



SMART VILLAGE STRATEGY OF TOMASZYN (POLAND)



DECEMBER 2020

This strategy has been developed based on the template prepared by E40 (Project Coordinator) in the context of the 'Preparatory Action for Smart Rural Areas in the 21st Century' project funded by the European Commission. The opinions and views expressed in the strategy are those of the participant villages only and do not represent the European Commission's official position.

Table of Contents

| | |
|--|-----------|
| FOREWORD: SMART RURAL TOMASZYN | 1 |
| I. INTRODUCTION | 3 |
| 1.1 LOCAL GOVERNANCE IN POLAND | 3 |
| 1.2 WHAT IS A 'VILLAGE' IN POLAND? | 4 |
| 1.3 WHAT SMART IS FOR TOMASZYN | 5 |
| II. CONTEXT | 7 |
| 2.1 CONTEXT OF THE SMART VILLAGE STRATEGY DEVELOPMENT | 7 |
| 2.2 EXISTING STRATEGIES & INITIATIVES | 11 |
| 2.2.1 LINKS TO EXISTING LOCAL STRATEGIES | 11 |
| 2.2.2 LINKS TO HIGHER LEVEL (LOCAL, REGIONAL, NATIONAL, EUROPEAN) STRATEGIES | 17 |
| 2.2.3 REVIEW OF PAST AND ONGOING (FLAGSHIP) PROJECTS AND INITIATIVES | 22 |
| 2.3 COOPERATION ACTIVITIES | 24 |
| III. KEY CHARACTERISTICS OF TOMASZYN VILLAGE | 42 |
| 3.1 KEY CHARACTERISTICS OF THE VILLAGE AND RURAL AREA | 42 |
| 3.2 KEY CHALLENGES AND NEEDS | 43 |
| 3.3 MAIN ASSETS & OPPORTUNITIES | 44 |
| 3.4 KEY CHARACTERISTICS OF THE LOCAL COMMUNITY | 46 |
| 3.5 SWOT ANALYSIS | 52 |
| IV. INTERVENTION LOGIC | 54 |
| 4.1 OVERALL OBJECTIVE | 54 |
| 4.2 SPECIFIC & OPERATIONAL OBJECTIVES IN RESPONSE TO SWOT | 55 |
| 4.3 SMART SOLUTIONS: ACTIONS, OUTPUTS AND RESULTS | 70 |
| V. MANAGEMENT AND MONITORING | 77 |
| 5.1 MANAGEMENT | 77 |
| VI. STAKEHOLDER ENGAGEMENT IN STRATEGY DEVELOPMENT | 78 |
| 6.1 STAKEHOLDER ENGAGEMENT IN NEEDS ASSESSMENT | 78 |
| 6.2 STAKEHOLDER ENGAGEMENT IN STRATEGY DEVELOPMENT | 78 |
| 6.3 KEY CHANNELS OF COMMUNICATION AND AWARENESS RAISING AMONG CITIZENS | 78 |
| 6.4 PLANNED ACTIONS TO MOBILISE STAKEHOLDERS | 80 |



Foreword: Smart Rural Tomaszyn

Ostoja Natury was born out from a dream for better life, healthy food and living in a natural environment, not damaged by intensive agricultural production. Ostoja Natury was created by a group of enthusiasts who wanted to ensure their loved one's access to high-quality food. Making it a reality requires embracing the whole surrounding / environment and businesses, not only the farm itself. That is why we are building and expanding the network of partners included in the project.

Our 'smart' approach relates from the beginning to our openness to those who would like to cooperate with us. This approach applies both to people that come to us as partners as well as specialists that we look for. It can be understood as a "plug-in" system, which allows other to join us as well as allows us to join existing networks. Ostoja Natury is the agricultural ecosystem of tomorrow. As such, it is the reference model of a smart village.



Using ecological methods, a group of producers grow high-quality food, later directly delivered to customers via a sales platform that does not require the participation of intermediaries. The eco-friendly farm works as a closed system/ in a closed loop in which waste is used as fuel. This in turn enables the production of energy, and a more efficient all year-round food production with higher yields.

In our opinion, the production of organic food is not enough. A holistic approach that takes into account many elements is needed. Ostoja Natury needs innovative and fresh ideas to develop further. Participation in the Smart Rural 21 project gives us the opportunity to learn from others and to better achieve our goals. We hope that the Smart Rural 21 project will also be a good platform to share our own experiences and ideas with others. This strategy describes the full range of our planned goals and planned activities in the coming years.



I. INTRODUCTION

1.1 Local governance in Poland

After 1989, Poland owes its dynamic development to a large extent to the introduction of a good system of local self-government. In Poland, the local (commune) self-government was restored in 1990. On January 1, 1999, a three-tier territorial division and three levels of self-government were introduced: commune, powiat and voivodship. Currently, there are 16 voivodeships, 314 poviats and 66 cities with powiat status, and 2,478 communes in Poland. Its basic element is the commune (municipality).

Local government is a key principle in organizing public administration in Poland. Local government units, i.e. municipalities, poviats and voivodeship self-governments, are entities endowed with and duties and entities performing public tasks. You can them define as independent, legally established local corporations a society with its own internal organisation, endowed with a quality legal personality, subject to supervision to the extent specified by law on the part of the state. Local self-government is not only a way of exercising power public and organising local administrative activities. It is certainly a legal institution that enables the implementation of a group public interest. Moreover, it is a value of the political culture of the West, embedded in the ideas of its civilization, especially in the idea of freedom and social pluralism.

Rural municipalities are often composed of dispersed rural villages. Villages do not have their own elected representatives. There are auxiliary units in Poland called solectwo. The solectwo governance structure typically consist of village administrator (*sołtys*) and the village council (*rada sołeczka*). The legislative body in the village council is the village meeting, and the executive body is the village council. The activity of the village administrator is supported by the village council. The village administrator performs representative and executive functions. Both the village head and members of the village council are elected by secret, direct voting from an unlimited number of candidates by permanent residents of the village council entitled to vote.

The main task of the village council is to take care of the collective needs of the community of its inhabitants. The competences of the village assembly include all matters important to the inhabitants, in particular, the adoption of applications by the end of September each year, which are to be considered by the commune council and possibly included in the commune's budget for the next year. The meeting also adopts resolutions on the disposal of the village council property and issues an opinion on such matters as: local development plans, investment locations or changes in the purpose of education, health, culture, sport or recreation facilities located in the village council. All residents of the village council who have active voting rights to the commune council have the right to participate and elect in the village assembly.

The commune administrator informs the inhabitants of the village council at least seven days before the appointed date of the meeting about the convening of a village meeting for the election of the village administrator. In order to make a valid election of the authorities, the presence of authorized residents of the village council is required. If the necessary quorum has not been obtained on the set date, the election on the new date is most often held regardless of the number of people present at the meeting.

The person with the highest number of votes wins the election.



The village administrator is each time notified about the session of the municipal council (*rada gminy*) - legislative body in the commune. Village administrator may participate in its work on the terms set out in the statute, but without the right to vote. Elections to the municipal council are universal, equal, direct and are held by secret ballot. The fact that elections are universal means that all inhabitants of a given area can take part in them.



The local community cooperates with the authorities of a nearby town. The governance structure in towns consist of mayor and town council. The mayor is a one-person executive body of the commune. Performs tasks with the help of the City and Commune Office, of which he is the manager. By way of management, it provides the office with organizational regulations specifying the organization and rules of its functioning. exercises the rights of the official superior in relation to employees of the Office and heads of organizational units of the commune. The mayor manages the current affairs of the commune and represents the commune outside

Local elections are held every 5 year. The closest planned local elections will not be held until 2023.

1.2 What is a ‘village’ in Poland?

In Poland, a village is defined as a settlement unit with compact or dispersed development and existing agricultural or related service or tourist functions, without municipal rights or the status of a city. There is no population threshold at which a settlement achieves village status or classification.



Rural municipalities are often composed of dispersed rural villages. Most of villages have decreasing number of inhabitants and disappearing services. Most services such as shops, post offices and medical clinics are provided in nearby towns.

Definition problems of villages or rural areas result from the complexity of the defined subject and its diversity. Most often, definitions are made for some purpose or specific aspects of ruralness. In Poland, as a consequence of the village-city dichotomy, rural areas are defined, as mentioned above, as areas located outside the administrative borders of cities. In practice, these areas almost coincide with their designation based on the OECD definition, which was based on a population density of less than 150 people / km². in a given NUTS III region. The OECD definition is probably the most widely adopted, in Poland, in some cases, this way of defining excludes some administratively rural areas, especially in suburban areas, or with a dense settlement network in the south of Poland, e.g. in the regions of Małopolska and Podkarpacie.

1.3 What smart is for Tomaszyn

For us, a smart village means a place that is a synergy effect of old and new knowledge and at the same time, a synergy between different activities leading to a circular economy. A place where the knowledge and cumulated experiences of our ancestors is combined with all available new technologies. In an intelligent village, the inhabitants should be provided with all needs in a way that has as little impact on

the natural environment as possible. Such places should be self-sufficient in terms of energy, use water resources wisely, collect the minimum amount of waste and provide all the basic needs of their inhabitants. Moreover, smart villages should exchange knowledge and experiences with other similar places in the world.



Our goals and activities are consistent with the definition of permaculture. It is "conscious planning and maintaining efficient ecosystems that are characterized by diversity, stability and natural renewal. It is a harmonious integration of the landscape and the environment with human activity in order to provide you with food, energy and shelter. It also ensures the development of artistic, cultural and spiritual needs in a self-sufficient way not requiring external infrastructure and external management. "We believe that only efficient business models are able to encourage people to change their attitudes and follow an economically efficient path that is friendly to our planet and its inhabitants. Our main challenge is to create a program for farms below 100 acreage hectares (in Poland there are over 700 thousand) enabling the transformation of production from conventional to be ecological, characterized by high product quality while minimizing negative effects on the natural environment.

II. CONTEXT

2.1 Context of the smart village strategy development

There are profound changes taking place in the countryside of Poland. The decreasing number of farmers, depopulation of many villages, aging of rural communities, disappearance of public and commercial services, lack of transport connections in many localities are just some of the manifestations of changes. The countryside as we have known over the past decades is fading away. But the countryside does not disappear, it becomes different, and what it will be depends on which of the development trends will strengthen. The basic questions to which we are looking for answers concern the adequacy of the presented solutions and proposals as appropriate responses to the emerging challenges and existing problems of rural areas.

Changes in the forms and sources of income, low fertility, aging of the society and similar phenomena lead to a specific vicious circle of development of areas affected by accelerated depopulation. The population is diminishing, the demand for services is falling, services are becoming more and more difficult to access, so more and more residents are leaving such places, etc. Is it possible to break this spiral? Can we see solutions applied in practice today that give a chance for a positive answer to these questions? Ostoja Natury is an attempt to find your own way in this changing world.

The organic food market in Poland is in the phase of dynamic development, although a weak adjustment of supply to the places of demand is visible. The demand for organic products in Poland is very limited and concentrated in large urban centres. The distribution of food from farms to the market is often local or regional. Sales directly from the farmer, at ecological fairs and fairs, or in organic food stores dominate. For some time, ecological products have been introduced to large retail chains in the country or discount stores. It is estimated that there are approx. 1,000 specialist stores with the so-called healthy food. These outlets operate mainly in large agglomerations, but more and more stores are also starting to operate in centres below 100,000. residents.

As a result, the domestic market of organic products currently accounts for approx. 0.4% of the entire food market. On the other hand, in the countries of Western Europe this value fluctuates around a few percent. This is because the distribution channels of organic products in Poland are less developed and there are difficulties with selling farm products (due to poorly developed alternative sales channels).



In turn, the behaviour of buyers is changing globally, and consumers are starting to pay more attention to safe and health-promoting products. The environmental awareness of the society is gaining more and more importance due to the growing environmental problems, which are largely the result of human activity.

On the production side, there are farms that have little market power. Excessive fragmentation of production affects, on the one hand, the existence of many difficulties with selling, which is the most common reason why farmers give up running an organic farm, on the other hand, it is the main cause of the poorly developed wholesale trade, the functioning of which is important not only in terms of supplying the domestic market, but also in terms of the growth prospects for organic food exports.

Our smart strategy goal is to complete the missing and strengthen the weak links in the system. 1. We want to better organize farmers producing organic food in a way that strengthens their position in the food production chain and gives them the opportunity for a stable and higher income. 2. We are expanding BIO-HUB as a place for storing, packaging and preparing ecological products for sale. 3. We strengthen the multi-element sales and distribution sub-system.



These three elements, suitably developed and combined, make the production of organic food profitable for the farmer and easy physically available and cost-effective for the consumer.

The local Leader cooperative RSP “Ostoja Natury” created the connection with the Smart Rural project by suggesting Tomaszyn village as a possible participant. The president of our cooperative Piotr Ostaszewski received an award for the concept of "Ostoja Natury Wioska 3.0" in the Smart Village competition organized by the Polish Academy of Sciences in Poland (PAN). We decided to take part in the program SMART Rural 21 because of the opportunities it can give us. We are constantly developing as a smart village and therefore we need constant access to the knowledge of specialists in many fields. We decided that participation in the competition will give us access to world-class specialists and will give us the opportunity to learn about interesting, successful solutions from other regions of Europe. Our community is supporting in smart village processes and is engage in transformation.

While creating Ostoja Natury, we were inspired by nature’s already existing solutions. Just as in a prehistoric forest – the circuit is everything, waste is non-existent. Our goal is to create an ecosystem designed to provide economic efficiency with minimal influence on the environment. Methods tested over the ages, such as crop rotation, raised seedbeds, home recipes, and many more, are refreshed and implemented, using technological innovations of modern time.



The village of Tomaszyn was dying and disappearing before the Agricultural Cooperative Ostoja Natury was established. The appearance of the cooperative breathed new life into it. All farmers from the countryside are partners of Ostoja Natury. But perhaps more importantly, the Refuge of Nature gives farmers who produce high-quality food throughout the region better access to consumers, both local (BioBazar in Olsztynek) and to a much wider audience through the distribution channels we build.

The entire process of creating the strategy is based on systematic cooperation with partners. What we propose is the result of many discussions, working informal and formal meetings. The strategy was developed over a long period of time, step by step, element by element. It is discussed in detail, and the high commitment of the partners from the beginning of the entire process of its creation makes all partners feel like full participants in its creation and implementation. More about our partners can be found in part VI.

In Tomaszyn - Ostoja Natury cooperative we create the agricultural ecosystem of tomorrow. This is a reference farm model – a smart village in which we produce the highest quality food, and then we distribute it without intermediaries. Each of the five “Farms” forming our cooperative, being innovative, yet compatible with traditional solutions and at the same time environmentally beneficial, influences the construction of a waste-free and very effective ecosystem. In order to combine all these elements well and ensure their harmonious cooperation and mutual reinforcement, we need a good, functional and practical strategy of achieving the adopted goals.

2.2 Existing strategies & initiatives

In Tomaszyn, we plan our activities in advance, build our strategies and action plans in dialogue with the members of the Cooperative and its partners. We try to think long-term, but in a way that can be translated into practical action and systematic implementation, step by step, element by element, so as to build a coherent system of organic food production.

In Tomaszyn we have start implementation of several strategies:

Refuge of Nature ecosystem



2.2.1 Links to existing local strategies

The strategies listed above are the basis for building a coherent overall strategy of "Ostoja Natury 3.0". Some of them are already significantly advanced. Our understanding of "Smart" also leads us to achieve greater coherence and harmony between ongoing and planned activities. An important element of our strategy is to build synergies between sub-strategies by identifying and completing missing links.

Healthy food farm

The main goal of Ostoja is permanent (all-year-round) organic production food that is completely free from chemical and synthetic fertilizers pesticides. The fertilization of the soil is done naturally by providing compost as well other organic matter derived from plants and animals so

that the earth could naturally to feed the plants. Sustainable plant production - more broadly regenerative agriculture or permaculture. It is a cultivation method or sourcing food in an ecologically and ethically responsible manner. Includes it is following agricultural and food production practices that do not harm the environment, they ensure fair treatment of employees and supporting local communities. Sustainable crop production differs from industrial plant production, which is generally based monoculture (growing only one crop over a large area), intensive cultivation use of commercial fertilizers, intensive use of pesticides and other factors harmful to the environment, communities and farm workers. In addition, sustainable practices in crop production can lead to higher yields with less over time the need for expensive and environmentally harmful inputs.



Innovation farm

Many people associate organic farming with backwardness (traditional production methods). Our goal is to preserve and nurture tradition, but at the same time to introduce innovative solutions to the production of organic food, which in no way deprive the food of its full value and meet all the requirements of this production method. In this way, we want to increase the level of profitability of production for the farmer, and by reducing production costs, lead to lower retail prices in order to

increase the availability of organic food for the average consumer, for whom today the high price of organic products is a difficult barrier to overcome.



This production model combined with mechanization and automation guarantees the quality of the product that meets the quality expectations modern consumer, and thanks to the use of modern solutions in production, such as: Aquaponics, precision farming, automatization (e.g. receiving, cleaning and packing lines) and robotization (eg Farmbot, Turtle robotics) creates a demand for specialists in the fields IT, robotization or machine operation, creating technologically advanced jobs in the area rural, thus reducing the technological difference between the village and the city. At Ostoja Natury, we are working on creating a reference and self-sufficient farm environment, in which both the processes, fertilizers and machines we use meet all the conditions for the crops born here to be fully ecological and to meet the best stringent environmental conditions. Therefore, we establish cooperation with equipment manufacturers, technological company's and providers of other types of solutions that will improve the quality and efficiency of organic food production. Together, with team of experience specialists, we create reference solutions for organic farming in Poland and around the world.

Green energy farm

The industrial revolution, which started in the eighteenth century, saw rapid growth energy demand. With global development, there has been a collision with problems, such as: climate change, reduced availability of drinking water resources, and emergence new categories of civilization diseases. This prompted humanity to look for an alternative path development. One of the most important issues at the centre of attention of the modern world it is necessary to further increase energy production, taking into account the impact of new capacities and ecosystem solutions. Meanwhile, farmers face a crisis of historic proportions. Oil prices are at their highest ever. Electricity and transport costs are rising in most countries at an unimaginable pace. This occurs at a time when profit margins are diminishing, and increased competition threatens the existence of small farms. Enabling the use of efficiency energy, biomass and renewable energies can help to increase profitability and farm resilience, and to reduce some of the potential environmental impacts of agriculture.

Three advantages of energy independence:

- **Financial profitability and cost savings**
- **Limiting externalities**
- **Food safety and operational independence**

At RSP Ostoja Natury, we also focus on RES (renewable energy sources), but a part of the panels solar plants, water and wind turbines, the main emphasis is on development Bio mass energy and construction of a small agricultural biogas plant with a cogeneration engine enabling producing electricity, heat and cold and thereby creating a 360 cycle where waste is fuel.



This approach is complimented by the housing Infrastructure – waste-free self-sufficient Habitat for Rural Areas. Our goal is to create a universal habitat design for rural farms. Thanks lunar wood technology implemented e.g. by Thom Holz Inc. in combination with proven energy solutions (sun, wind, water) and infrastructure such as heat pumps and home sewage treatment plant, we want to create a waste-free self-sufficient project habitat for rural farms. Our building will be completely autonomous - not connected to the network in many cases. It will provide heat, energy and water, and allow waste disposal without generating burdens for the natural environment.

Health Farm

The aging of rural communities is a major challenge that requires an innovative approach in finding ways to improve the conditions and quality of life of seniors. One of the elements of Health Farm will be a rest and rehabilitation complex based on the unique healthy and environment friendly technology. Our goal is to examine and implement the anti-ageing program for seniors. The head and author of the program is a member of our cooperative Krystian Przybysz, the very experienced physiotherapist.

The combination of access to high-quality food, a carefully selected diet, living in a clean environment and carefully profiled rehabilitation will be the basis of our activities. An important supplement to a health farm is the cultivation of a wide variety of herbs and the breeding of bees.

Culture farm (Communication and education system)

Cultural farm focuses on the activities of Ostoja Natury and its individual members. As we want the cooperative to ensure that as much good as possible happens in our neighbourhood. We are planning educate and provide information on topics related to ecology, modern agriculture and innovations as well as promoting traditional and handicraft products that are part of the heritage cultural heritage of Warmia. An important part of the culture farm is Ostoja Natury TV. We manufacture films with reporting and video reports. The videos show the stories in an interesting way so that you would like to watch them. As the settlement develops, we plan to organize training sessions, meetings and lectures. Educational path located among ecological fields and forests with the village of vanishing professions will be an interesting way to spend time both for older and younger people and an attractive source of knowledge about the nature and culture of Warmia. With the development of mass production begins we are surrounded by mediocrity, therefore, as part of the Cultural Farm, we plan to promote traditional products, hand-made, handcrafted, synonymous with high quality and more than once knowledge passed down from generation to generation. The trend of returning to local, handcraft, often handmade, is becoming more and more noticeable made, products. Shops with regional products are becoming more and more popular. Cooperative following this trend, plans to revive traditional products, services and professions, which have been present in the landscape of Warmia for centuries. We plan to achieve this goal by returning to roots, professions performed by ancestors, refreshing them and promoting traditional products using

modern promotion and marketing tools. Disappearing professions and the services and products they offer build the landscape of the place of residence and are decisive about his wealth.



However, traditions must be combined with modernity. So, on the one hand, to draw from many years of experience, to recreate in the region the products and services that once made it identity and created an individual character, and now - in a renewed and innovative form - they do determine the region's cultural wealth and competitive advantage. Traditional professions and products determine the regional diversity and increase its tourist value and preserve the rich historical and cultural heritage. Therefore, we plan investment in studios and the development of professions such as: beekeeper, blacksmith, brewer, miller and carpenter.

Ostoja Nature TV is a virtual TV channel and our platform for communication with the world.

Our strategy is based on activities carried out so far and implemented projects. We created a cooperative, launched organic farming, created a sales system and established contacts with a group of partners.

The core of Ostoja Nature 3.0 smart strategy is the closing of the circle of circular economy. The achieved synergy, thanks to the interconnection and complementarity of processes and minimizing waste, an additional contribution is obtained for each strategy, which significantly

reduces the cost of the whole operation. (Packaging from waste mass, waste management, energy recovery and acquisition).

The implementation of the developed strategy will increase the acreage, volume and value of organic production in the region and facilitate access to organic food for consumers. All this will contribute to creating new jobs and increasing the level and quality of life of the region's inhabitants.

2.2.2 Links to higher level (local, regional, national, European) strategies

1. Development Strategy of the Olsztynek Commune for 2016-2020

Ostoja Natury 3.0 is in line with the Strategy for the Development of the Olsztynek Commune for 2016-2020 adopted by the City Council in November 2016. The actions taken and planned by us are in line with the strategic goal I: IMPROVING THE QUALITY AND LIVING STANDARD OF OLSZTYNEK TOWN AND COMMUNE and in its individual operational goals. The nature refuge strategy is particularly strongly embedded in the strategic objective II: PROTECTION AND HIGH QUALITY OF THE NATURAL ENVIRONMENT, including the operational objective 1: Protection of natural heritage and its effective use for economic purposes. As we read in the strategy: "one should focus on projects aimed at the protection and restoration of biodiversity, and on the other hand, on maintaining or gaining a competitive advantage over other regions based on the existing environmental potential and the ability to use it in the processes of social and economic growth / development." BioHub Bazar Ostoja Natury in Olsztynek is an illustration of the practical implementation of the commune's strategy and the implementation of partnership cooperation.

2. The Local Development Strategy of the LAG

Tomaszyn is located in the area of the Local Action Group "Południowa Warmia" covering the area of six municipalities: Barczewo, Biskupiec, Kolno, Olsztynek, Purda and Stawiguda. In 2015, it expanded its area to include the Gietrzwałd and Pasym communes located on the border of Warmia and Mazury.

Ostoja Natury 3.0 is in line with all three main goals of the Local Development Strategy of the LAG. It implements the first specific objective "Development of entrepreneurship in the LDS area until 2022" but also the second one: "Development and improvement of the infrastructure standard and promotional activities in the area of LDS." and the third goal: "Activation of the local community".

3. Strategy for the social and economic development of the Warmińsko-Mazurskie voivodship up to a year 2025

Ostoja Natury 3.0 contributes to the implementation of many objectives of the Strategy for the social and economic development of the Warmian-Masurian Voivodeship. It fully fits in the area of strategic intervention "Modern village" aimed at "increasing specialization in the production of high-quality food based on regional natural resources, supporting the level of income of

the region's inhabitants; increase in business cooperation, as well as promotional and fair activity; increase in entrepreneurship. " Ostoja Natury is also a practical implementation of smart specializations, 9.1. Water economics, but most of all, 9.2. High-quality food. This last smart specialization is based on the agri-food industry and the dynamic development of local agriculture and traditional food processing based on regional raw materials and short sales chains and food production with designed functions. It responds to the needs of consumers related to a promoted healthy lifestyle.¹

4. Ministry of Agriculture and Rural Development - Strategy for the sustainable development of rural areas, agriculture and fisheries 20302030

Increased direct sales and agricultural retail trade - provide farmers, especially those from smaller farms, with direct participation in the consumer market by expanding retail sales and agricultural retail trade (legal facilitations allowing farmers to start and operate in the retail trade of food wholly or partly from cultivation, breeding or rearing and support for this type of activity).

The Ostoja 3.0 strategy is in line with all horizontal activities to increase the profitability of agricultural production:

1.1.1. development of agricultural cooperatives - implementation of legislative and promotional activities carried out by both ministries and social and economic partners;

1.1.2. modernization of farms by increasing their technological, organizational and digital level as well as adapting production conditions and techniques to the requirements of environmental and climate protection;

1.1.3. support for the development of local agri-food markets - local processing⁴³), retail trade by farmers, sales and direct deliveries to consumers (also using the Internet);

1.1.4. development of cooperation between producers, strengthening of links between farms and processing plants, integration of entrepreneurs around local and regional economic champions;

1.1.6. support for the creation and development of local agricultural markets, local agri-food markets;

1.1.7. continuation of modernization and structural changes in agriculture, including the creation of new value chains in the agri-food and trade sectors;

1.1.8. supporting the production and distribution of traditional, regional and ecological products - creating new income opportunities for inhabitants of rural areas.

Our strategy is very much embedded in the other intervention **I.2. Food quality and safety**. As we read in the Sustainable Development Strategy "To an increasing extent, the quality and market valuation of Polish agricultural production will be determined not only by the reliability of control systems and

¹ <https://strategia2030.warmia.mazury.pl/strategia/>

compliance with minimum legal standards, but the growing share of organic production or other production systems ensuring the protection of environmental resources (low environmental footprint).

Horizontal activities:

- 1.2.1. supporting the production and distribution of products of high quality and innovation level, including traditional, regional and ecological - also implemented by development projects;
- 1.2.2. use of the production potential of the Polish agricultural sector;
- 1.2.3. support and promotion of the high-quality food sector.

Complementary activities:

- 1.2.4. care for the high quality of the offered food products and adapting products to the individual nutritional needs of consumers;
- 1.2.5. disseminating knowledge in the society about the principles of nutrition, food traditions of the country and the region as well as the quality of agri-food products and promoting healthy consumption patterns, including by integrating producers into education systems;
- 1.2.7. promoting market chains, including market infrastructure conducive to the development of traditional food, including the development of food sales directly to end consumers / directly from the farm, local agri-food markets;
- 1.2.8. promoting the development of electronic trade in food products offered to consumers by agricultural and fisheries producers;
- 1.2.10. development of distribution systems and joint organization of sales on the markets of large cities;
- 1.2.11. development of organic farming and pro-environmental techniques in fisheries production;

5. The European Farm to Fork Strategy

Both the activities so far and the entire strategy of Ostoja Natury 3.0 are the implementation of goals and BUILDING THE FOOD CHAIN THAT WORKS FOR CONSUMERS, PRODUCERS, CLIMATE AND THE ENVIRONMENT.



In Ostoja Natury we propose an innovative green business model using the circular bio-based economy, we increase the production of organic food and expand its purchase and consumption opportunities. We are promoting sustainable food consumption and contributing to the shift to healthy, sustainable diets.

6. The European Green Deal

As the previously presented goals and links with other strategies showed, Ostoja Nature 3.0 fully fits into the implementation of the European Green Deal. The Strategy translates into practical action many aspects of it.



2.2.3 Review of past and ongoing (flagship) projects and initiatives

In Tomaszyn we have started implementation of several projects as elements of our strategy.

1. Establishing of Ostoja Natury organic farm, return of agricultural production to Tomaszyn is our great achievement.

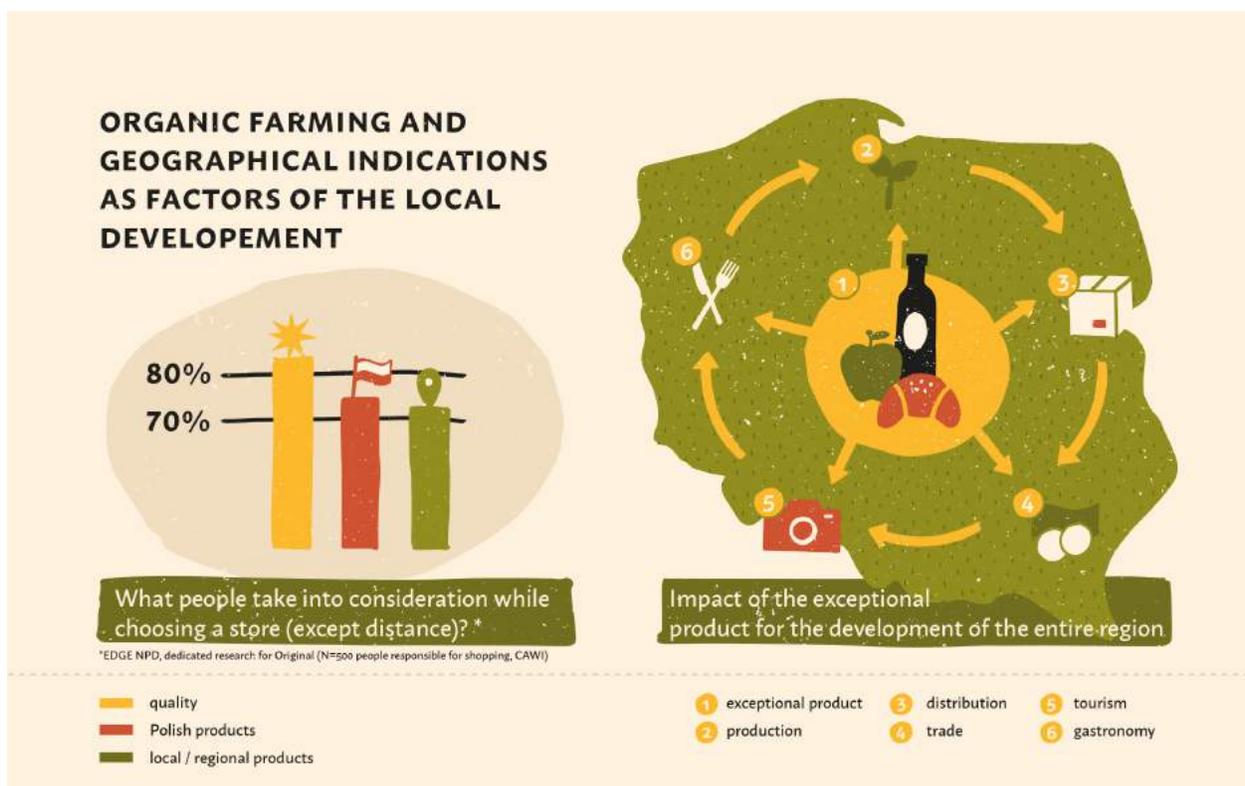
The main aspects of the functioning of an organic farm, including:

- production methods adapted to soil and climatic conditions
- a set of technological solutions
- development of an optimal machine park and infrastructural solution
- building a modern distribution platform enabling interaction with customers and sales direct



2. Bio Hub;

Bio Hub is an ecosystem designed for comprehensive production support and high-quality products. We began building Bio Hub in 2019 from establishing cooperation with leading ecological and traditional producers from the Warmian-Masurian Voivodeship, as well as the entire country. The second important event was the first edition of Bio Bazar, which developed into the “Bio Hub Bazar” – a local meeting and sales platform. The next pillar of the Bio Hub distribution system is “Vegemat” – a solution prepared with “these times” in mind, a fully automated sales system based on a network of automated stores – “Vegemats” and an online shopping platform – “Bio Hub Bazar online”, which fastens the “stationary version” of the bazaar and the points of automated personal pickup.



3. Bio Hub Bazar

The Full of Health Eco Market in Olsztynek started on June 14, 2020 and takes place every Sunday at The Town Market in Olsztynek, at ul. Kościuszki 6d, between 9:00 a.m. and 2:00 p.m. Organizer Bio Hub Bazaru is the Agricultural Production Cooperative (RSP) Ostoja Natury, with cooperation with the Mayor of Olsztynek and group of producers and farmers.

The primary goal of Bio Hub Bazar is to support and popularize the short food supply chain, including the processing and marketing of agricultural products. We achieve this goal by building a permanent place to sell high-quality products.



2.3 Cooperation activities

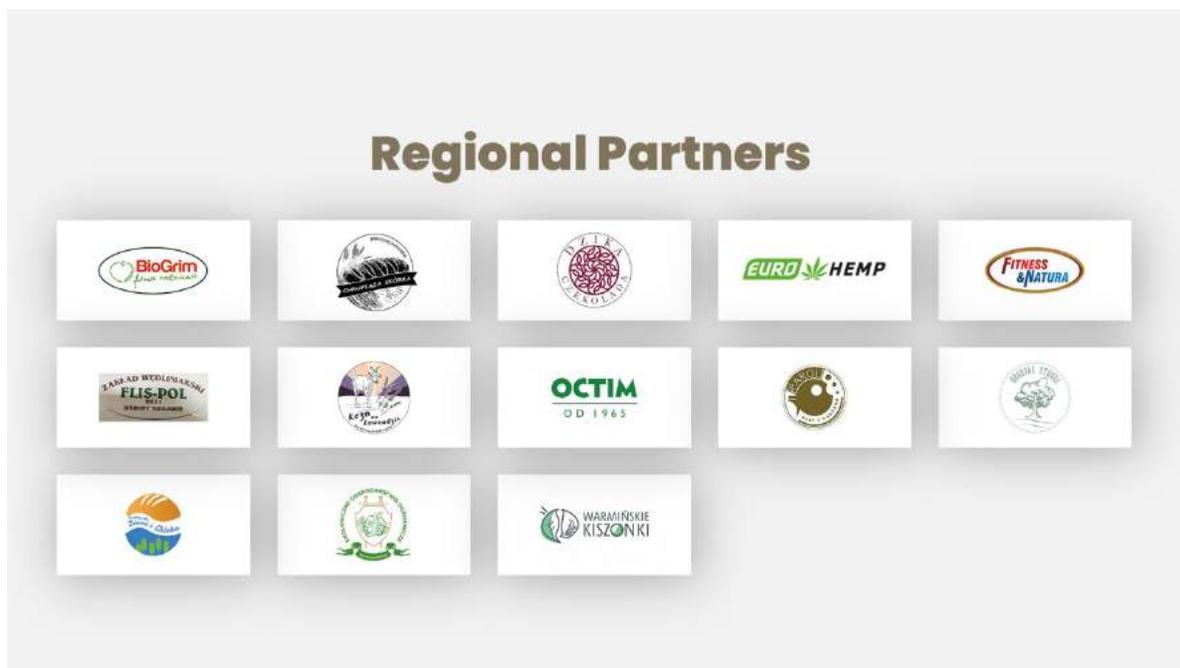
We understood that only as an organised group we can have a real impact on the environment, therefore we decided to organize in a cooperative company. Today, all landowners / villagers / farmers are members, partners or employees of the cooperative.

An important element of our model of building a "smart village" is extensive cooperation with many entities at local, regional, national and supranational levels. There are several models of cooperation:

1. Production and distribution Partnerships

From the beginning, one of our main goals is to create a group of high-quality food producers in our immediate vicinity and further in the Warmian-Masurian Voivodeship. We have completed our mission by establishing cooperation with a number of

farms and producers dealing in the production of high-quality food using organic or traditional methods. We create a wide range of our products together so that we can satisfy our customers in a comprehensive manner and implement an integrated logistics and distribution system based on Bio Hub. Today, we already cooperate with several dozen entities in the voivodeship and the total production is hundreds of tons of products per year and over 500 hectares under cultivation in our region. Together we run a Bio Hub Bazar – Farmers market and support creation of Bio Hub. We omit all intermediaries, which allows the customer to contact directly with a group of producers, breeders and farmers who can constantly and continuously meet the nutritional needs of customers from the region, and in particular to respond to the growing demand for products produced using organic and traditional methods. We want to increase the trust of the end customer by being able to ensure: regular deliveries, adjusting their size to the needs, appropriate and even quality of the raw material. The group of producers, farmers, breeders active in ecological and natural production is growing constantly. Today we cooperate with more than 50 entities (villages, company's, cooperatives, individuals) including but not limited to:



EcoEgs Gospodarstwo Rolne Sławomira Szerszenia

The Sławomir Szerszeń Farm has been breeding hens for ecological eggs for 10 years. The whole farm is also focused on the production of fodder for hens, therefore I offer the highest standard - own organic fodder for our hens. The farm has all the certificates, approvals and permits for breeding hens. The hens walk on the enclosures, and in the henhouse they have litter and perches. The farm's motto is: "OUR CHICKENS ARE OUR PASSION - ECOLOGY IS OUR LIFE"

Traditional Warmińska Smokehouse, or "Parol Fish from Kaborno"

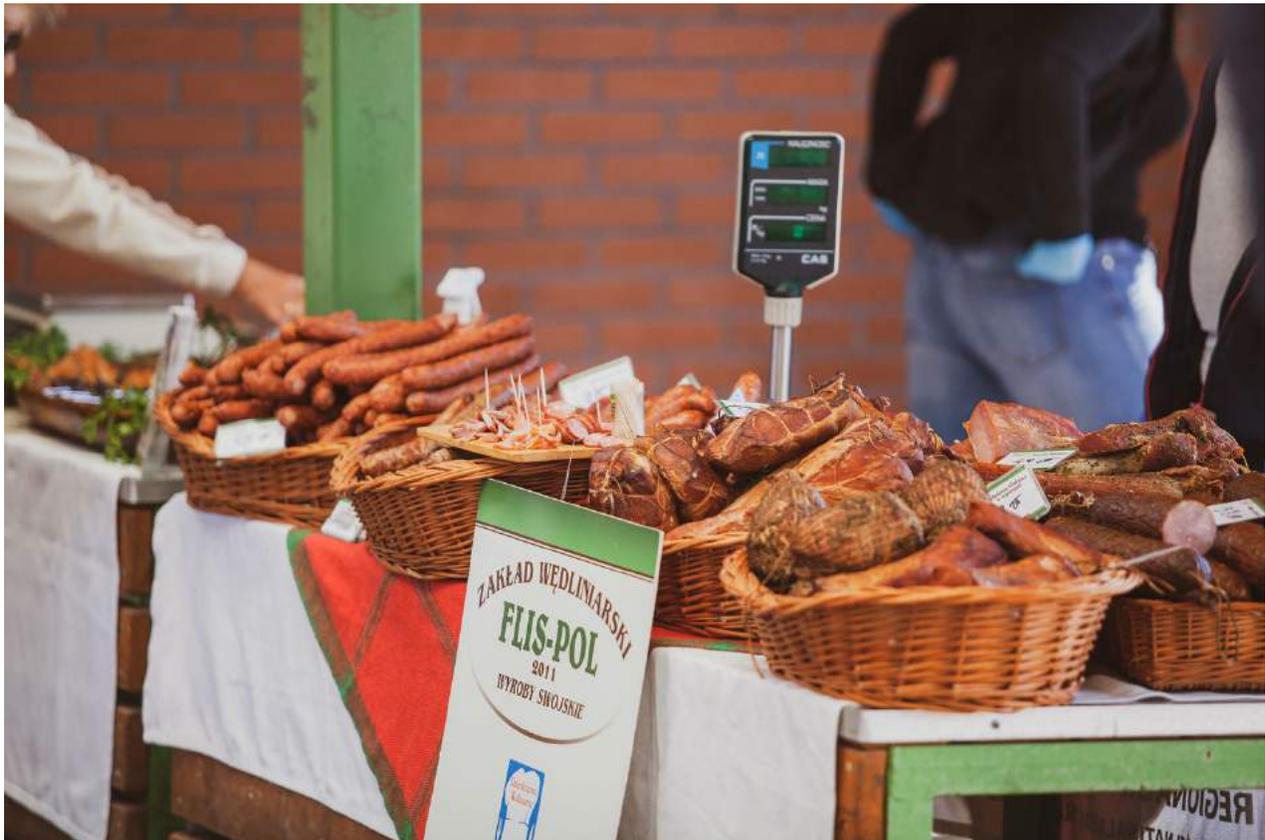
The farm is situated 15 kilometers from Olsztyn, in a picturesque area of the Kaborno colony, in the Purda commune. There are springs beating with crystal clear, cold water, and they have their origins as early as the 17th century and, as the old messages say: by the chapter into a lease or a fief. The stream was very faint and so the mill was small. " (Anonymous 1656).



Currently, the mill has been moved to the Open-Air Museum in Olsztynek, but the quality and temperature of the water in this stream turned out to be ideal for small-scale breeding of rainbow trout with exceptional taste. The farm obtained the first permit to breed fish in 1987 and since then you can catch trout and other fish here. At the smoke-house stand, you can find both smoked fish and fish preserves, which are considered by many to be the best fish in Warmia!

Flis-Pol

What distinguishes Flis-Pol from others is the HEART - put into work, which is largely done by hand. The plant was established in December 2011 and specializes in the production of naturally produced home-made products.



Only natural ingredients are used in the production, such as salt and curing salt, and the carefully selected meat used for production comes from a small, local slaughterhouse. Spices such as coriander, marjoram, cardamom, garlic, pepper, juniper, cumin and nutmeg give the unique taste of cured meats. The amazing aroma of the products results from the long-term natural smoking process with alder and beech wood.

Warmińskie Kiszsonki, i.e. the Green Educator Social Cooperative

It is a group of specialists who are passionate about natural methods of supporting the proper functioning of the body. The offer includes both thematic training and workshops as well as preserves, such as, for example, "Warmińskie Kiszsonki", i.e. beetroot leaven or sauerkraut juice.



Fitness Natura

Fitness Natura is one of the leaders in the market of top quality food products. He represents the Culinary Heritage and the Regional Chamber of Commerce. These products are created out of passion for health and care for vitality and well-being. Many years of experience, innovative technology, modern recipes and continuous laboratory research are a guarantee of the highest quality of products.

The main advantage of the company are cold-pressed oils produced by a traditional method of pressing at a temperature below 30 ° C. The oils are produced from carefully selected and selected seeds of flax and rape. The grains are pesticide-free, the oils are not filtered, and contain no artificial colors or preservatives.



Roguska Struga Dairy Craft

Roguska Struga Dairy is a craft dairy from Reda near Lidzbark Warmiński, whose products can be found at our Full Health Eco Market in Olsztynek. Under the "Roguska Struga" brand, traditional dairy products are produced, such as: traditional cottage cheese, ripening cheeses, acid-rennet cheese, cream, cream, butter, fresh yoghurt, delivered to the dairy immediately after milking.



The production of these products is based on traditional dairy technologies that were used in small Warmian dairies, with a large amount of manual work, which is necessary in the production of traditional products and guarantees the achievement of a unique taste and aroma.

J&S Walkiewicz Ecological Ecological Farm

The ecological farm is located in the town of Frygnowo, in the beautiful surroundings of the Dylewskie Hills Landscape Park. Its main activity is field vegetables, incl. cucumbers, zucchini, pumpkin, tomatoes and strawberries.



In addition, sheep are bred here. All production stages take place on the farm, from seedling to direct sale of vegetables. These products are appreciated by both individual clients and hotels, restaurants and agritourism guests.

Crunchy crust, natural bread Wojciech Wawrzyniak

For over 4 years the company has been baking natural bread without any preservatives, leavening agents or artificial additives. Each loaf is made by hand and the offer includes both wheat and rye bread with various additives, as well as spelled, wholemeal rye sourdough and Graham bread.



The most popular additives are roasted onions, wild garlic and jalapeño peppers, but also olives, cumin, tomatoes, cranberry, plum and apricot. The bread made by the Crispy crust lies for a long time, smells beautiful and is well done. Currently, bread is baked in Gietrzwałd, but the bread is also delivered in Olsztyn, Olsztynek and in the vicinity of Gietrzwałd.

BioGrim

Biogrim is a family business based on family traditions. The whole family makes every effort to produce natural apple juices that are so unique on the Polish market and to enjoy the palates of their customers. The most important thing is that customers who buy the products enjoy their consumption.

The orchard and gardening farm of the Maryniowski family is located in the Vistula upland belt, at the height of the quarries in Kaliszany and the Sanctuary of St. Thomas the Apostle and St. Stanisław



Biskupa and Męczennik in Piotrawin, 6 km from the river bed. The calcareous substrate of the soil on which apple trees grow makes the fruit from this region have a great taste and unique colour. The specific microclimate causes periods of intense rainfall to alternate with periods of long-lasting droughts. The roots of trees reaching up to 2 meters take up water rich in macro and micro-elements from deeper soil layers. Rainwater, as a result of natural filtration through stone layers, is devoid of any air pollution.

Suwałki honey

Suwalski Miodek is an apiary located in the buffer zone of the Suwałki Landscape Park. In their offer you will find many types of natural "non-commodity" honey, that is, from wild honey.

Beekeeping farm Jan Głasek

The farm's offer includes natural honeys from the region of Warmia and Masuria, bee pollen, propolis, bee bee, boxes with honey, and even personalized honey prepared as gifts. Jan Głasek has been involved in beekeeping since childhood. He grew up in a family where the tradition of beekeeping was passed down from generation to generation.



Rol-Apis - Tadeusz Rolnik

Rol-Apis is an organic farm. The offer includes many ecological products and semi-finished products made of old varieties of cereals, honey plants and medicinal plants.

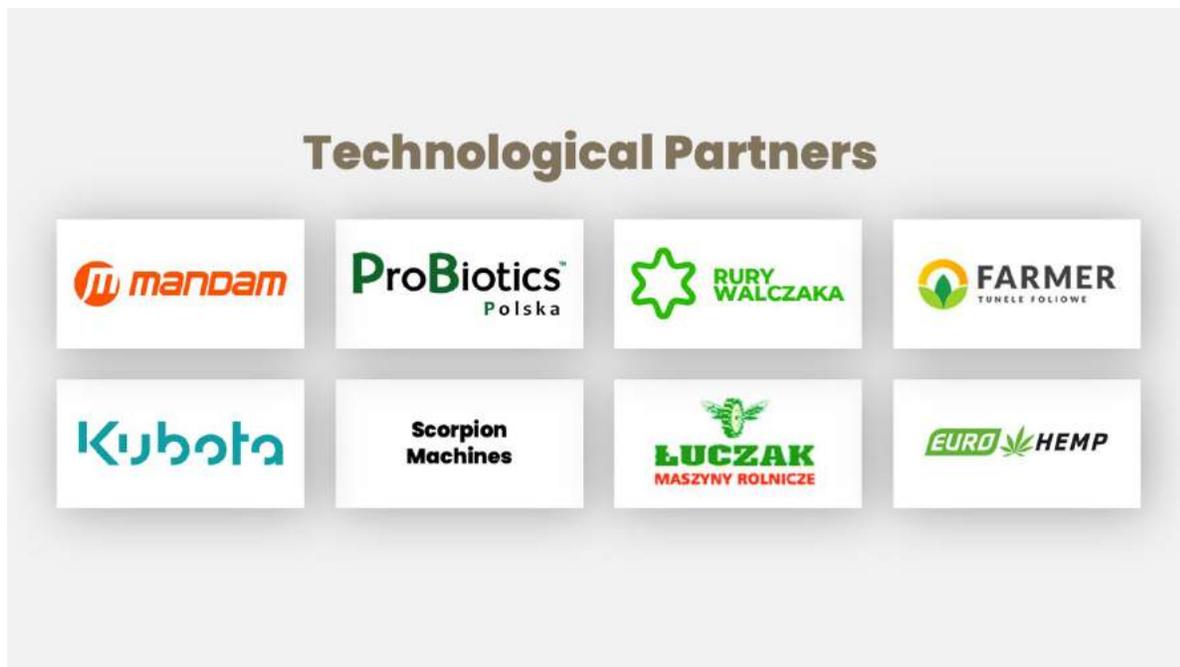
Flours, pasta and groats from emmer, einkorn or spelled, as well as honey, bee pollen, bee bee and preserves are just some of the products that can be found at the Rol-Apis stand.

Tadeusz Rolnik is also a real bread baking expert. He is known from the campaign "All Poland Bakes Bread".



2. Technological Partnerships

Together with our technical partners we prepare packages of solutions for rural households in Poland and abroad. Our goal is to implement technologies, techniques and solutions that will support organic production and allow for the transition from conventional models to ecological. The Technological partners are a family of companies and inventors, who, by developing methods that are environmentally, socially and economically efficient are allowing to make the transition much smoother and help us to develop more successful model. We already engage in several partnerships:



Mandam, – Go farming! – agricultural machinery agricultural machines development

MANDAM is one of the largest Polish producers of agricultural machinery. Annually, it produces approx. 3,000 machines, of which more than half are exported. The constantly expanding range of MANDAM products includes cultivating machines for stubble plowing, plowing and green area care as well as a tool for mechanizing works on a farm. The most important motto of MANDAM’s activity is the quality of products, environmental protection, customer safety, service and individual adaptation of machine equipment to the type of soil in a given region.

ProBiotics Polska – strengthening the soil with probiotechnology and beneficial microorganisms

ProBiotics Poland Sp. z o. o. is a family company that has been involved in the implementation and dissemination of probiotechnology – a technology based on live probiotics and other useful, beneficial microorganisms for several years. At Ostoja Natura, we implement this amazing technology that uses naturally occurring fermentation processes and find their application in the cultivation of cereals, vegetables and fruit.

As part of our crops, we use the latest solutions at the Probiotics Factory produced for soil and plant cultivation. We use microbiological preparations with a special ability to regenerate degraded and degraded ecosystems. They are a fully ecological biodiversity composition of living, mutually supportive of many microorganisms and nutrients, including vitamins and enzymes. They help eliminate toxins and reduce rot and mildew.



Walczak Pipes – Passive heat exchangers and sonic furnace

Benefits of using horizontal corrugated pipes encouraged Andrzej Walczak to apply his innovative idea to central heating solutions installed in greenhouses. On his premises, he uses horizontal corrugated pipes which results in significantly lower central heating costs. The shape of his pipes has numerous advantages, such as an increased heating surface, decreased amount of fluid required, lower weight, better heat distribution(due to the shape of the radiator), lower operating costs.

Horizontal Corrugated pipes put less strain on the structure of greenhouses. Analogically, their installation is much easier. The application of Walczak's pipes can be used in growing tomatoes, as it allows to increase the width of the field(from 1.6m to 2m) by removal of 2 ground pipes or pipes used for heating during growing season. Also, the decreased surface of Walczak's pipes allows to use lower medium temperatures, which saves money on operating costs.

The innovative solution has a wide range of uses, such as in building radiators, heaters, railings, fence posts and fences, supports for strawberry plants, fence railings in orchards and vineyards. Walczak's pipes are protected by copyrights.

Farmer Foil Tunels– crops under cover energy effective solution

The Farmer company is a leading producer of tunnels and foil blocks with equipment. These tunnels are designed for gardening, nursery and for various fruit and vegetable growing. Farmer CO. As a Polish manufacturer, it has properly designed, solid objects adapted to our climate zone. They are resistant to loads due to snowfall or wind. In the Tomaszyn , a tunnel measuring 30 x 9 meters has been installed for now. There is a high probability that to provide our customers with fresh products also in the off-season, this area will significantly increase soon.



“Zielone Technologie“ (green solutions) – bio treatment plant allowing 99% of water recovery

"Zielone Technologie" The company, which was established in 2020, consists of several departments. The departments share a common goal - the development of environmentally friendly technologies, in line with the principles of biocircular management. As the founders emphasize: "we are guided by the principle of energy and resource savings, simplicity of construction, biodegradability, and thus the lowest possible burden on the environment, and human health".

Currently, the most important department of the company is Zielone Oczyszczalnia, which was created on the basis of the company of the same name, based on its ten years of experience and employees. In turn, the Your Water department deals with the broadly understood economy, protection and purification of water in the environment. Zielone Kosmetyki produces cosmetics and soaps based on natural raw materials and herbs.

Kubota - For Earth for Life: Agriculture, Ground care, Construction machinery, every product is supporting the prosperous life of humans.

Kubota is a Japanese producer of heavy agricultural equipment based in Osaka, Japan. The company was founded in 1890, employs around 25,000 people around the world. people, and Kubota tractors work well in many fields and in many tasks characterized by a truly Japanese quality.

Scorpion Machines – developing technology for herbs and hemp processing

Scorpion specializes in producing machines, which are used to process herbs, spices, tea, hemp, dried vegetables, dried fruit, bark, roots, tobacco, material seized at slaughterhouse, secondary raw material (for example copper, plastic), wood waste.

EURO HEMP

A global team of experts - cannabis enthusiasts. They have been operating since 2016 as active members of the growers' family, initiators of economic, social and research projects. Their mission is to create opportunities for the cannabis industry.

Euro Hemp's offer includes, among others: certified seeds for sowing Finola, Futura, Santica, CBD, CBG, hemp teas, hemp oils, hemp seeds for food preparations, dried for vaporization, as well as CBD oils

3. Research institutes and NGO partnerships

in strategy development and achieving synergy with existing and planned local and regional.



IRWIN PAN

The Institute of Rural and Agricultural Development of the Polish Academy of Sciences situated in the Social Sciences Department of the Polish Academy of Sciences was established in 1971. It is an important public body which embraces various scientific fields of rural development. It is a leading interdisciplinary research organization focused on monitoring the on-going socio-economic and environmental challenges facing rural areas. The Institute's scientific staff includes specialists representing various disciplines: economics, sociology, demography, ethnology, education, spatial geography; all of whom share an interest in rural and agricultural issues. In the recent years the experts from the Institute were employed by various international organizations as well as government institutions.

The Institute conducts numerous research projects on rural and agriculture issues and it is an unchallenged precursor of the theoretical studies on the multi-functional development of rural areas. Among the institutions financing grants received by members of the Institute are: National Science Centre, European Commission, Ministry of Agriculture and Rural Development.

The Institute cooperates with many national and international research centers. Cooperation Agreements were signed, among others, with institutions from the European Union countries, Eastern Europe, Asia and Australia.

Bank Żywności w Olsztynie (Federation of Polish Food Banks and Olsztyn Food Bank)

There are 31 Food Banks operating throughout the country, forming the Federation of Polish Food Banks. They are all non-governmental organizations with the status of an association or foundation. Together they form a union of associations with OPP status. In 2019, Food Banks supported 1.6 million people in need in Poland, donating a total of over 67,000 tonnes of food for social purposes. Food Banks support both seniors and adults with food, as well as children. Food Banks acquired and donated food products such as: fruit and vegetables, rice, pasta, drinks, milk, cheese, bread and sweets. Thanks to this food, over 100 million meals for people in need could be created. Food Banks organize collections, but also social campaigns, during which they call for not wasting food and encourage Poles to reflect and change their everyday habits to more ecological ones. Our goal is to create fully waste-free food production and distribution model. The cooperation around Bio Hub platform in Olsztyn is already highly advanced.

Warmińsko-Mazurski Ośrodek Doradztwa Rolniczego

With its seat in Olsztyn (WMODR) is a state organizational unit with legal personality. The mission of WMODR is to conduct agricultural consultancy covering activities in the field of agriculture, rural development, agricultural markets and rural households aimed at improving the level of agricultural income and increasing the market competitiveness of farms, supporting sustainable development of rural areas, as well as raising the level of professional qualifications of farmers and other inhabitants of rural areas.

The advisory offer for farmers and other inhabitants of rural areas is aimed at promoting, creating and supporting the broadly understood process of agriculture and rural development. It is focused around six priorities:

Adaptation to climate change and protection of water and air, including:

- rational water management in agriculture,
- good agricultural practices aimed at protecting waters against pollution with nitrates from agricultural sources,
- good agricultural practices regarding the reduction of ammonia emissions to the air,
- reducing the risks associated with the use of plant protection products;

Healthy food production, including:

- hygiene of the production of food of plant origin on the farm,
- organic farming,
- food safety and animal protection,
- the possibilities and methods of using non-genetically modified feed in animal nutrition,
- counteracting antibiotic resistance in humans and animals;
- on-farm food production and small-scale marketing, including agricultural retail, marginal, local and restricted activities, direct sales;
- cooperation and various forms of joint action (formal and informal), in particular producer groups and organizations;
- keeping and using revenue records;

Implementation of the Common Agricultural Policy.

Together we are preparing programs and solutions to support farmers in transition period from conventional and ecology and also to support ecological production (more about in Chapter 4.2 Activity 1.1.2)

University of Warmia and Mazury in Olsztyn

Faculty of Economic Sciences (1995) : Institute of Economics and Finance: Department of Finance; Department of Competitiveness of Economics; Department of Economic Policy; Department of Market and Consumption ; Department of Theory of Economics ; Institute of Management and Quality Sciences

Main research trends at the Faculty:

1. The behavior of consumers and households on the market of products and services in terms of quantitative and qualitative research
2. The attitudes and preferences of consumers on the food market, with particular emphasis on the regional, traditional and organic food market
3. Economic and institutional conditions for the competitiveness and innovation of markets and industries, with particular emphasis on the agri-food sector
4. Clusters as networks of relations in the context of building the competitiveness of enterprises, industries and economies (aspects of the competitiveness of the organic farming sector)

The faculty educates students in the fields of economy (business and managerial economics, food economics), European integration and regional development,



financial markets and accountancy. The faculty's graduates are also specialists in management (company, investment, real estate, marketing, human resources). The other subjects of scientific interest are social and economic aspects of regional development, markets' effectiveness, competitiveness of economic entities.

Ostoja Natury and Faculty of Economic Sciences are in process of preparation of several training and educational programs for students of University of Warmia and Mazury in Olsztyn.

4. We cooperate with our partners in many ways:

- We support local producers by providing them with the possibility of selling their products without intermediaries
- We enable direct contact between consumers and producers, which increases customer confidence
- We work with the authorities of the nearest town, which resulted in many successful initiatives - BIO hub Bazar, Bio Tech, Festival of Rural Housewives' Circles, Meetings of Crafts and Craftsmen
- We transport our products and products of our partners in our region, to the capital – Warsaw and to Gdańsk which are locations distance less than 200 km from our village allowing us to switch to non-emission electrical distribution in near future.
- We are happy to share our knowledge and experiences with other farmers
- We create cooperatives open to new members
- We cooperate very closely with nearest town Olsztynek (our district commune) where in partnership with the municipality we run “BIO Hub Bazar” and “BioTech”.
- Ostoja Natury members and villagers of Tomaszyn are strongly engaged in all local activities in many forms.
- Our strategy aligns with local, regional and European strategy what was confirmed this year, when our projects were chosen as part of competition No. 4/2020 announced on November 8, 2019 for partners of the National Rural Network (NRN), RSP Ostoja Natury submitted three applications. They all scored a large number of points and received funding.

As part of Action 3 – Collection of examples of operations implementing individual Program priorities – our application for a movie from the Farm Gear series entitled “On the trail of innovation”

Under Measure 6 – Facilitating the exchange of knowledge between entities participating in rural development as well as exchange and dissemination of results of activities for this development – our application Bio Tech – professional meeting

Under measure 9 – Promotion of cooperation in the agricultural sector and implementation of joint investments by farmers – our application BIO Hub Bazar – local food for the local community

III. KEY CHARACTERISTICS OF Tomaszyn VILLAGE

3.1 Key characteristics of the village and rural area

Our village Tomaszyn

Currently it counts 18 inhabitants. The village is situated about 8 km north of Olsztynek and about 2 km west of Mańki. The first mention of it comes from 1410, when it was destroyed during the Polish-Teutonic war. In 1895, 228 people lived in the village, in 1939 - 192, and in 1997 the number of inhabitants fell to 15. There was a school here; the last teacher in German times was Bartholomaeus. To the east, on the road to the village of Mańki, there is an Evangelical cemetery from the 19th century.

Closest town Olsztynek

The nearest town is Olsztynek, a town inhabited by about 7.5 thousand. people. It is the seat of the commune and the local service and commercial center. Ostoja Natury closely cooperates with this city, it is there that Bio Hub Bazar has been operating since August 2020, founded on the initiative and run by Ostoja Natury.

<https://youtu.be/494nR3U3Sm8>

Table 1: Closest town or city

| Name of closest town or city | Population of town or city | Distance between village and town/ city |
|------------------------------|-------------------------------------|---|
| Olsztynek | 13 701 (community) / 7667 only city | 8 km |
| Olsztyn | 171 979 | 18km |

Table 2: Key statistics

| Indicator | Value | Latest year | Comments | Source of information |
|--|--------|-------------|---------------------------------------|---|
| Population Out of which migrants Out of which people with disabilities | 13 701 | 2019 | data concern the commune of Olsztynek | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |

| | | | | |
|--------------------------------|------|------|--|---|
| Elderly dependency ratio % | 22% | 2019 | data concern the commune of Olsztynek | https://olsztyn.stat.gov.pl/vademecum/vademecum_warminko-mazurskie/portrety_gmin/olsztynski/olsztynek.pdf |
| Unemployment rate % | 6% | 2019 | Share of registered unemployed in the economically active civilian population | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |
| Employment rate % | 64% | 2019 | the ratio of the number of registered unemployed to the economically active population (labor force of a given population) | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |
| Age structure: | | | | |
| Share of population aged 0-14 | 2097 | 2019 | | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |
| Share of population aged 15-59 | 8472 | 2019 | | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |
| Share of population aged 60-65 | 1041 | 2019 | | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |
| Share of population aged 65+ | 2091 | 2019 | | https://www.polskawliczbach.pl/gmina_Olsztynek#podstawowe-informacje |

3.2 Key challenges and needs

The main challenges are:

- Establishing “five farms” of Ostoja Natury
- Construction of the infrastructure
- Searching for and implementing innovative solutions and technologies
- Organization Bio Hub short chain for ecological products

- **Increasing the workstation**
- **Automatization and mechanization of farm/field work**
- **Development and implementation of good agricultural practices**

The village of Tomaszyn was dying and disappearing before the Agricultural Cooperative Ostoja Natury was established. The appearance of the cooperative breathed new life into it. All farmers from the countryside are partners of Ostoja Natury. But perhaps more importantly, the Refuge of Nature gives farmers who produce high-quality food throughout the region better access to consumers, both local (BioBazar in Olsztynek) and to a much wider audience through the distribution channels we build.

The entire process of creating the strategy is based on systematic cooperation with partners. What we propose is the result of many discussions, working informal and formal meetings. The strategy was developed over a long period of time, step by step, element by element. It is discussed in detail, and the high commitment of the partners from the beginning of the entire process of its creation makes all partners feel like full participants in its creation and implementation. More about our partners can be found in part VI.

3.3 Main assets & opportunities

Ostoja Natury was created from the conviction of its members that they want to produce good quality food for their children, their family and themselves, but not only. We want to create easier access to high-quality food for others, because we know that what we eat is very important. Our most valuable resource is the conviction that what we do is right and very necessary. Our next resource are members of the Ostoja Natury cooperative, with their diverse experience, broad knowledge and willingness to act together. Members create the framework on which we build a network of our partners and on the basis of which we prepare and launch new projects.

Our strengths are:

- **know how**
- **experience of implemented projects**
- **driving force and determination to achieve the intended goals**
- **using the potential of farmers in the region who produce high-quality food**
- **ability to build partnerships**
- **innovative and effective sales implementation**

3.3.1 Awareness of the need to act in a circular economy and know how

Our own organic farms are the cornerstone of the entire project. Step by step, we strive to organize production in such a way as to close the production cycles into the circular economy. This increases our independence, but above all reduces the cost of production, thanks to the use of waste, energy production, etc

3.3.2 Innovation and experience in project implementation

The concentration of specialists in many different fields in the Ostoja Natury cooperative itself allows us to undertake various activities. Such a broad composition of competences increases the readiness to adopt innovative solutions and implement them into practice. Our members are able to prepare and implement projects in many fields, including and binding many partners. This increases our strength, effectiveness and scale of impact.

3.3.3 Determination to achieve the intended goals

We know what we want to do, we know that we are motivated and determined to implement the set goals, step by step, consistently.

3.3.4 Clean air, clean water, uncontaminated soil

Our strength is the location in Warmia and Mazury, where there is a rich biodiversity, clean air, clean water and soil is not contaminated. Tomaszyn itself is surrounded by forests. All this together creates excellent conditions for the cultivation of healthy organic plants and the production of high-quality food. We have access to many other organic farms in the region, and what is also very important in our surroundings is also the large potential of farms perfectly suitable for conversion from conventional to organic production. This conversion process is already underway, in Tomaszyn itself.

3.3.5 Clean air, clean water, uncontaminated soil

Our strength is the location in Warmia and Mazury, where there is a rich biodiversity, clean air, clean water and soil is not contaminated. Tomaszyn itself is surrounded by forests. All this together creates excellent conditions for the cultivation of healthy organic plants and the production of high-quality food. We have access to many other organic farms in the region, and what is also very important in our surroundings is also the large potential of farms perfectly suitable for conversion from conventional to organic production. This conversion process is already underway. In Tomaszyn itself, all our neighbours are become open to change of their methods of production and switch or start process of organic farming.

3.3.6 Developed channels of distribution

We have built cost-effective sales channels for our products. We are still developing them and thanks to them we reach consumers quickly and effectively. Thanks to the openness to cooperation with others, our partners get better prices for their products, and at the same time they do not waste time on independent sales and can better develop their own production.

3.4 Key characteristics of the local community

Table 3: Indicative list of stakeholders related and involved in strategy Ostoja Wioska 3.0

| | Stakeholder | Short description/role |
|---|--|--|
| 1 | Village mayor | The village administrator performs representative and executive functions. Both the village head and members of the village council are elected in a secret, direct vote from an unlimited number of candidates by permanent residents of the village council entitled to vote. |
| 2 | Mayor of Olsztynek (gmina) | By way of management, it provides the office with organizational regulations specifying the organization and rules of its functioning. exercises the powers of the official superior in relation to employees of the Office and heads of organizational units of the commune. The mayor manages the current affairs of the commune and represents the commune outside. |
| 3 | Rada Miasta Olsztynek (gmina) | The commune council controls the activity of the head of the commune, commune organizational units and auxiliary commune units. |
| 4 | Miejski Dom Kultury (Olsztynek) | The main goal of the Cultural Center is to attract and prepare the society for active participation in culture and co-creating its values. |
| 5 | Starostwo Powiatowe w Olsztynie | District Office - the office and residence of the mayor and the district administrative authorities, the area subject to power the governor. The poviastarosty is an auxiliary unit that is established in order to carry out the orders of the poviastarosta and the chairman of the board as well as the poviastarosta council resolutions. |
| 6 | ODR WIM - Warmia and Mazury Agricultural Advisory Centre | Provincial ODR deals with: <ul style="list-style-type: none"> • training activities for farmers and rural residents • conduct information activities supporting the development of agricultural production • conduct activities in the field of improving the professional qualifications of farmers and other inhabitants of rural areas • provide assistance to farmers and other rural residents in the preparation of documentation necessary to obtain aid • conduct market analyzes of agri-food products and means of production, as well as collect and disseminate market information in this regard • they can carry out variety experimentation within the framework of post-registration variety experimentation • promote environmentally friendly agricultural production and lifestyle methods • take actions to preserve the cultural and natural heritage of the countryside, ecological and functional farm management • popularize the development of agritourism and rural tourism and promote the countryside as an attractive place for recreation • cooperate in the implementation of tasks resulting from agri-environmental programs and action programs aimed at reducing the outflow of nitrogen from agricultural sources • conduct analyzes of changes in the level and quality of agricultural production and the functioning of farms and disseminate the results of these analyzes in advisory work • are involved in the estimation of hunting damage as well as in determining the amount of compensation for such damage • assess and approve restructuring plans [1] |

| | | |
|----|---|---|
| 7 | Bank Żywności Olsztyn (Food Bank in Olsztyn) | Food bank - the name of the activity of charities consisting in collecting food that is still fit for consumption but withdrawn from the market, and which would be disposed of and distributing it among people in need. |
| 8 | The Institute of Rural and Agricultural Development of the Polish Academy of Sciences | The Institute of Rural and Agricultural Development is located at the Faculty of Humanities and Social Sciences of the Polish Academy of Sciences. It is distinguished from other institutes by an interdisciplinary approach to the subject of research, which is rural areas of the country. From the very beginning, agriculture in the research work of the Institute is only a fragment of a much broader rural problem. For this reason, the Institute gathers specialists from various disciplines: economics, sociology, demography, ethnography, education, geography, etc., whose common interests are focused on rural and agricultural issues. In recent years, the Institute's experts have been employed by many international organizations and government institutions. |
| 9 | University of Warmia and Mazury in Olsztyn | Play for Internship, recruitment, training program |
| 10 | KGW Mańki | The activity focuses on five aspects: helping rural families in bringing up, educating and organizing holidays for children and young people, acting for health protection and social security of rural families, developing female entrepreneurship, rationalizing the rural household |
| 11 | RolaApis, Niebieszczany – eco farm | old varieties of cereals, helping to establish seed bank, knowledge exchange, promotion and distribution cooperation |
| 12 | Parol - Fish from Kaborno | fish farming strategy, education, production cooperation |
| 13 | Natural Fitness – press natural oil | production of pressed oil |
| 14 | Craft Dairy "Rogulska Struga" - | Under the "Roguska Struga" brand, traditional dairy products are produced, such as traditional cottage cheese, ripening cheeses, rennet-acid cheeses, cream, cream, butter, fresh yogurt, delivered to our dairy directly after milking. We are partners at Bio Hub Bazar and running educational and promotional projects together. |
| 15 | Eko Młyn Piotr Hillar | The mill is ecological because the raw materials supplied to it come only from certified organic crops free of agricultural chemicals, and the energy used in the mill comes from a renewable source, i.e. a water turbine. |
| 16 | Kwaśne Jabłko | Kwaśne Jabłko (Sour Apple), organic farm and lodge tucked away from roads, in the Pasłęka River Valley |
| 17 | Gospodarstwo Ekologiczne J&S Walkiewicz | The ecological farm is located in the town of Frynowo, in the beautiful surroundings of the Dylewskie Hills Landscape Park. Its main activity is field vegetables, incl. cucumbers, zucchini, pumpkin, tomatoes and strawberries. |
| 18 | Gospodarstwo Ekologiczne Tomaszyn | In our Tomaszyn one of our neighbors is already engage in small but ecological production so we begin cooperation |
| 19 | Gospodarstw Ekologiczne Zbigniew Piekarski | Mr. Zbigniew Piekarski, farmer, grower and producer of mangalica products. Production is carried out on over 90 hectares near Bisukupiec |
| 20 | BioKarbowski Ekologiczne gospodarstwo | From sowing, through growth, to harvest, we make sure that what our land produces is ecological and of the highest quality. We want a return to clean, chemically untainted, healthy food. Our offer includes bio-garlic. We also produce mustard, buckwheat, spelled and phacelia. BioKarbowski is a certified organic farm with an area of over 220 hectares. We are certified by TÜV Rheinland as specified in Article 29 (1) of Regulation (EC) No 834/2007. |
| 21 | BioGrim Ecological Farm | Biogrim is a family business based on family traditions. The whole family strives |

| | | |
|----|---------------------|--|
| | | to produce natural apple juices that are so unique on the Polish market and to enjoy the palates of their customers. |
| 22 | Zielone Technologie | The company, which was established in 2020, –focuses on development of environmentally friendly technologies, in line with the principles of biocircular management |
| 23 | Andrzej Walczak | Andrzej WALCZAK's innovative pipes reduce water by 50%. The beneficial effects of the idea for the shape of longitudinally corrugated pipes used in his own farm prompted Andrzej Walczak to try to implement this innovative solution for heating greenhouses. In its facilities, it installs longitudinally corrugated pipes, which bring significant savings in heating the greenhouse every year. This shape has numerous advantages: larger heating surface, smaller liquid capacity, lower weight, better thermal exchange [shape of the heat sink], lower operating costs |
| 24 | ProBiotics | The beneficial microorganisms used in probiotechnology work together and can initiate processes that support the health of humans, animals, plants and soil. It acts as a probiotic corrector of biological processes and thus support the biodiversity of the human environment. The widespread use of probiotechnology can significantly restore the natural resources of the Earth. New natural technologies proposed by ProBiotics Polska Sp. z o. o. are widely used at home, on a farm, in municipal management, in sewage treatment plants, landfills and composting plants. Dietary supplements improve the condition and well-being of a person. ProBiotics Polska sp.z o.o. operates through a network of Licensed Probiotechnology Advisors, Wici Partners, and Microorganism Centers that provide advice, information and make probiotic products available to anyone interested |
| 25 | Mandam, | MANDAM is one of the largest Polish producers of agricultural machinery. It produces about 3,000 machines annually, more than half of which is exported. The constantly expanding range of MANDAM products includes tillage machines, plowing and maintenance of green areas as well as a tool for mechanization of works on a farm. The most important motto of MANDAM's activity is product quality, environmental protection, customer safety, service and individual adaptation of machine accessories to the type of soil in a given region. |
| 26 | Kubot Polska | For Earth for Life: Agriculture, Ground care, Construction machinery, every product is supporting the prosperous life of humans. Together we are on the path of adjusting technological solutions to the needs of small and medium-sized organic farms |
| 27 | Farmer Foil Tunels | The Farmer company is a leading producer of tunnels and foil blocks with equipment. These tunnels are designed for gardening, nursery and various fruit and vegetable crops. Farmer CO. as a Polish manufacturer, it has properly designed, solid facilities, adapted to our climatic zone. They are resistant to loads caused by snowfall or wind. In Ostoja Natury a tunnel measuring 30 x 9 meters has been installed so far. There is a high probability that in order to provide our customers with fresh products also out of season, this area will significantly increase soon. |
| 28 | Scorpion Machines | Manufacture machines, devices, processing lines and more. Over two decades of experience and clearly defined strategy allows us to implement the most ambitious projects. |

| | | |
|----|--|---|
| 29 | EroHemp | A global team of experts - cannabis enthusiasts. They have been operating since 2016 as active members of the growers' family, initiators of economic, social and research projects. Their mission is to create opportunities for the cannabis industry. |
| 30 | EkoJaja - ecological farm | Our chickens are our passion - ecology is our life. We have been breeding chickens for ecological eggs for 10 years. The entire farm is also focused on the production of feed for hens, so we are able to control the feed they receive. We have all the certificates, acceptance and permits for hen breeding. The hens walk on the enclosures, and in the henhouse they have litter and perches. We take great care of our hens so that they lay healthy and tasty eggs. |
| 31 | Piekarnia Chrupiąca Skórka | The company has been baking natural bread for over 4 years without any preservatives, leavening agents or artificial additives. Each loaf is made by hand and the offer includes both wheat and rye bread with various additives, as well as spelled bread, wholemeal rye sourdough or Graham |
| 32 | Koło Myśliwych "Grunwald" | The purpose of the hunting club is: 1) protection, preservation of diversity and management of populations of game animals; 2) protection and shaping of the natural environment to improve the living conditions of animals; 3) obtaining the highest possible individual condition and quality of trophies as well as the appropriate number of populations of individual game species while maintaining the balance of the natural environment; 4) meeting social needs in the field of hunting, cultivating traditions and promoting ethics and hunting culture. |
| 33 | Kera Ceramika | Kera ceramics has 40 years of experience, thanks to which we have managed to combine tradition with modern production technologies. We started with handicrafts and we do not forget about our roots. Today, the basis of our offer is the highest quality technical, table, advertising and decorative ceramics. Together with Ostoja Naurty we developed Ost-oya irrigation vessal. |
| 34 | Muzeum Budownictwa Ludowego - Park Etnograficzny w Olsztynku | The Folk Architecture Museum - Ethnographic Park in Olsztynok is one of the oldest and most visited facilities of this type in Poland. In the area of thirty five hectares there are over sixty objects of large and small architecture from the areas of Warmia, Masuria, Powiśle, the so-called Little Lithuania and Sambia. The first three regions are now within the borders of the Warmińsko-Mazurskie Voivodeship, while Little Lithuania is located in the eastern part of the Republic of Lithuania and the northern part of the Kaliningrad Oblast, and Sambia - in the Kaliningrad Oblast. |
| 35 | Nadleśnictwo Olsztynok | <ul style="list-style-type: none"> • Shaping ecological attitudes and awareness • Getting to know the structure and functioning of forest ecosystems • Awakening a sensitivity to beauty and the natural wealth of forests • Building active attitudes towards nature • Introducing the issues of multi-functional forestry • Introducing the profession of a forester • Disseminating knowledge about the activities of the State Forests in nature conservation |

| | | |
|----|----------------------------|--|
| 36 | Domy Drewniane Bartek | Wooden Houses Bartek is a Polish brand created on the foundation of a family company with traditions dating back to the beginnings of the wooden house industry in our country. In our daily relations with investors, we strive to associate the Bartek Wooden Houses brand with reliability, responsible approach to the house construction process and the highest quality thanks to the commitment to the house construction process and modern technology. Bartek Wooden Houses stand for honesty and respect for craftsmanship. We tell investors what we intend to do and we do what we promised. We have nothing to hide, we are responsible for our actions. We are always transparent and honest. |
| 37 | Chlewiński Ecological Farm | Framer and producer of ecological bilberry |

Table 3: Indicative list of stakeholders related and involved to the town’s Bio Hub Bazar and Bio Hub

Stakeholder

- 1 Mayor of Olsztynek
- 2 City Council Olsztynek
- 3 Department of real estate management from Olsztynek
- 4 Ecological Farm - RolaApis, Niebieszczany - old weat varieties
- 5 Ecological Farm -J&S Walkiewicz - vegetable farm
- 6 Ecological Farm - Goat cheeses Sabina I Mieczysław Mąka
- 7 Ecological Farm – Szymon Chlewniński family farm
- 8 Ecological Farm -EkoJaja Sławomi Szerszeń
- 9 Ecological Farm -Zbigniew Piekarski – vegetable farm
- 10 Ecological Farm BioGrim - a family fruit farm
- 11 Traditional fish - Parol - Fish from Kaborno
- 12 Ecological Oils - Natural Fitness - ecological cold-pressed oils
- 13 Ecological silage and sourdough - Zielony Edukator - social cooperative
- 14 Craft Dairy "Rogulska Struga"
- 15 Natural bread Crunchy crust - Woiciech Wawrzyniak
- 16 Craft chocolate - Wild Chocolate
- 17 Beekeeping Farm - Suwalski Miodek
- 18 Beekeeping Farm Jan Głasek
- 19 Organic mustard's and vinegar's - Octim
- 20 Traditional butcher Flis-Pol - a traditional Warmia butcher's shop
- 21 Association of Beekeepers from Olsztynek

Rural housewives' circles (KGW):

- 22 -KGW Mierki
- 23 -KGW Elgnówko
- 24 -KGW Łutynowo
- 25 -KGW Durąg
- 26 -KGW Frygnowo
- 27 -KGW Jakubowo Kisielickie
- 28 -KGW Ulnowo
- 29 -KGW Luba Lubajny
- 30 -KGW Drogosze

31 -KGW Praktyczne Panie z Brodowa

Crafts and craftsmen

- 32 Eli tatting
- 33 Mother stick and cloth - tailor's aprons, eco-bags
- 34 LOVEnda - lavender products
- 35 Paraffin Dizziness - Candles
- 36 Daily Retirement Home in Olsztynek - hand-made products
- 37 Justyna Dobkowska Armilla Artistic Jewelry
- 38 KS handicraft - products made of crochet
- 39 Wicker products Andrzej Zanewiat - wicker products
- 40 Irena WILCZAK - ecological soaps
- 41 Wanda Pietrzak - crocheted things
- 42 Elbląg soap
- 43 Makala Justyna Seklecka
- 44 The Diabetic Association of the Circle in Olsztynek
- 45 Soap stand
- 46 Marta Olszewska Idealiasklep
- 47 Joy studio Ceramika
- 48 MiS art. Ceramics
- 49 Warte Świeczki Gallery
- 50 Eco Soap
- 51 Lavender Paradise
- 52 Aga Ptasik Handcrafted Jewelry
- 53 A toy sheep

3.5 SWOT Analysis

The main strengths, weaknesses, opportunities and threats (SWOT) set out above in details are summarised in the SWOT table below.

Table 3: SWOT analysis

| STRENGTHS | WEAKNESSES |
|--|--|
| <ul style="list-style-type: none"> • Experience and access to knowledge • strong leadership and engagement for territorial food management • proven ability of cooperative members to successfully implement development initiatives, capacity to lead and deliver projects • having specialists with knowledge and experience enabling development in various directions • cooperation with local producers • own independent sales channels (online store, organic local market) • own logistics facilities • location close to a communication junction • organized info sharing • innovation networked organization with collaborative relationships • a strong commitment and involvement from all the | <ul style="list-style-type: none"> • Too few farms and too little organic food production • Poor organization of organic farmers • Farmers' concerns about conversion • Low level of knowledge about organic farming • Lack of innovative solutions in organic farming • Lack of organic fertilizers • Lack of knowledge about ecological plant protection products for organic farming • High labour intensity of organic food production • Weak position of farmers in food chains • Too many food brokers scooping up added value • lack of adequate infrastructure • our village has no strong “brand” • little promotion of local and organic products in the region and the country |

| | |
|---|--|
| <p>stakeholders</p> <ul style="list-style-type: none"> • many local producers of high-quality food products, natural cosmetics and handicrafts • exploiting alternative-renewable energy sources and applying of energy saving methods • rainwater management and water saving methods | <ul style="list-style-type: none"> • poor service provision in local villages • limited villagers’ participation in decision-making • lack of cooperative between agricultural businesses with academic and research areas • no funding base for large investments • migration of young people to cities • ineffective education and training system |
| <p>OPPORTUNITIES</p> | <p>THREATS</p> |
| <ul style="list-style-type: none"> • Growing demand for organic food and high-quality products • promoting production with focus on local certified, high-quality products • attracting new residents, the opportunity to live and work still very close to the nature and nearby city • a favorable political and policy context • development agricultural technology, green technology and ICT • incentives to cooperate universities, farmers, producer groups, food processing companies and tradesmen • upgrading existing road networks | <ul style="list-style-type: none"> • decline in confidence in certification • convincing public bodies to supporting rural development and invest in our small village • unfavorable environment for developing and financing business initiatives (pandemic state, recession) • risk of deterioration of the ecological areas and of the region and reducing the amount of arable land, due to the tourist 'pressure' in the area • low attractiveness of primary careers • recession |

IV. INTERVENTION LOGIC

4.1 Overall objective

As we showed in chapter 2.2.2 Strategia Ostoja Natury 3.0 fits into many higher-order strategies and is a practical implementation of From Farm to Fork Strategy and The European Green Deal. The Strategy translates into practical actions many aspects of them.

Both the activities so far and the entire strategy of Ostoja Natury 3.0 are the implementation of goals and BUILDING THE FOOD CHAIN THAT WORKS FOR CONSUMERS, PRODUCERS, CLIMATE AND THE ENVIRONMENT. In Ostoja Natury we propose an innovative green business model using the circular bio-based economy, we increase the production of organic food and expand its purchase and consumption opportunities. We are promoting sustainable food consumption and contributing to the shift to healthy, sustainable diets.

In Tomaszyn we strive to achieve the highest degree of circular economy, especially in the areas of:

- **agriculture** - among other things, by striving to prepare and obtain own seeds and construction of our own organic plant nursery and seed bank, as well as implementation of modern cultivation solutions,
- **production** - striving for the highest possible level of mechanization and computerization, and implementation
- **innovative** environmentally friendly solutions
- **housing** - striving to develop a waste-free, self-sufficient habitat for rural farms
- **power industry** - construction of biogas plants and other systems with the highest energy efficiency and ensuring the lowest possible environmental burden and maximize safety and profitability of organic production

Our goals and activities are consistent with the definition of:

regenerative agriculture – “conservation and rehabilitation approach to food and farming systems. It focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing ecosystem services, supporting biopreservation, increasing resilience to climate change, and strengthening the health and vitality of farm soil. Practices include recycling as much farm waste as possible and adding composted material from sources outside the farm”

and **permaculture** – “conscious planning and maintaining efficient ecosystems that are characterized by diversity, stability and natural renewal. It is a harmonious integration of the landscape and the environment with human activity in order to provide him with food, energy and shelter. It also ensures the development of artistic, cultural and spiritual needs in a self-sufficient way -not requiring external infrastructure and external management. ”

We believe that only efficient business models are able to encourage people to change their attitudes and follow an economically efficient path that is friendly to our planet and its inhabitants. Our main challenge is to create a program for farms below 100 acreage hectares (in Poland there are over 700 thousand) enabling the transformation of production from conventional to be ecological, characterized by high product quality while minimizing negative effects on the natural environment.

4.2 Specific & operational objectives in response to SWOT

SO1: Increase in the production of high-quality food and an increase in the number of entities involved in this production in the region of Warmia I Mazury

1.1. Supporting knowledge-transfer

Knowledge is an extremely valuable asset for an organization which includes data, information, experts' opinions, skills & experience. Some of the knowledge assets possessed by an organization or a company include documents, databases, reports, files, procedures, financial statements, policies, and even the experience of the employees and customers.

Knowledge management includes collecting, extracting, sharing, creating, and administering the information in such a manner that the organization can use it effectively which can eventually lead towards better decision making and positive transformations. Following a streamlined process for managing knowledge in an organization is extremely significant.

Organic agriculture is based on practices that not only protect environmental health, but also strive to improve it. In addition, organic farmers strive to preserve and protect natural habitats with the understanding that a diverse biological landscape helps to feed both people and the planet.

Our goal is to collect and present best practices and solutions allowing production and transformation into organic farming to be more efficient drawing on knowledge from good practices, scientific research and best examples of successful solution implementation.

One of the biggest challenges and important goals of Ostoja Natury is the promotion of ecology and construction environmental education system integrated with our organizational structure. Our cooperative as an educational institution is to be a place where old knowledge meets the newest technologies, and science is based on our practice and the results of our implementations and works. We believe that effective education is one that teaches you to solve problems and face challenges. Such knowledge is scientifically based proven results and best practices developed and followed by members cooperatives.

Many areas of organic production require a student-master relationship where specialists with many years experience and vast theoretical knowledge, pass their experience on to the next generations of enthusiasts. Our educational programs will be directed to:

- professionals in the form of conferences and training for farmers and people from the organic industry
- families in the form of weekend meetings
- children and youth in the form of green schools, camps and summer internships

Knowledge transmitted through play is the best form of education because the content becomes enjoyable and enjoyable. We plan to build an educational path including a forest nursery, knowledge corners and trails with stops containing educational elements. You will be able to find out from special plates find out what trees grow in the surrounding forests and what animals live in them. Our system will bring you closer city dwellers the secrets of agricultural production and products produced in rural households increasing consumer awareness and reducing the information barrier between rural areas, and the city.

Activity 1.1.1 – Bio Tech – Open Source knowledge-sharing platform and professional meeting – with a presentation of good practices, case study, thematic booklets, and professional meetings (ec) including:

- production methods and cycles adapted to the soil and climatic conditions
- solutions for soil regeneration especially in the conversion period
- robotization and automation of agricultural production and processing
- a set of technological and mechanical solutions
- Bio Tech - A meeting of high-quality food industry professionals

In order to popularize and organize knowledge in the field of the latest technologies in the agricultural sector and high-quality products (including ecological ones), we create a knowledge exchange platform and organize an annual (once a year) meeting and workshop for high-quality food industry specialists with the participation of leading specialists from Poland and the world. Practitioners, inventors and representatives of science participated in the first edition of the Bio Tech meeting in Olsztynek on 6 September 2020. During the lectures and presentations, modern production processes used in modern agriculture, as well as technological and scientific achievements that are used at various stages of the cultivation, breeding and processing processes were presented. The transferred knowledge is to contribute to increasing production efficiency, competitiveness and improving the quality of the farmers' workshop. Bio Tech 2020 was accompanied by the publication of a brochure containing 10 technological lines presented in the form of info graphics and publications of 12 lectures online.



Activity 1.1.2 – BioTech with ODR WIM

Together we started the implementation of our mission, i.e. the process of transforming production from conventional to ecological. ODR is a unit where specialists locally constantly support farmers in their area of activity. ODR WiM operates in our voivodship through a network of its local branches and over 100 trained advisors who are in constant contact with farmers, offering support in formal, technical and educational matters. The entire system is prepared to support quantitative production, above all

conventional, and organic farming has never had a significant share of the market and has found itself somewhat aloof, left to enthusiasts and hobbyists. Educational programs have not been distorted and knowledge transfer and innovation are at a very low level.



„Europejski Fundusz Rolny na rzecz Rozwoju Obszarów Wiejskich: Europa inwestująca w obszary wiejskie” Operacja sfinansowana przez Warmińsko-Mazurski Ośrodek Doradztwa Rolniczego z siedzibą w Olsztynie. Współfinansowana ze środków Unii Europejskiej w ramach Schematu II Pomocy Technicznej „Krajowa Sieć Obszarów Wiejskich” Programu Rozwoju Obszarów Wiejskich na lata 2014-2020. Instytucja Zarządzająca Programem Rozwoju Obszarów Wiejskich na lata 2014-2020 – Minister Rolnictwa i Rozwoju Wsi.

Together, we prepare the answer to the above-mentioned issues. We develop and implement professional training programs for farmers in the region in the form of meetings, training, webinars, lectures, visits to reference farms. Our joint activities and plans are oriented and built around real solutions consisting in meeting consumer expectations and taking advantage of the opportunities related to the implementation of high-quality food production, including organic food. Together with the ODR WIM, we decided that only well-prepared educational programs presenting good agricultural practices, the selection of appropriate agrotechnical treatments, the selection of appropriate equipment, i.e. well-organized production supported by an innovative and fair distribution platform, will allow for the transformation of farms. The first joint activity was the ODR WIM partnership in our Bio Tech event -meeting of professionals in the high-quality food industry (Olsztynek, 6 September 2020), and now we have completed the first joint activity - a webinar entitled "Ecological farming - an opportunity for farmers and consumers of the Warmian-Masurian Voivodeship" organized as part of the National Network of Rural Areas by ODR WIM in cooperation with RSP Ostoja Natury.

The aim of the training was to broaden the knowledge of organic farming and to shape ecological attitudes in the area of climate, environmental protection and sustainable development.

It included knowledge of:



1. regenerative agriculture as a set of strategies, tools and practices to remediate and regenerate soil by restoring the proper levels of organic matter;
2. crops that have a positive impact on the environment and consumers;
4. adaptation of agriculture to climate change, with particular emphasis on water efficiency;
5. geographical indications and quality organic products as factors of local development.

Activity 1.1.3 Creation of digital tools to support certification process for Farmers (in region and nationwide) to decrease formal and legal burden and error possibility

Application for handling documentation in ecological certification, great time saving, increasing the transparency of production. The certification process of an ecological farm with the support of software begins with determining the type and degree of activities required in the certification process. The purpose of the arrangement is to identify areas of concern and to decide on the nature and scope of certification tasks, including testing. Together with the ODR WIM, we are working on a comprehensive IT solution that will computerize the certification process, save time and help in removing the greatest barrier to the development of organic farming in Poland - conducting proper documentation.

1.2. Tests and implementation of innovative solutions

Activity 1.2.1 Passive greenhouse – in cooperation with our partners/stakeholders: Walczak Pipes, Farmer Tunnels, EM Farma soil treatment and our authorship solution Oya irrigation

The greenhouses were developed in order to cultivate plants under controlled conditions. They offer high productivity and efficiency and remove much of the risks caused by the inappropriate weather and climate. A certain greenhouse surface can feed five to ten times more people than the same conventional agricultural terrain. Although from the technological point of view greenhouses are well covered, they have to cope with the continuously increasing costs of the energy. Their main asset, the direct use of the solar energy, is not able to constantly ensure the temperature constraints demanded by plants, because of the hardly predictable weather conditions. That is why most greenhouses have to be connected to conventional energetic infrastructures: electricity, gas, warmed water, etc. Our purpose is to investigate a fundamental improvement of the greenhouse concept, with a huge potential to improve our lives: The Passive Greenhouse.

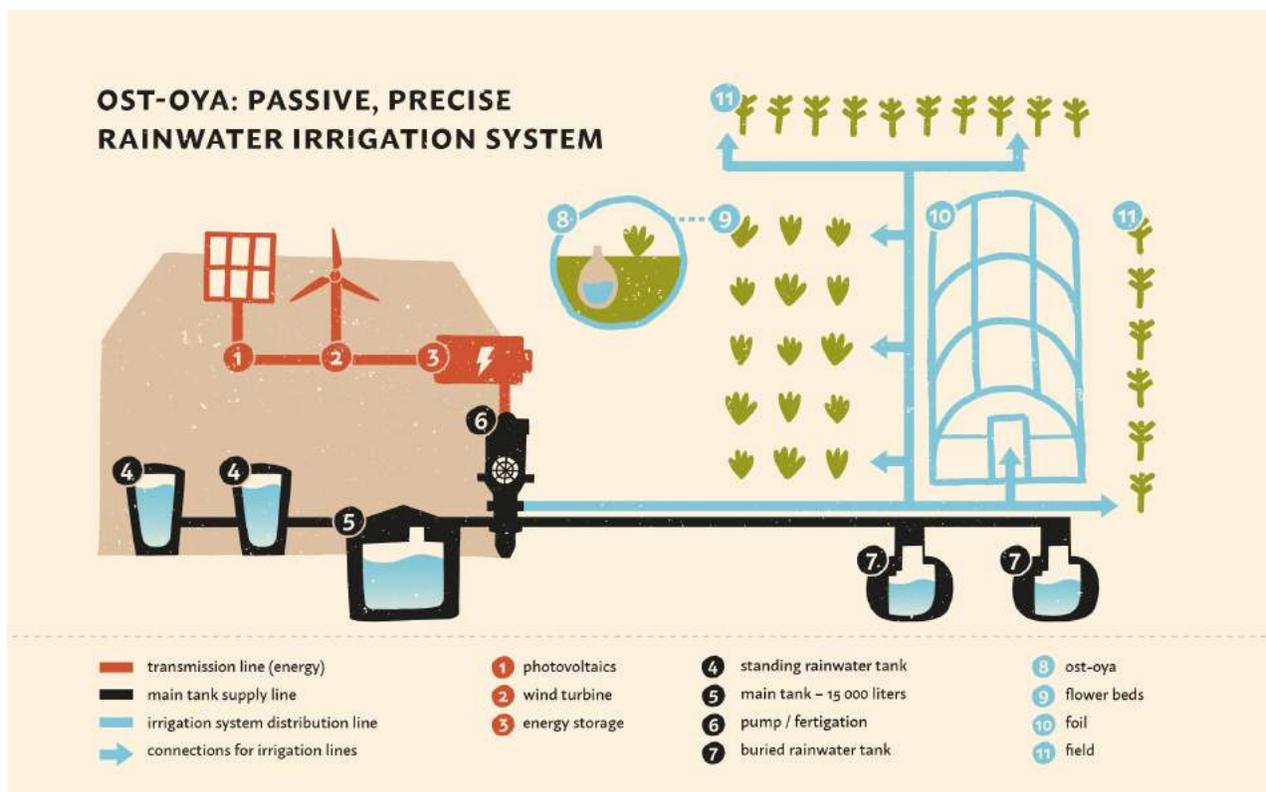
Activity 1.2.2 Ost-Oya Passive, precise rainwater irrigation system

Water is one of the earth's most valuable natural resources - it is also an essential part of agricultural production. It is estimated that the global consumption of fresh water in agriculture accounts for about 70% of all resources in the world, and in the next 50 years water shortages will be the most serious factor limiting food production. Its deficiency may, therefore, contribute to limiting the development of

agriculture, which is why water protection is extremely important. Saving water - we need to increase the efficiency of water use in agriculture. The right agricultural technologies can help us save water in agriculture. Water conservation can either be done directly - through better irrigation systems or by growing plants that need less water - or indirectly through the use of products and methods that increase yields. Each year 20 to 40% of crops worldwide are killed by competing weeds, as well as by pests and diseases. Reducing these losses through optimized plant protection or increasing the tolerance of crops to drought, achieved through the use of appropriate breeding techniques, would allow an increase in yields per unit of water (water efficiency).

Ost-Oya Passive ,precise rainwater irrigation system:

Pilot area -2 hectares under irrigation, allowing to capture full rainwater potential from roofs – 45 000 litre per month, Recovery of 99% of dirty water up to 30000 litres per month, with very low maintenance cost.



Activity 1.2.3 Waistless, sell sufficient habitat for rural households most efficient and environment-friendly technology.

We will erect new buildings in Tomaszyn - ones for agricultural production, cooperative, and inhabitants, using traditional techniques. We are going to consciously abandon using reinforced concrete, construction chemicals, bitumens, and styrofoam. Instead, we want to use strawbale, hemp concrete, and wood technologies, such as frame construction, mullion and transom, and Thoma Holz 100. We will also utilize recyclable materials the likes of adobe, clay and lime plasters and paints, and local stone. Moreover, we would like to employ glass bottles and tires, which are already being used to construct the so-called earthship buildings.

We want to use the simplicity of such methods to gradually reduce the amount of construction waste to zero and have most of the work done by small groups of local builders, with no need for heavy equipment or long-distance transport.

We are going to apply technologies used for powering independent “off-grid” houses - photovoltaic panels equipped with proper control systems and optimally-sized energy storage, wind turbines, and heating systems drawing from renewable energy sources such as sonic furnaces or air and ground source heat pumps. To repurpose domestic water, we will use the local biological sewage treatment plants, while rainwater will be recovered with landscape water management (large and small retention, ponds, passive systems, rain gardens). Such construction methods result in extremely high energy efficiency during construction as well as during usage. We will support those claims with suitable calculations.

During usage, waste will be eliminated by composting, a closed circuit of reusable glass packaging, and a maximum reduction of plastic consumption. We will propose contemporary versions of local architecture styles and forms, restore construction craftsmanship, and integrate the local community around new methods of construction and use of natural resources. We are going to educate, train, exchange experience. Knowledge gained this way will help us consciously create solutions in the fields of regenerative architecture and agriculture.



Activity 1.2.4 Passive Hempcrete industrial cooler with solar Sunroof

The first very important infrastructural innovative investment is already underway. We are in process of building first commercial passive hempcrete cooler. Hempcrete is a bio-composite material that contains a mixture of hemp, hurds and lime. Like other plant products, hemp absorbs carbon dioxide from the atmosphere as it grows, retaining the carbon and releasing the oxygen. Hemp structures date back to Roman times and have a lower carbon footprint than many materials. Slowly but surely it is becoming a building material of choice for many who want a sustainable and affordable type of building material.

- Non-toxic building material – Hempcrete is generally quite a benign material, fewer pesticides and herbicides are used for farming.
- Hempcrete stores heat in the thermal mass of its wall which is then released slowly as the building cools down.
- Hemp is the only building material that can remove carbon from the air. Other methods of insulation such as fibreglass have a significant carbon footprint.
- It's resistant against mold as it's moisture absorbent. One square meter of hemp wall can absorb up to 14 litres of water which can be released into the ground or recycled.
- A unique ecosystem for long term food storage
- Goal to achieve a net zero building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is equal to the amount of renewable energy created on the site (solar roof)



Activity 1.2.5 Green Energy

At RSP Ostoja Natury we focus on renewable energy sources (RES), but apart from panels solar, water and wind turbines, the main emphasis is on development Bio mass energy and construction of a small agricultural biogas plant with a co-generation engine enabling producing electricity, heat and cold and thereby creating a 360 cycle where waste is a fuel.

Our goal is to engage in energy production in purpose to fulfill needs of our own consumption, with minimum impact on environment and with usage of waste green mass, so common in every farm, restaurants or food production facilities. Study's confirm that almost 50% of food production is ending in waste.



SO₂: BioHub - innovative distribution hub, storage, and platform in line with from farm to fork strategy

In agriculture, especially ecological, distribution and the possibility of quick delivery of fresh products are as important as the production itself. That is why in Ostoja Natury we place great emphasis on an innovative and interactive procurement platform and efficient order distribution. The platform allows it to be used by the cooperative, but also by our partners. Our Bio Hub is an ECO-system of connected vessels.

Bio Hub as a high-quality food center designed in two sizes – local (farm) and regional scale (producer group/cooperative). This modern platform combines: logistics facilities – storage, processing with waste, energy, logistic management, with a network of partners – high-quality food producers with

infrastructure necessary for year-round production of organic food including platform for local direct sales, along with its ON-LINE version, and a maintenance-free and contact less sales system.

Processing organic vegetables, once a niche specialty, is now big challenge. However, while crops grown without pesticides are regarded by consumers as exceptionally natural and safe, they bring processing lines additional complications and risks. Complications arise because organic vegetables are far less consistent than their non-organic equivalents in quality, size and shape. Huge variations in product quality come rolling down the line, not just from one day to the next but also within the same batch. And when processors strive to deal with such variables, they end up discarding vegetables which are too good to waste. Processing business in many cases was rejecting 50-60% of all organic carrots as unfit for human consumption, and losing much of this potentially valuable produce to low-value animal feed.

Our goal is to preserve that value and optimize process of organic crops handling that will allow 100% usage of production potential in form of separation and processing products regarded us waste. The local and regional infrastructure have to be compatible with each other, allowing some forms of standardization between suppliers, hubs and consumers (BTB, BTC, Logistics).

The Bio Hub will be built up in stages, and will include:

Bio Hub Bazar

Our own direct sales platform created by the Ostoja Natury cooperative group of partners and producers of high quality products.

Bio Hub Logistics

Logistics center design for high quality products. Cleaning and storage: vegetables, fruits, fish, cereals, preserves.

Bio Hub Processing

Processing plant project for organic vegetables and fruits

Bio Pak

Technological line for the production of biodegradable packaging for food.

E-Park

A fleet of electric vans powered by energy produced on our farm – waste-free distribution.

Bio Hub Distribution

Distribution based on a combination of smart infrastructure in the city and in the countryside – Vegemats and E-suppliers

Bio Hub Energy

Energy infrastructure project based on renewable energy sources built to ensure energy independence

Bio Hub Horeka

Professional distribution platform for business entities (BTB) – handling orders for shops, restaurants, hotels, etc.

2.1 Bio Hub Processing Infrastructure - Local

Most markets require strict attention to be paid to the size, grade, quality and maturity of produce, whether or not it is organic. Fruit and vegetables must be cleaned and graded to comply with these regulations. Special consideration needs to be paid to the cleaning or sterilization of grading and

processing equipment in an organic operation: organic produce must be ‘free of substances used to clean, disinfect, and sanitize food processing facilities’.

Organic product packaging should have minimal adverse environmental impacts and it is recommend that ‘Processors of organic food should avoid unnecessary packaging materials and organic food should be packaged in reusable, recycled, recyclable and biodegradable packaging whenever possible’

Activity 2.1.1

This are two great challenges in organic agriculture processing that we want to address and solve on the local – farm level allowing full integration with regional hub and sales platforms. This includes designing and building reference infrastructure, with well selected innovative mechanized solutions, in house storage, sorting, cleaning and packing lines with maximum energy efficiency allowing to provide most of the needed power in house. Project of Local Farm Bio Hub is well advance. We have already completed most of needed equipment and machinery. In spring 2021 we are planning on finalizing all the investment required. And from the summer 2021 it should be fully operational.

2.2 Bio Hub Processing Infrastructure - Regional

Regional center of distribution allowing a much bigger scale build on experience and good solutions implemented in 2.1.1. Regional BioHub is a key part of smart agro village infrastructure. Local hubs will play a key role in supporting grow of production. Along with the importance of logistics industry, the location of fresh agricultural products has important significance. In view of the easy loss characteristics of fresh agricultural, and measure the level of service with customer satisfaction of time. Considering the total cost of logistics and customer satisfaction, we establish a multi-objective optimization model for location of fresh agricultural products logistics center.

Activity 2.2.1

Bio Hub Regional - distribution center accept a large number of goods from suppliers, packaging, sorting, storage, distribution, processing and information processing and other operations, then, in accordance with the requirements of the order of many who need to get ready goods, works at a satisfactory level, for distribution facilities. Distribution Center is a Terminal logistics node facility, distribution and delivery through effective organization, to complete the final allocation of resources, is a labor-based, comprehensive, complete and modern delivery activities. Goods from production to wholesale and retail outlets and, ultimately, the flow of sales to consumers, generally to distribution centers in some classification, custody and distribution processing, processing. BioHub center has to become a link connecting production and retail. By determining the reasonable distribution centers not only can satisfy the customers of small batch and multi varieties, short delivery time requirements,

improve the efficiency of logistics services and customer satisfaction, but also can reduce the stock, the transportation of large-scale, reduce manpower costs, thereby reducing the total cost of logistics

2.3 Bio Hub Innovation Distribution channels and solutions

In order to satisfy need of modern consumer especially local one and lower the numbers of entity's involved in food processing and distribution, we need to rethink distribution chain and grab the opportunity that lays in front of us. In cities smart solutions like e-delivery is becoming a norm. Clients are more commonly using platforms allowing precise order and delivery. This e-evolution is already strongly present in gastronomic industry allowing freshly prepared food to reach consumer in short time. Now is time for fresh farm product to join the ride. Our system is built on wide foundations including: e-delivery, farmers markets, "Vegemat", wholesale, HORECA

Activity 2.3.1 Bio Hub Bazar Olsztynek

The primary goal of Bio Hub Bazar is to support and popularize the short food supply chain, including the processing and marketing of agricultural products. We achieve this goal by building a permanent place to sell high-quality products. At Bio Hub Bazar, RSP Ostoja Natury and its partners offer their products directly to consumers. We ignore all intermediaries, which allows the customer to contact directly with a group of producers, breeders and farmers who can constantly and continuously meet the nutritional needs of customers from the region, and in particular to respond to the growing demand for products produced using organic and traditional methods. We want to increase the trust of the end customer thanks to the possibility of ensuring: regular deliveries, adjusting their size to the needs, appropriate and equal quality of the raw material. Today more than 50 local entities are part of our Producer's Group which is a cornerstone in achieving scale needed to proceed with further development of Bio Hub distribution center.



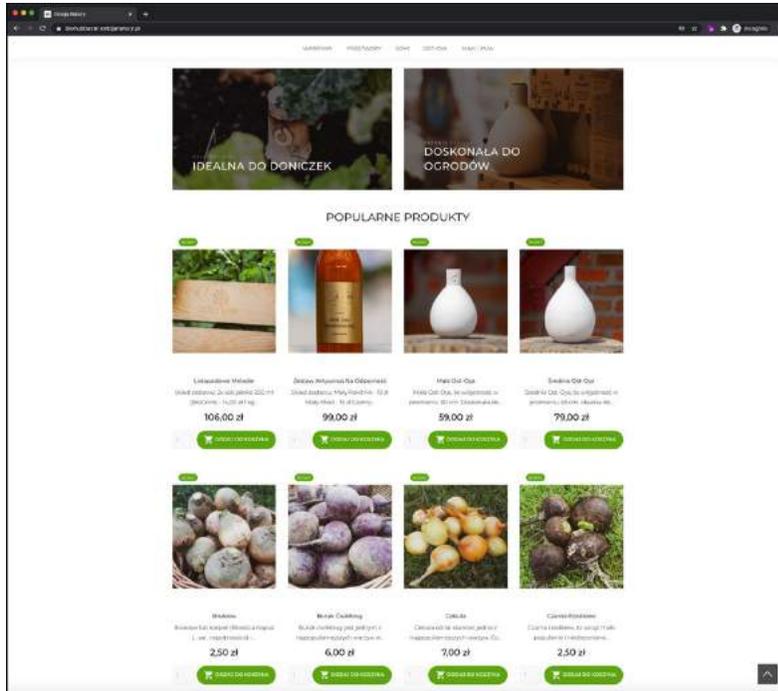
Activity 2.3.2 Bio Hub Olsztyn, with Bank Żywności (Food Bank NGO) Olsztyn

We started the process of implementing our solution in the city of Olsztyn in cooperation with the Food Bank. Our local Bio Hub (ultimately regional) is responsible for the wholesale preparation of orders. Mini hub in Olsztyn organized as part of the existing infrastructure of the Food Bank - “Jadłodajnia Społeczna”, i.e. a fully equipped gastronomic center with cooling facilities, is responsible for accepting the order from the end customer via various platforms (own and partner) and packing the singular order and issue for delivery or delivery of the order. Food from the field travels straight to our Bio Hub at the (local) farm, it is cleaned and sorted, divided into collective orders and for now directly and in the near future it is delivered to the recipient via Bio Hub Regional. We shorten the supply chain as much as possible, while ensuring the highest quality of the raw material and our services.

Activity 2.3.3 BioHub Bazar Online

Bio Hub Bazar Online is an interactive shopping platform that complements the stationary bazaar and Vegemats for people, who value the option of ordering products online or, for example, preparing a shopping list in electronic form, and then collecting a ready package at our Eco Market. The platform launched at the beginning of 2020 and allow ordering products with the option of personal pickup at the headquarters of RSP Ostoja Natury and our Partners, during Bio Hub Bazar every Sunday, in available “Vegemat”, as well as in the case of selected products with the courier delivery option. We know that the last of the options is very attractive from the point of view of many customers, no less we care

primarily about the quality of our products, which is why we wisely choose an assortment that can be sent in this way.



Activity 2.3.4 Vegemat

Vegemat high-quality food at your fingertips is a modern and innovative system that meets the needs of consumers. The desire to buy high-quality products from local hosts is an unflagging trend in society. Currently, consumers are paying more and more attention to where food comes from, and in addition to a proven source, they also expect freshness, quality and convenience of delivery.





Vegemat is a maintenance-free and contact-free distribution system for fresh food and preserves, including vegetables, fruit, honey, dairy products, eggs, juices, flour or herbs, as well as whole sets, occasional, seasonal and thematic, i.e. packages that can be ordered and configured via the online Bio Hub Bazar online store.

Table 4: Setting objectives in response to SWOT

| Specific objectives <i>[Sufficient to copy title from above/ Be consistent in numbering!]</i> | Operational objectives <i>[Sufficient to copy title from above/ Be consistent in numbering!]</i> | Challenges & threats <i>[Which challenges & threats it addresses/ Be consistent with SWOT table!]</i> | Strengths & Opportunities <i>[Which strengths/ opportunities it aims to build on/ Be consistent with SWOT table!]</i> |
|---|--|--|--|
| SO1: Increase in the production of high-quality food and an increase in the number of entities involved in this production in the region of Warmia i Mazury | 1.1. "Supporting knowledge-transfers | <ul style="list-style-type: none"> Too few farms and too little organic food production Low level of knowledge about organic farming Farmers' concerns about conversion | <ul style="list-style-type: none"> Experience and access to knowledge Having specialists with knowledge and experience enabling development in various directions |
| | 1.2. Tests and implementation of innovative solutions | <ul style="list-style-type: none"> High labour intensity of organic food production Lack of cooperative between agricultural businesses with academic and research areas Lack of innovative solutions in organic farming Lack of organic fertilizers | <ul style="list-style-type: none"> Proven ability of cooperative members to successfully implement development initiatives, capacity to lead and deliver projects Innovation networked organization with collaborative relationships |

| Specific objectives [Sufficient to copy title from above/ Be consistent in numbering!] | Operational objectives [Sufficient to copy title from above/ Be consistent in numbering!] | Challenges & threats [Which challenges & threats it addresses/ Be consistent with SWOT table!] | Strengths & Opportunities [Which strengths/ opportunities it aims to build on/ Be consistent with SWOT table!] |
|--|---|--|--|
| | | Lack of ecological plant protection products for organic farming | Exploiting alternative-renewable energy sources and applying of energy saving methods Rainwater management and water saving methods Development agricultural technology, green technology and ICT incentives to cooperate universities, farmers, producer groups, food processing companies and tradesmen |
| SO2: BioHub - innovative distribution hub, storage, and platform in line with from farm to fork strategy | 2.1 Bio Hub Processing Infrastructure - Local | Lack of adequate infrastructure | Own logistics facilities |
| | 2.2 Bio Hub Processing Infrastructure - Regional | Poor organization of organic farmers Too many food brokers scooping up added value | Strong leadership and engagement for territorial food management Location close to a communication junction Promoting production with focus on local certified, high-quality products |
| | 2.3 Bio Hub Innovation Distribution channels and solutions | Weak position of farmers in food chains Our village has no strong "brand" | Many local producers of high-quality food products, natural cosmetics and handicrafts |

4.3 Smart solutions: actions, outputs and results

Table 5: Intervention logic: objectives, activities, expected results and outputs

| Specific operational | Action Plan or Taken | Outputs | Expected results and |
|----------------------|----------------------|---------|----------------------|
|----------------------|----------------------|---------|----------------------|



| objective | | | impact |
|--|---|--|--|
| SO1: Increase in the production of high-quality food and an increase in the number of entities involved in this production in the region of Warmia i Mazury | | | |
| 1.1. [Development of the open-source knowledge-sharing platform, training program, and support digital tools for bio farms] | | | |
| Activity 1.1.1 – Bio-Tech – Open Source knowledge-sharing platform | Taken | | |
| | Presentation of Ostoja Natury/Tomaszyn strategy Ostoja Village 3.0 in contest “Moja Smart Wieś” (my smart village) (2019) organized by Ministry of Agriculture and Polska Akademia Nauk | Public presentation of the “Ostoja Wioska 3.0” Strategy for self-government and governmental administration bodies and scientists. | Establishing cooperation with government and self-government administration bodies dealing with matters and with selected research units |
| | Organization BioTech 2020 professional meeting | Meeting of stakeholders, partners, specialist, bio producers. | Consolidate partnership with producers, scientist and advisors |
| | Bio Tech 2020 professionals meeting | 12 live open lectures with top authorities in the country | Supporting transformation food production into smart ecological model in line with the principles of sustainable development. |
| | Publishing Bio Tech 2020 Booklet | Publishing booklet of selected 12 processes with graphical visualization | Prevalence of knowledge for better understanding the production processes of high-quality food |
| | Organization Bio Tech 2020 Exhibition | An exhibition of graphic works illustrating the processes and dependencies of high-quality food production. | Popularizing adaptation of modern agriculture solutions aimed at consumers |
| | Co-organization “EkoTrendy” event 2020 (as partner with NGO Food Bank Olsztyn) | Promotion of the Ostoja Village model 3.0, consolidate partnership with stakeholders, local communities and professional. | Better use of environmental resources |
| | Planned | | |
| | Bio Tech 2021 Event/ Meeting | Raising awareness among rural stakeholder by promoting natural farming methods and popularizing modern innovative solutions. | Farther consolidation of partnership among stakeholders, government, self-government, farmers and ecological producers |
| | Bio Tech 2021 Workshops (in partnership with ODR WiM – stakeholder) | Workshop and showcases of new solutions, technology and good practices in organic | Increasing the production and economic efficiency of farms inspired by good implementations. |

| | | | |
|--|--|---|--|
| | | agriculture with attendance of stakeholders and farmers from the region | |
| | Bio Tech 2021/2022/+ E-learning platform development | Updating the platform with new lectures, presentations and guides providing support for farmers in the conversion period and in running certified crops. | Updating knowledge about new technologies, solutions and processes |
| Activity 1.1.2 – Bio Tech with ODR WiM– Professional training programs | Planning development of training program with Agricultural Advisory Center (ODR) Warmińsko-Mazurski to support farmers in Voivodeship of Warmia I Mazury (2020 – 2021) | Continuous training for farmers Studies for individual branches of agricultural production | Training of farmers from the region who are interested in organic production. |
| | | - Knowledge transfer | Studies for individual branches of agricultural production |
| | | - Presentation of good practices and innovative solutions and reference implementation | |
| Activity 1.1.3 Creation of digital tools to support certification process | Mapping processes of support application for farmers and certification offices (in cooperation with ODR WiM and EkoGwarancja) and app development. | Creation of application allowing to support the process of certification. Help farmers keep track of all the documents, sale and purchased papers and a reminder of all the important dates and periods | Facilitating the conversion of production to ecological and a support tool in the management of organic production, creating opportunities to increase the number of entities involved in this production. |

1.2. [Tests and implementation of innovative solutions]

| | | | |
|--|---|--|---|
| Activity 1.2.1 passive greenhouse | - Performing the scientific and technological research - investigating different ways to in-crease the performance of the greenhouses | The elaboration of a dedicated data base, with key information on Passive Greenhouses: materials, renewable energy sources (heat pumps, wind generators, photovoltaic solar panels) and accessories (accumulators, electronic converters), with technical data, prices and purchasing information; | Relies exclusively on already existing renewable energy sources and technologies. Providing solar greenhouses with a sustainable aggregation of renewable energy sources they can become fully independent of any energy infrastructure |
| | - Constructive improvements concerning the materials, the shapes, the dimensioning of the components, etc. | | |

| | | | |
|---|--|---|---|
| | - Improvements concerning the automate control: optimizations of the algorithms, smart/ intelligent features, embedding knowledge concerning the weather, the crop, etc. | The implementation of an Internet site, containing our knowledge on greenhouses, a soft-ware able to assist a user at the dimensioning of its own Passive Greenhouse, tutorials, and other related information; | Passive Greenhouses, free of burned fuel energy and of conventional energetic infrastructures, and relying exclusively on renewable sustainable energies |
| | - Introducing different renewable energy sources, in order to reduce the energy cost. | The development and the implementation of a comprehensive control algorithm; | Reducing dependence on the variability of weather conditions and counteracting the impact of climate change on agriculture |
| | - Building reference tunnel with partner/stakeholder - "Tunele Foliowe Farmer" | | Potential to reconvert a great deal of the existing agricultural terrains and give us the chance to ecologically reconstruct our environment. |
| | - Equipping tunnel with sonic furnace and micro heating system | Saving water, time and energy by Implementation of Ost-Oya passive irrigation system | Extension of the production season in a moderate temperate climate zone. |
| | - Equipping tunnel with heat exchange pipes with partner/stakeholder – "Walczak Pipes" | | The elaboration of a design method able to optimize the investment costs; |
| | - Planning solar energy support system implementation | | |
| Activity 1.2.2 passive rainwater irrigation system | Creating Ost-oya irrigation vessel | Passive irrigation helps to sustain plants during dry weather, by providing access to soil moisture stores. | Runoff is a locally available, low-cost, no-energy water source—and finding alternative water sources is key to creating circular economies, the future for a sustainable, more livable planet. |
| | Creating solution for collecting rainwater – system of tanks | | Save up to 70 % of fresh water |
| | Preparation of project and building ecological treatment plant allowing 90% dirty water recovery | Diverting storm water into vegetated systems reduces storm water pollution and discharge volumes, protecting downstream environments from the impacts of urbanization and agricultural chemization. | Makes organic production more sustainable |
| | Introducing different renewable energy sources, in order to reduce the energy cost. | | Allow for full stigmatization of irrigation processes |

| | | | |
|--|--|--|--|
| Activity 1.2.3 Waistless sell sufficient habitat for rural households | Building project and design team supported by technological partners and solution providers in field of smart houses, green energy etc. | Development and preparation of the project of Waistless sell sufficient habitat for rural households. | Implementation, examination and evaluation effectiveness of innovative solutions. |
| Activity 1.2.4 Passive Hempcreat industrial cooler with solar Sunroof | Creating project of passive building with | - environmentally friendly | Reducing losses of stored food |
| | Unique ecosystem for long term food storage. | - unique food storage quality: anti fungus, anti-mold | Positive energy outcome |
| | Introducing different renewable energy sources including solar roof and energy storage in order to reduce the energy cost. | - carbon negative | Makes organic production more profitable |
| Activity 1.2.5 Green Energy Farm | Designing a comprehensive energy infrastructure in line with the needs and principles of the circular economy | Element of the circular economy system e.g. transformation of waste into energy | Limitation of consumption of non-renewable energy, and reduction of carbon food print |
| 2.1 [Bio Hub Processing Infrastructure - Local] | Planning of a reference infrastructure at the individual farm level covering all processes from the beginning of the prosperity of food storage to delivery to the consumer. | A comprehensive system for storing, processing, packing and delivering high-quality products for a farm. | Extending sales seasons, increasing quality, lowering the cost of food packaging, decreasing dependency of price fluctuation during seasons, improved product quality control system Shortening the supply chain in accordance with the principle "from field to fork" |
| 2.2 [Bio Hub Processing Infrastructure - Regional] | Planning of a reference infrastructure at the regional level (including cooperatives and producers' groups) covering all processes from the beginning of the prosperity of food storage to delivery to the consumer. | A comprehensive system for storing, processing, packing and delivering high-quality products with possibility to contract/cooperate with multiple producers and farmers. | Extending sales seasons, increasing quality, lowering the cost of food packaging, Decreasing depends of price fluctuation during seasons, improved product quality control system Shortening the supply chain in accordance with the principle "from field to fork" |
| 2.3 [Bio Hub Innovation Distribution channels and solutions] | Activity 2.3.1 Bio Hub Bazar Olsztynek | Building a permanent place of sale of high-quality products in cooperation with Mayor of Olsztynek. We omit all intermediaries, which allows the customer to contact directly with a group of producers, breeders and farmers who can constantly and continuously meet the needs of customers. | Organization of a group of high-quality food producers, maximum shortening of the supply chain as part of the "from field to fork" principle. |
| | Activity 2.3.2 Bio Hub Olsztyn, Warszawa, Gdańsk | Distribution based on a combination of smart infrastructure in the city and in the countryside – farmers markets, Vegemats and E- | Professional distribution platform for business entities (BTB) and for costumers (BTC) |

| | | | |
|--|-------------------------------------|--|--|
| | | suppliers | |
| | Activity 2.3.3 Bio Hub Bazar Online | An interactive shopping platform that complements the stationary bazaar and Vegemats for people, who value the option of ordering products online. | The platform allows ordering products with the option of personal pickup through Vegemat or direct delivery. |
| | Activity 2.3.4 Vegemat | Maintenance-free and contact-free distribution system for fresh food and preserves, and thematic packages that can be ordered and configured via the Bio Hub Bazar online store. | Vegemat is a modern and innovative system that meets the needs of consumers |

Table 6: Planning actions

| Actions planned or taken [Which actions are planned to achieve objective] | Timeline [From – To] | Necessary human capacity [Which capacity is needed, e.g. which stakeholders to be involved for management / implementation etc.] | Necessary technical capacity [e.g. broadband, building, infrastructure, land] | Financial resources needed [Estimated financial resources] |
|---|-----------------------------|---|--|---|
| Action 1: Activity 1.1.1 – Bio-Tech – Open Source knowledge-sharing platform | 2018-To: Ongoing (4-5/year) | Ostoja Natury, ODR, Gmina Olsztynek, Powiat, Urząd Województwa, MOK Olsztynek, National Specialist | Broadband, „know how”, educational infrastructure | 500 000,00 zł |
| Action 2: Activity 1.1.2 – Bio Tech with ODR WIM–Professional training programs | 2020 -2022 | Ostoja Natury, ODR WIM, | Broadband, „know how”, educational infrastructure | 500 000,00 zł |
| Action 3: Activity 1.1.3 Creation of digital tools to support certification process | 2021 | Ostoja Natury, ODR, Ekogwarancja It: design, programing, infrastuktura | Broadband, it solution | 250 000,00 zł |
| Action4: Passive greenhouse | 2019 – 2022 | Farmer Tunele Foliowe, Walczak, Nantes | infrastructure , technology, “know how” | 350 000,00 zł |
| Action5: Passive rainwater irrigation system | 2019 – 2021 | Ostoja Natury | Technology, infrastructure | 120 000,00 zł |
| Action 6: Dirty water recovery system | 2020 | Ostoja Natury, Zielone Technologie | Technology, | 50 000,00 zł |
| Action 7: Construction of passive residential houses in Tomaszyn | 2021 – 2022 | Thoma Holz 100, Bartek Domy Drewniane, SolarRoof | Infrastructure, Technology, “know how”, land and human resources | 3 000 000,00 zł |

| | | | | |
|---|----------------------------|--|---|-------------------------|
| Action 8: Passive Hempcreat industrial cooler | 2020 -2021 | Bartek Domy Drewniane, SolarRoof | Infrastructure, Technology, “know how” | 250 000,00 zł |
| Action 9: Solar plant | 2020 -2021 | Ostoja Natury | Infrastructure, | 200 000,00 zł |
| Action 10: Biogas plant | 2021 – 2022 | Ostoja Natury, Gmina Olsztynek | Infrastructure, Technology, “know how” | 12 000 000,00 zł |
| Action 11: Bio Hub local infrastructure | 2019 – 2021 | Ostoja Natury, Gmina Olsztynek, | Infrastructure, Technology, “know how” | 1 500 000,00 zł |
| Action 12: Bio Hub regional infrastructure | 2021 – 2024 | Ostoja Natury, Gmina Olsztynek, Marszałek Województwa | Infrastructure, Technology, “know how” | 40 000 000,00 zł |
| Action 13: Bio Hub Bazar in Olsztynek | 2020 – ongoing | Ostoja Natury, Gmina Olsztynek, Marszałek Województwa | logistics | 200 000,00 zł |
| Action 14: Bio Hub Olsztyn | 2020 -ongoing | Ostoja Natury, Bio Hub Local, Prezydent city of Olsztyn | Infrastructure, Technology, “know how”, education, promotion | 100 000,00 zł |
| Action 15: Bio Hub Warszawa | 2020 -2021 | Ostoja Natury, Bio Hub Local, Prezydent city of Warszawa | Infrastructure, Technology, “know how”, education, promotion | 100 000,00 zł |
| Action 16: Bio Hub in Gdańsk | 2020 -ongoing | Ostoja Natury, Bio Hub Local, | Infrastructure, Technology, “know how”, education, promotion | 100 000,00 zł |
| Action 17: Bio Hub Bazar online | 2020 – ongoing | It: design, programming, graphics | Technology, “know how”, education, promotion | 125 000,00 zł |
| Action 18: Vegemats system | 2020 -ongoing | It: design, programming, graphics | Infrastructure, Technology, “know how”, education, promotion | 2 000 000,00 zł |
| Action 19: Hemp Processing Plant | 2021 – 2025 | EuroHemp, Agro Konopie, Scorpion Machines | Infrastructure, Technology, “know how”, education, promotion | 20 000 000,00 zł |
| Entire strategy | [Overall timeframe] | | | 81 345 000,00 zł |

V. MANAGEMENT AND MONITORING

5.1 Management

Initiating the process of creating a Smart Village The initiator of the smart village process is the Agricultural Production Cooperative Ostoja Natury. From the beginning, the management board of our cooperative and its founding members were responsible for the preparation of the strategy. Our structure is built on the basis of a team of specialists in various fields: farmers, lawyers, architects, managers, producers, financial specialists, which is aimed at the broadest possible analysis and implementation of assumed goals.

An important element in creating our system is a modular structure - It consists of many independently organized elements (modules) which, while making them implementation, they give a synergy effect, characteristic of intelligent "smart" solutions. Modules of the Ostoja Wioska 3.0 program:

1. System and organization of agricultural production
2. Distribution system
3. Communication system
4. Power generation system
6. Housing Infrastructure
7. The education system
8. Farm Culture

Each module is analyzed individually in terms of costs, efficiency and production efficiency. Each module is financed individually.

All investments to date have been carried out with the co-operative's own resources and its technological partners, without any public funds. So far, we have spent approximately PLN 4 million PLN to achieve our goals and assumptions related to the Ostoja Wioska 3.0 concept. this sum includes capital investments, the work of specialists and technological support provided by RSP Ostoja Natury partners). The total estimated cost of implementing the program is approximately PLN 10 million in the minimum version and PLN 25 million in the optimal version. We are in the second year of implementation, and the implementation period is scheduled for 2019-2023. This year, 3 of our programs were covered by co-financing under the European Fund for Rural Areas: Europe Investing in Rural Areas” in the form of Scheme II of Technical Assistance “Countryside Network of Rural Areas” of the Rural Development Program for 2014-2020. The obtained funds contributed to a better implementation and achievement of the assumed goals in the form of BioHub Bazar - a food market for the local community, “Bio Tech Professional meeting” and Farm Gear “On the trail of innovation – Smart Village” documentary film.

5.2 Monitoring

The strategy is monitored by the Management Board and the Council of the Cooperative and a specially appointed team with the participation of key partners. The monitoring tool is a schedule with deadlines for its implementation.

The strategy is intended as a walking tool for organizing our activities and after completing its subsequent stages, we will add further stages as the situation develops and develop the time horizon accordingly.

VI. STAKEHOLDER ENGAGEMENT IN STRATEGY DEVELOPMENT

6.1 Stakeholder engagement in needs assessment

The strategy is the fruit of many years of reflection, countless discussions, informal meetings and specially organized workshops. The strategy was modified and developed under the influence of successive experiences and as cooperation was established with new partners.

6.2 Stakeholder engagement in strategy development

The members of the Cooperative and its partners participated in all stages of the Strategy formation. The culminating point of the consultation was the workshop at the Bio Hub conference in Olsztynek on September 6, 2020. Our strategy is a living solution and it will evolve in some parts together with changing environment, with new inventions and possibilities to grasp that show on the horizon. Today most of our stakeholder and partners is in the process of preparation and implementation of planned solutions and ideas. To keep the engagement of our stakeholders we have to proceed with the planned schedule and overcome the biggest obstacles which are founding for investments and innovations and overcoming formalization of most of the agricultural processes.

6.3 Key channels of communication and awareness raising among citizens

Ostoja Natury uses many communication channels and has already developed a set of tools. We make extensive use of the possibilities of the Internet and social media.

Very useful is the Ostoja Natury TV as a channel and our platform for communication with the world. Main topics discussed in our broadcasts are broadly understood ecology, renewable energy, new technologies, innovations, health, diet, etc. Television presents tests of various machines and their use in practice with particular emphasis on organic farming. You can also see ecological products and the process of their formation, as well as interesting discussions of recognized authorities during debates. Thanks communication platform, we shorten the distance between the producer and the consumer, and we also allow for the full flow of knowledge and information.

Main topics discussed in our broadcasts are broadly understood ecology, renewable energy, new technologies, innovations, health, diet, tests of various machines and their use in practice with particular emphasis on organic farming. You can also see ecological products and the process of their formation, as well as interesting discussions of recognized authorities during debates. Our activity is based on both commercial and independent production models. Content included to our website,

YouTube channel, with various types of programs, guides, video blogs related to agriculture and our products. It is an action for promotion and information on the topic of Ostoja not only in Poland, but also internationally. One of our goals in that area is to become independent content producer, located in rural area, with own in-house infrastructure: modern post-production studio with sets for non-linear editing and construction of a green-box studio, recording studio and teacher, as well as recording equipment for content productions. It will give us the ability to produce the highest quality materials and programs without the need to use from the services of external media houses, and thus reducing production costs and time needed for their production. The creation of a content production infrastructure increases the demand for modern professions from the media and film industry, such as: editors, camera operators, directors, production managers, producers or hosts. We already have more than 50 episodes of various videos published on our channel Ostoja Natury TV.

We started our schedule in July 2019, and at the moment it includes formats such as:

- 1. From the life of Ostoja - July 2019**
- 2. Farm Gear - September 2019**
- 3. Ostoja Vlog- May 2020**

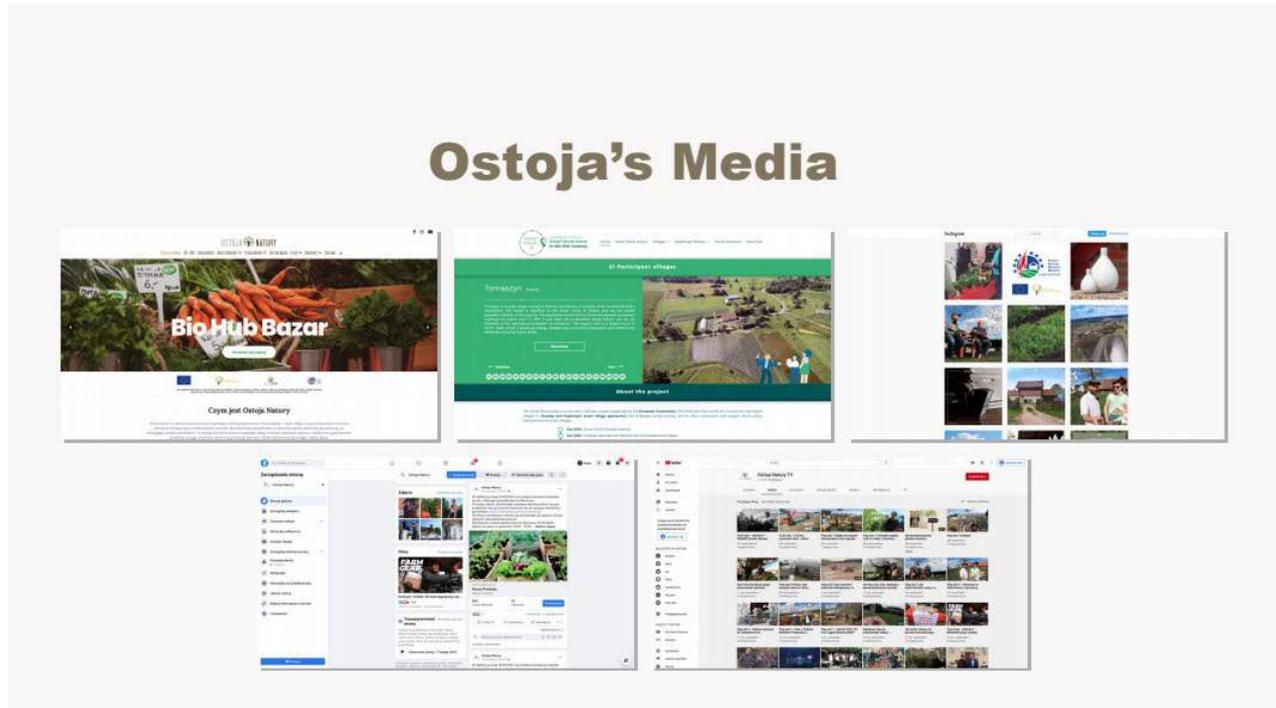
Website www.ostojanatury.pl - an integrated user interface, which is a derivative of intranet technology, and is used for information exchange, knowledge management in the enterprise and the implementation of various business transactions. It is an access point to all information resources and used applications. It integrates information systems and technologies, data, information and knowledge functioning in the organization and its environment in order to enable users to personalized and conveniently access data, information, knowledge, according to the needs arising from their tasks, at any place and time, at any time.

Social media:

Facebook: <https://www.facebook.com/ostojanatury>

Youtube: <https://www.youtube.com/c/OstojaNaturyTV/featured>

Instagram: <https://www.instagram.com/ostojanatury.pl/?hl=en>



6.4 Planned actions to mobilise stakeholders

Members of the Cooperative and its partners are already mobilised, which is confirmed by completed projects and achieved stages of development. The common experience so far, mutual benefits, but most of all the belief in the need and rightness of what we do, is the best guarantee of the high commitment of all participants implementing the Ostoja Natury 3.0 Strategy.

For Ostoja Natury and all its partners, participation in the Smart Rural 21 project is also a very mobilizing factor.