain, it ranks first in terms of its share of irrigated area in the total EU agricultural area of 6%. Next to Italy, it has the largest irrigated areas, and uses the most water per unit of irrigated area.[33] As noted earlier, along the Mediterranean coast, many traditional irrigation systems have been replaced by more intensive ones. This is due in part to the fact that orchard and horticultural production has intensified. Currently, most of the approximately 20% of irrigation takes place in Andalusia, where one in four hectares is irrigated (equivalent to almost 30% of all irrigated land in Spain). This indicates the high exploitation of water in this region, which implies the need for proper long-term drought management and the introduction of strategies to avoid and mitigate its severe effects.

33 ROSSI R., *Irrigation…,* op. cit., p. 5.

*ISSN 2255-1824

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

An analysis of Spain's strategic plan indicates that water use efficiency in agriculture will be increased by funding more than 200 investments to modernize irrigation systems. Among other things, these are to use digital technologies to monitor soil moisture and encourage the use of green infrastructure that contributes to soil water retention.

All actions related to water management from a disaster prevention perspective, both those financed by the PRTR and those financed by the ERDF, are included in the programmes of measures of the hydrological plans of the third planning cycle, which constitutes Spain's National Investment Plan for water, as mentioned in the previous section. On the other hand, and with regard to the sustainable use and management of water, it should be noted that the EAFRD contributes to the climate and environmental objectives of the EU Green Pact from the point of view of the CAP and the contribution to the objectives of the Water Framework Directive. Specifically, the EAFRD affects the modernisation of water infrastructures and irrigation systems, always from the point of view of agriculture, because it affects the primary distribution network, complementing the actions carried out in the main water transport networks, on the one hand. On the other hand, it affects the actions undertaken by the competent administration in the secondary and tertiary distribution and distribution networks, which leads to a comprehensive improvement in the efficiency of irrigation. Spain's PRTR plans to invest a total of 2,091m EUR under component 5 "Preservation of the coastal area and water resources", with some 1,667m EUR managed by DG Water, of which 1,017m EUR is direct investment and 650m EUR is shared between the Autonomous Regions and municipalities.[34]

Although the ERDF and the PRTR coincide in the type of actions proposed, it is important to mention that, in this period, the ERDF, in accordance with the guidelines of Annex D for cohesion policy 2021-2017 in Spain, prioritises support for measures based on ecosystems over actions in traditional infrastructures. In addition, actions on water reuse will have a more residual character in ERDF, prioritising those that take place in less developed regions and islands, based on the aforementioned criteria of severity of infractions, size of agglomerations and level of discharges, both the actions included in the PRTR and those to be included in the ERDF 2021-2027, are included in the programmes of measures of the Hydrological Plans of the third planning cycle, which constitutes the National Investment Plan of Spain in the field of water. Under no circumstances will double financing of actions be allowed.

V. CONCLUSIONS

The issue of water scarcity in agriculture is complex and requires a holistic approach due to the role water plays in agricultural production. Considerable responsibility for its use rests with agricultural producers, who make the choice of the production directions they pursue. Thus, it is necessary to seek innovative and sustainable solutions for agricultural water management, allowing its proper management.

Despite the different geographic and therefore climatic conditions, both Spain and Poland face the problem of drought and improper use of water. The current CAP allows

34 ARRIBAS CÁMARA, J., PUENTE REGIDOR, M., SÁNCHEZ JIMÉNEZ V., *Complementariedad*…, op. cit.

*ISSN 2255-1824

the necessary legislative solutions to be tailored to local needs, which in practice can serve their better use. Correspondingly, agricultural producers can receive some financial incentives to improve or strengthen sustainable water use.

The analysis leads to the conclusion that there are legal instruments for improving the quantitative and qualitative status, both at the regional and local levels. However, whether they are effective depends very often on the individual behavior of their addressees. There is some financial support available to agricultural producers in both countries for the creation of modern adaptive solutions, which include efficient use of water through, for example, new technologies in irrigation, in addition to existing agronomic practices. However, they require proper preparation of farmers, including a lot of information and training for their dissemination, which should be accompanied by certain financial support. Although, on the other hand, as has been recognized in Spain, the use of new technologies is often accompanied by a shift to more demanding production, which in turn has contributed to an even greater consumption of water in agriculture.

VI. BIBLIOGRAPHY

*ISSN 2255-1824

Almeida S., *European Union framework for water quality* (in:) *Contemporary challenges of agrienvironmental law – comparative legal aspects* (ed. Izabela Lipinska), Nitra 2023, pp. 115-120.

Arribas Cámara, J., Puente Regidor, M. y Sánchez Jiménez V., *Complementariedad y sinergias entre fondos europeos y Plan de Recuperación, Transformación y Resiliencia en España*, Journal La Ley Unión Europea, Nº 107, October 2022.

Dongo D. y Giammello Y. P., *Water pollution. Antibiotics, drugs, pesticides in the new EU monitoring plan* <https://www.greatitalianfoodtrade.it/en/sicurezza/inquinamento-acque-antibiotici-farmaci-pesticidi-nel-nuovo-piano-di-monitoraggio-ue> accessed 17.03.2023.

EEA, Water use in Europe - Quantity and quality face big challenges, 2018 <https://www.eea.europa.eu/signals/signals-2018-content-list/articles/water-use-in-europe-2014> accessed: 10.04.2023.

ETO, *Sprawozdanie specjalne 20/2021: Zrównoważone wykorzystanie zasobów wodnych w sektorze rolnictwa – zamiast promować bardziej efektywne korzystanie z wód środki w ramach WPR najprawdopodobniej doprowadzą do wzrostu zużycia*, Europejski Trybunał Obrachunkowa 2021, pp. 7-18.

ETO, *Sprawozdanie specjalne Włączenie celów polityki wodnej UE do WPR: częściowy sukces*, Europejski Trybunał Obrachunkowa 2014, pp. 1-68.

Factsheet: at a glance: spain's cap strategic plan <https://agriculture.Ec.Europa.Eu/system/files/2023-04/csp-a-a-glance-spain_en.Pdf> accessed 28.04.2023.

Garriga J. M., *The use of water in agriculture: making progress in modernising irrigation and efficient water management*, https://www.caixabankresearch.com/en/sector-analysis/agrifood/use-water-agriculture-making-progress-modernising-irrigation-and-efficient accessed 16.02.2023.

Informe sobre el plan estratégico de la pac 2021, 2023es06afsp001.

Li Z. y Fantke P., *Toward harmonizing global pesticide regulations for surface freshwaters in support of protecting human health*, "Journal of Environmental Management" 2022 Vol. 301, pp. 1-14.

Midler E., Hobeika M., Riedel A. y Pagnon J., *Environment and climate assessment of Poland's CAP Strategic Plan, Policy report*, Institute for European Environmental Policy and Ecologic Institute, Brussels 2023, pp. 39-46.

Nik, *Przeciwdziałanie niedoborom wody w rolnictwie*, Warszawa 2020, p. 7.

Operacje typu „Modernizacja gospodarstw rolnych", *w ramach poddziałania „Wsparcie inwestycji w gospodarstwach rolnych", obszar nawadniania w gospodarstwie*. Poradnik dla wnioskodawców, Warszawa 2023.

Universidad de Almería - Edificio Departamental de Ciencias Jurídicas - (Edif. D) Planta. 2, Despacho: 2.210
Ctra. Sacramento s/n - La Cañada de San Urbano 04120 Almería

Prandecki K. yWrzaszcz W., *Challenges for agriculture in Poland resulting from the implementation of the strategic objectives of the European Green Deal*, „Ekonomia i środowisko" 2022 Nº 4(83) 2022, pp. 149-178.

Puslecki, D., *Water quality in domestic law* (in:) *Contemporary challenges of agrienvironmental law – comparative legal aspects* (ed. Izabela Lipinska), Nitra 2023, pp. 123-127.

Rossi, R., *Irrigation in EU agriculture*, European Parliamentary Research Service 2019, pp. 1-12.

Spain launches an ambitious plan to improve irrigation <https://cemas.global/en/spain-launches-an-ambitious-plan-to-improve-irrigation/> accessed 5.04.2023.

Wspólna polityka rolna w skrócie <https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_pl> accessed 17.04.2023.

*ISSN 2255-1824