

## **Analysis of stakeholders' implementation of the National Strategy for sustainable utilisation and conservation of animal genetic resources in Poland**

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**Abstract:** *Analysis of stakeholders' implementation of the National Strategy for sustainable utilisation and conservation of animal genetic resources in Poland.* The study, based on the customised questionnaire, is aimed at evaluating the contribution of relevant stakeholder groups in the implementation of Strategic Priorities and specific tasks identified in the Action Plan to the National Strategy. The analysis shows that breeders associations and other organizations entrusted with herd book keeping, as well as agricultural universities, are significantly contributing to the implementation of the National Strategy. In addition, significant involvement in implementation was reported by regional authorities (Marshal's Offices in voivodships) and extension services. Public administration and governmental agencies proved to be heavily engaged in implementation and enforcement of specific areas of the Action Plan.

*Key words:* National Strategy, animal genetic resources conservation, stakeholders

### **INTRODUCTION**

In September 2007, during the international technical conference in Interlaken, the international community adopted the first ever global framework to enhance management of animal genetic resources worldwide – the Global Plan of Action for Animal Genetic Resources (FAO 2007). The Global Plan of Action (GPA)

includes 23 strategic priorities under four priority areas, namely: Characterization, Inventory and Monitoring of Trends and Associated Risks (2 Strategic Priorities); Sustainable Use and Development (4); Conservation (5); and Policies, Institutions and Capacity-building (12). In July 2016, the 9<sup>th</sup> session of the Intergovernmental Technical Working Group on Animal Genetic Resources, in the lights of the findings of the Second Report on the State of the World's Animal Genetic Resources (FAO 2015), decided that the GPA is still the most relevant international framework for the management of animal genetic resources, and renewed commitment to its further and full implementation (FAO 2016a, b).

Country implementation of this global framework was foreseen through development of National Strategies and Action Plans (NSAPs) that should include strategic priorities of the GPA relevant for each country and additional priorities as identified by countries themselves. FAO has provided guidelines to support national efforts in developing NSAPs (FAO 2009). These guidelines were closely followed in Poland in the process of preparation of the National Strategy

for sustainable utilisation and conservation of animal genetic resources.

Development of the National Strategy was carried out within the Multi-Year Programme of Work of the National Research Institute of Animal Production 2011–2015, and financed by the Ministry of Agriculture and Rural Development (MARD). The National Strategy provides amplification to the Strategy of Sustainable Development of Countryside, Agriculture and Fishery 2012–2020 (MRiRW 2012) in the area of livestock production. A preparatory process was initiated in 2011 and completed in 2013. The process involved broad participation of stakeholders in animal breeding

and research, MARD officials and representatives of NGOs. Participant provided both technical inputs to the final document as well as contributed to discussions and priority setting during three conferences organized by the Institute (Martyniuk and Krupiński 2013).

The overall objective of the National Strategy is to promote and support the effective utilisation and conservation of genetic resources of farm animals as a contribution to sustainable agriculture (MRiRW 2013a). The National Strategy includes 15 strategic Priorities (SP), clustered within the same priority areas as adopted in the GPA (Table 1). The National Strategy was supplemented by a detailed Plan of Action

TABLE 1. Strategic Priorities and tasks contained in the National Strategy for sustainable utilisation and conservation of animal genetic resources (MRiRW 2013a, b)

Priority area	Strategic Priorities (SP)	Number of tasks
I	1. Monitoring of breeds structure of the population of key farm animal species	2
	2. Establishment and development of central data bases for relevant farm animal species	4
	3. Establishment of the cooperative procedure regarding exchange of information on animal genetic resources	2
	4. Enhancement of phenotypic and genetic characterisation of breeds/varieties/lines of farm animals	2
II	5. Performance recording and breeding value evaluation and publication of results	4
	6. Review and updating of breeding programmes	4
	7. Enhancement of profitability of livestock production and broader utilisation of species of lower economic importance	3
	8. Utilisation of farm animals, including native breeds in nature conservation and landscape management	2
III	9. Continuation, improvement and enhancement of <i>in-situ</i> conservation measures	5
	10. Initiation and implementation of <i>ex-situ</i> conservation activities on a routine basis	5
	11. Monitoring of trends and risk for animal genetic resources and establishment of early warning	2
IV	12. Development of cooperation between breeders, producers and consumers	3
	13. Development of human capital involved in livestock production	3
	14. Building public awareness on roles and importance of livestock production	5
	15. Assessment and improvement of legislation in the area of livestock breeding	4

(MRIRW 2013b), with each Strategic Priority complemented by specific actions/tasks, necessary for its implementation.

The Plan of Action to the National Strategy identified stakeholders within and outside animal breeding and research community that should be involved in implementation of specific tasks within agreed priorities (MRiRW 2013b). To report on progress in the implementation of the National Strategy, it was necessary to understand what activities were undertaken by these stakeholders and extent of such activities. The objective of this study was to analyse and evaluate the scope and level of activities undertaken by relevant stakeholders' groups during the first two years of the implementation of the National Strategy.

## MATERIAL AND METHODS

The study was based on customised surveys prepared for each group of stakeholders. Every questionnaire included a set of tasks that are contained in the Plan of Action, and were assigned to given group of stakeholders. In total, the National Strategy and Plan of Action contains 15 strategic priorities and

50 tasks. The customised surveys included between a few up to 20 questions representing tasks relevant for a given group of stakeholders. Each task included in every questionnaire required answer if given organization was involved in implementation of this task, and in such a case the respondent was invited to provide an extensive description of activities undertaken in this field.

The survey included the following groups: Ministries and governmental agencies; Marshal's offices in voivodships; breeding organizations, extension services, agricultural universities, research institutions and non-governmental organizations.

The National Research Institute of Animal Production, as organization entrusted by Minister of Agriculture with coordination of animal genetic resources conservation programmes in Poland, is directly responsible for implementation of a number of tasks, and accordingly information was collected directly from coordinators responsible for implementation of conservation programmes within each livestock species.

In total, questionnaires were sent to 65 organizations and institutions, including governmental agencies (Table 2).

TABLE 2. The distribution of surveys among stakeholder groups and the return rate

Stakeholder's group	Number of entities	Number of responses	Return rate (%)
Breeding organizations/organizations in charge of herdbooks	9	7	77
Research institutions	4	3	75
Agricultural universities	10	7	72
Extension services	17	17	100
Voivodship's Marshal offices	16	16 + 1	100
Non-governmental organizations	3	1	33
Public administration and governmental agencies	6	6	100
Total	65	58	89

## RESULTS AND DISCUSSION

The survey resulted in a high overall return rate (89%). Only one response was obtained from the NGO sector and information provided was not related to the issues covered by the questionnaire. Two research institutions responded that they do not carry-out any relevant activities. In spite of repeated efforts, two breeders' organizations entrusted by Minister with responsibility of carrying out breeding work did not respond.

In general, the completeness of responses to all questions included in questionnaires was high. In some cases, the reported activities were related to implementation of only part of tasks foreseen for implementation by the given stakeholder group, or responses indicated involvement in given tasks, but have not provided any details on the scope of their activities.

### **Public administration and governmental agencies**

The Ministry of Agriculture and Rural Development (MARD), through its role in overseeing all activities related to livestock production in general, indirectly contributes to the implementation of the National Strategy. However, it also is directly involved in implementation, mostly related to SP 7, 12 and 14 (Table 1). The MARD is conducting activities aimed at dissemination of knowledge on high quality food, in particular traditional and regional products. Since 2013, the Ministry of Agriculture and Rural Development, in cooperation with the Agricultural Market Agency, is conducting an information campaign "Three labels of taste" to promote the EU system

for identification of products: protected designation of origin (PDO), protected geographical indication (PGI), and traditional specialities guaranteed (TSG).

The Ministry is keeping a Register of traditional products that includes many local or regional dairy and meat products (<http://www.minrol.gov.pl/Jakosczywnosci/Produkty-regionalne-i-tradycyjne/Lista-produktow-tradycyjnych>), some of them based on a raw material obtained from local breeds. The Ministry is also supporting development of food system "Quality tradition". The participants (breeders, producers) involved in implementation of this programme have been entitled to benefits from measures provided through the Rural Development Programme 2007–2013 and 2014–2020.

The Ministry of Agriculture and Rural Development is directly involved in implementation of seven tasks, while specific governmental agencies: Central Statistical Office of Poland (GUS), the Agency for Restructuring and Modernisation of Agriculture (ARMA), and the Central Veterinary Inspectorate Office, were expected to contribute to implementation of four very specific tasks aimed mainly at improving monitoring of animal genetic resources. However, progress in the area of data transmission/sharing was not achieved due to legal considerations; a discussion on this matter is ongoing.

The Ministry of Environment reported on a broad scope of activities, mainly related to implementation of the SP 8 (Utilisation of farm animals, including native breeds, in nature conservation and landscape management). The most important activities were undertaken by the National Parks. Out of our 23 National

Parks, eight (35%) reported using grazing (mainly by sheep and goats, horses and cattle) as landscape management service. The National Parks benefiting from grazing services include: Biebrza, Gorce, Magura, Narew, Ojców, Roztocze, Słowiński and Wolin National Parks. Livestock are playing an important role in these Parks, contributing to active conservation of nature and specific habitats and landscapes.

One of the main aims of the controlled grazing in the National Parks is the reduction of secondary succession and maintaining a balance in valuable ecosystems. The continuation of extensive agriculture practices supports conservation of plant communities with high nature values that are not found any longer in most European countries, for example *Molinia* meadows and peat bogs.

An important initiative to reconstitute populations of various species of pollinators, including honey bees, is being undertaken at Stołowe Mountains National Park. This initiative aims both to conserve pollinators and enhance public awareness and education on the importance of pollinators.

Utilisation of grazing in vegetation control and landscape management was also reported by seven regional Directorates for Environmental Protection (RDOŚ) in Bydgoszcz, Katowice, Kraków, Lublin, Rzeszów, Szczecin and Warszawa. The overall objective of these projects is active nature conservation. In the majority of projects animals belong to native breeds of sheep (Olkuska, Uhruska, Świniarka and Polish Heath Sheep), horses (Polish Konik) and cattle (Polish Red) are providing grazing services. It was reported that highest number

of local grazing projects are in Lubelskie, Podkarpackie, Małopolskie and Śląskie voivodships. In the Podkarpackie region, an additional important goal is to increase the population sizes of native breeds, especially cattle breeds.

### **Research institutions and agricultural universities**

Seven agricultural/life sciences universities and the Institute of Genetics and Animal Breeding responded to the questionnaire. Research institutions and agricultural universities were expected to contribute to 10 tasks included in the Plan of Action; it was reported that all these activities were undertaken and are ongoing. The contribution of research sector to implementation of the National Strategy is based on research projects, resulting scientific publications and preparation of a number of MSc thesis and PhD thesis. The research projects are contributing mainly to SP 2, 4 and 9.

As regards to SP 2 (Establishment and development of central data bases for relevant farm animal species), implementation of task 2.3, related to estimation of phenotypic and genetic trends in performance recording and publication such trends in yearbooks was reported by all universities, and task 2.2 related to utilization of national databases for monitoring genetic diversity in breed populations of farm animals was reported by five out of seven universities.

In implementation of SP 4 (Enhancement of phenotypic and genetic characterisation of breeds/varieties/lines of farm animals), task 4.1, related to initiation and continuation of research on phenotypic and genetic characterization of livestock populations was carried out

by all universities, while task 4.2 on providing information about research projects carried out on breed populations included in genetic resources conservation programmes was reported by one university only. As a result, steps were taken to close this gap.

In regard to SP 9 (Continuation, improvement and enhancement of *in-situ* conservation measures), task 9.4 on monitoring and control of inbreeding in populations under conservation programs was reported by five universities that maintain *in-situ* herds of native breeds. As regards *ex-situ* measures, carrying out task 10.5 (Implementation of innovative biotechnological methods to *ex-situ* conservation) was reported by two universities only: the University of Warmia and Mazury in Olsztyn and Warsaw University of Life Sciences. However, the work in this field carried out in the Department of Animal Genetic and Animal Breeding in Warsaw is focused on conservation of the European bison population and establishment of a genebank of biological material of this species. The extensive research is aimed on improvement of methods to obtain and handle bison's semen before and during freezing, as well as in the course of its thawing.

Another important contribution of Agricultural universities was related to implementation of SP 14 (Building public awareness about the role and importance of farming and animal husbandry), especially tasks 14.2–14.4, that are related, respectively, to promotion and popularisation of non-agricultural functions of farm animals; popularisation of good husbandry practices and principles of animal welfare; and promotion of native breeds including building aware-

ness on the need for their conservation. Six out of seven universities reported undertaking such activities beyond providing formal education. This included for example, radio programmes, articles in the press and participation in various exhibitions and festivals. The Institute of Genetics and Animal Breeding reported contribution to one task only, 4.1 related to undertaking and carrying out research on the phenotypic and genetic characteristics of livestock populations.

### **Breeding organizations/organizations in charge of herdbooks**

The Plan of Action assigned 32 tasks to breeders associations and other organizations in charge of herd book keeping. Responses to questionnaires were obtained from seven subjects, one of them only indicating that given activities are carried out or not carried out, without any detailed description. Due to the high number of tasks, the analysis concentrated on implementation of on Strategic Priorities.

Implementation of SP1 (Monitoring of breeds structure of the population of key farm animal species), based on continuous monitoring of the size of purebred and crossbred populations was reported by five out of seven organizations. However, in some cases these activities were carried out on routine basis and *de facto* have not provided any clear understanding of the breed structure of commercial population of a given species.

In case of the SP2 (Establishment and development of central data bases for relevant farm animal species) there are three tasks to be implemented. In general, implementation of these tasks by all

responders was very satisfactory, only in the case of publishing phenotypic and genetic trends there were some insufficiencies reported by four organizations and one organization reported no activities on monitoring inbreeding level in active populations of individual breeds.

Five out of seven organizations were working on improvement of performance recording and breeding value evaluation methods (SP5), while all organizations were trying to enhance participation of breeders in these activities to increase active populations of individual breeds. Also, all organizations were involved in the publication of yearbooks with summary of the results of breeding work.

In case of SP6 (Review and updating of breeding programmes) all four tasks were fully implemented. However, implementation of the genomic breeding value estimation into selection programme at present is carried out only for dairy cattle.

SP7 (Enhancement of profitability of livestock production and broader utilisation of species of lower economic importance) is implemented thorough three tasks. The first one is related to promotion of regional products and was implemented by five organizations through their participation in projects utilizing so called "Promotion funds", provided by the Ministry (e.g. promotion of pork or horsemeat) as well as in regional animal shows and exhibitions. Other activities, focusing on promotion of low-input production systems and popularization of keeping livestock in agro-tourism farms were not fully implemented by breeders' organizations. In general, their involvement in activities in this area was about 50% of their potential contribution.

Tasks to be implemented within the SP8 (Utilisation of farm animals, including native breeds in nature conservation and landscape management) were carried out only by breeders associations in charge of herd book keeping for dairy cattle and horses. Unfortunately, in spite of repeated requests, organization in charge of flock books keeping for sheep and goats did not participate in the survey.

All responding breeding organizations reported on implementation of SP9 (Continuation, improvement and enhancement of *in-situ* conservation measures); and within it on the task 9.4 related to monitoring and control of inbreeding in populations included in genetic resources conservation programmes. It is an important contribution to maintain genetic diversity, especially in native breeds of small population sizes.

The SP12 (Development of cooperation between breeders, producers and consumers) should be implemented though three tasks. However, only in the case of 12.1 (Support for establishment of trade unions, breeders' societies and producer groups) four organizations reported on some activities in this field. Extensive activities regarding Task 12.2 (Promoting branding products of animal origin, safe for the consumers) and 12.3 (Promoting participation in quality assurance systems for products of animal origin) were carried out only by two organizations, both in charge of breeding work in pigs.

The SP13 (Development of a human capital involved in livestock production) has been fulfilled by provision of training (six out of seven organizations), while other tasks such as support for local

initiatives on sustainable management of animal genetic resources and support for local communities for maintaining local traditions and products were undertaken by 35% of respondents of this group.

Implementation of the task on promotion and popularisation of non-agricultural functions of farm animals within SP14 (Building public awareness on roles and importance of livestock production) has been reported only by two organizations, while other promotion and popularization activities related to promotion of animal welfare, promotion and popularisation of native breeds and their products, were extensively carried out by 71% of respondents, through training, exhibitions, web portals and promotion funds.

The last SP15 (Assessment and improvement of legislation in the area of livestock breeding) encompassing four tasks, was implemented at a rather low level, only 39% of respondents reported on such activities. The highest involvement in this area was related to analysis of procedures for participation in implementation of the Rural Development Programme 2014–2020 as well as analysis of the impact of laws in effect on ensuring effective conservation of animal genetic resources.

### **Voivodship's Marshal offices**

The Marshal's offices in the majority of voivodships reported on a broad scope of activities related to promotion of regional food products. All of them were involved in implementation of task 7.1 (Promotion of niche and traditional raw materials and products of animal origin, including high quality products). Activities undertaken in this field cover co-organisation of training workshops,

conferences, open markets, fairs, exhibitions and contests, as well as evaluation of applications to enter "Register of regional products" kept by the Ministry of Agriculture and Rural Development.

Eleven Marshal's offices (out of 16) actively supported establishment of producer groups that contributes to the implementation of task 12.1 (Support for establishment of trade unions, breeders' societies and producer groups), while 10 facilitated and supported participation of farmers in quality assurance schemes (12.3). However, very little was done to implement task 13.2 (Support for local initiatives on sustainable management and conservation of animals genetic resources); only the Mazowieckie voivodship Marshal's office reported on cooperation with the Civil Ecological Institute on this matter. Also, only two respondents in this group contributed to implementation of the task 5.3 on development of mechanisms to ensure broader participation of breeders in performance recording schemes. This is not satisfactory, taking into account substantial needs to enhance this area.

Nine Marshal's offices, usually in cooperation with extension services carried out training in regard to animal welfare, contributing to implementation of the task 14.3 on popularisation of knowledge on animal welfare and good husbandry practices. An excellent example of implementation of this task is work of the Lubuski voivodship Marshal office, which organized 48 two-day training workshops that involved 960 participants.

Contribution to task 14.4 related to promotion and popularisation of native breeds and the need for their conservation



was reported by seven respondents, and the task was carried out mainly through facilitation of participation of farmers/breeders keeping native breeds in various local and regional events, including animal shows, fairs and open markets.

In the Plan of Action to the National Strategy, in total 15 tasks were assigned to the Marshal's offices, out of these, six were implemented by all of them, four by at least half of them and only five were implemented by less than half of the Marshal's offices.

### **Extension services**

Both Agricultural Advisory Centre in Brwinów and the 16 extension centres in voivodships are substantially contributing to the implementation of the National Strategy. Out of 16 task assigned in the Plan of Action to this group of stakeholders, only one, 13.2, related to support for local initiatives on sustainable management and conservation of animals genetic resources, was carried out by less than a half of the centres. Four tasks were implemented by 14 or more centres, and one task, 7.1 as in the case of Marshal's offices, by all of them. Workshops, trainings, culinary contest, and also study trips and individual consulting were carried out in this field. Other tasks that were implemented by the majority of centres include 7.2 on promotion of native breeds in agro-tourism, ecological and extensive farms, 14.3 on dissemination of knowledge on animal welfare and good husbandry practices and 14.4 on promotion of native breeds and their conservation. The task 8.1 on promotion of landscape management services provided by livestock was implemented by 13 centres, mainly through training and

consulting, as well as by using videos and study tours to enhance understanding of the roles of grazing and implementation of such services.

Three tasks were carried-out by 12 out of 17 centres include 7.3 on promotion of low-input production systems and less popular directions of utilisation, 13.1 on specialised training of breeders, producers and extension staff, and 14.5 regarding promotion of traditional products from native breeds. The Małopolski extension centre is maintaining a homepage of traditional and regional products and contributes to organization of fairs to promote regional food and other products in the country and abroad.

### **CONCLUSIONS**

The survey provided a wealth of material, impossible to fully present in this paper. There were substantial differences in the scope and quality of responses, especially in the level of detail that were provided regarding ways and means to implement specific tasks. Many of the initiatives reported at regional and local level, were not known before, and it is clear they deserve recognition and appreciation, and some may serve as model examples.

Both Marshal's Offices and extension services indicated they are implementing a broad scope of activities for the promotion and popularisation of utilisation of native breeds in farming.

Regional Directorates for Environmental Protection provided detailed descriptions of many projects where grazing was used as a tool in active nature conservation. Agricultural universities reported on a wide scope of research

studies that are contributing to implementation of the National Strategy both through specific research projects and through development of MSc and PhD thesis. Valuable contributions are being provided by voivodships' extension services as well as the Agricultural Advisory Centre in Brwinów. The extension services were instrumental in implementation of tasks related to improvement of profitability of livestock production and introduction of underutilised species to farming (SP 7), as well as in building public awareness of the roles and importance of livestock husbandry (SP 14).

It seems that breeders' societies and other organizations in charge of herd book keeping, although substantially contributing to the implementation of the National Strategy could enhance their involvement, as some tasks assigned to this group of stakeholders within the scope of their responsibilities and competence were not yet undertaken.

The contribution of the non-governmental organizations is difficult to evaluate with only one response to the questionnaire.

### Acknowledgement

The study was conducted within the Multi-Year Programme of Work of the National Research Institute for Animal Production, task 17-1.40.9, financed by the Ministry of Agriculture and Rural Development.

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**Streszczenie:** *Analiza wdrażania Krajowej strategii zrównoważonego użytkowania i ochrony zasobów genetycznych zwierząt w Polsce.* Badania opracowane na podstawie ankiet przygotowanych indywidualnie dla wybranych grup organizacji miały za zadanie ocenić, w jakim zakresie te grupy przyczyniają się do realizacji strategicznych priorytetów i specyficznych zadań przyjętych w planie działań do Krajowej strategii. Analiza wykazała, że związki hodowców i inne organizacje, którym powierzono prowadzenie ksiąg hodowlanych, jak też uczelnie rolnicze mają znaczący wkład we wdrażaniu Krajowej strategii. Ponadto duże zaangażowanie wykazały wojewódzkie urzędy marszałkowskie i służby doradztwa rolniczego. Administracja publiczna i agencje

rządowe były zaangażowane w wysokim stopniu we wdrażanie i w nadzorowanie działań w zakresie swoich kompetencji.

*MS received 23.08.2016*

*MS accepted 13.10.2016*

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