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Bulgaria – North Macedonia 2021–2027
Project No. **BGMK0300053**
PARKS – Preserving Areas through Regional Knowledge and Sustainability

Methodology for Knowledge Sharing and Skills Development in Municipal Green Infrastructure

(Transfer of skills in the Cross Border Cooperation area)

Deliverable **D.2.2.2**

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1. Introduction

Urban green infrastructure plays a crucial role in the improvement of environmental quality, biodiversity support, and enhancement of the well-being of the urban populations. In rapidly developing urban areas, properly planned and managed green spaces contribute to climate adaptation and resilience, mitigation of the urban heat island effect, improved air quality, and provision of recreational opportunities for local communities.

For municipalities, however, the effective management of urban green infrastructure requires not only financial investments but also adequate knowledge, technical expertise, and continuous capacity development of the staff responsible for planning, establishment, and maintenance of green areas.

In many municipalities in the cross-border region between the Republic of North Macedonia and the Republic of Bulgaria, the management of urban green infrastructure faces several challenges. These include limited human resources, insufficient technical equipment, adaptive planning, and the need for updated practical knowledge on the establishment and maintenance of urban greenery. Additionally, the increasing pressure from urban development and construction activities often leads to unintended damage to existing trees and green areas when appropriate protective measures are not applied during infrastructure works.

Recognizing these challenges, the Interreg VI-A IPA Cross-Border Cooperation Programme Bulgaria – North Macedonia supports initiatives aimed at strengthening cooperation and knowledge exchange between municipalities in the cross-border region. Within this framework, the project **"PARKS – Preserving Areas through Regional Knowledge and Sustainability" (Project No. BGMK0300053)** aims to enhance the sustainable management of urban green spaces through the development of practical tools, exchange of knowledge, and implementation of pilot interventions.

One of the key activities of the project, implemented under **Deliverable D.2.2.2 – Transfer of skills in the Cross-border cooperation area**, focuses on knowledge sharing and skills development in municipal green infrastructure, building upon the practical experience gained during the establishment of two new urban parks in the partner municipalities.

This document presents the **methodology for knowledge sharing and skills development in municipal green infrastructure,** developed through collaborative efforts between the experts and relevant municipal stakeholders. The methodology is designed to facilitate the transfer of practical knowledge and best practices within the cross-border cooperation (CBC) area, while also supporting the long-term improvement of urban green space planning, establishment, and maintenance.

The methodology builds upon the results achieved within the PARKS project, particularly the establishment of two new urban parks in the municipalities of **Kriva Palanka (North Macedonia)** and **Dupnitsa (Bulgaria),** as well as the preparation of the **Guide for Planting and Maintaining Woody Species and Lawns in Urban Green Areas.** Furthermore, it incorporates the feedback and practical insights obtained during the workshops organized with representatives of municipal administrations and professionals involved in the maintenance of urban green areas in both municipalities.

The methodology presented in this document also provides a structured framework for organizing future knowledge sharing and skills development activities related to municipal green infrastructure management within the cross-border cooperation area. It builds upon the practical experience gained through the implementation of the PARKS project and aims to facilitate the transfer of knowledge and good practices between municipalities and professionals involved in the planning, establishment, and maintenance of urban green spaces.

2. Project Background

The project **"PARKS – Preserving Areas through Regional Knowledge and Sustainability"** is implemented within the Interreg VI-A IPA Cross-Border Cooperation Programme Bulgaria – North Macedonia 2021–2027. The project promotes cross-border collaboration between the partner municipalities of **Kriva Palanka (North Macedonia)** and **Dupnitsa (Bulgaria)** with the aim of improving the quality, sustainability, and management of urban green spaces.

As part of the project implementation, two new urban parks were established in both partner municipalities. These pilot interventions provide practical examples of sustainable urban green space development and serve as demonstration sites for the application of good practices in landscape planning, planting of woody species, and establishment of lawn areas.

In addition to the physical interventions, the project also focuses on the importance of **knowledge exchange and capacity building** among municipal administrations and practitioners responsible for managing urban green infrastructure. This is particularly important in smaller municipalities, where limited human and technical resources often constrain the effective management of green areas. Furthermore, municipalities in cross-border areas often face similar challenges, and structured exchange of experiences and lessons learned can therefore be of great value.

Within this context, the activity **D.2.2.2 – Transfer of skills in the CBC area** aims to facilitate the exchange of knowledge, methodologies, and best practices between the partner municipalities. Therefore, two expert-led workshops were organized in both municipalities in order to present the preliminary version of the Guide for planting and maintaining woody species and lawns, and to engage representatives from municipal administrations, public utility companies, and professionals involved in the maintenance of urban green areas. During these workshops, the participants were presented the current trends and best practice that can be of use for sustainable establishment and maintenance of urban green areas. This was followed by discussion of the practical challenges faced during the management of urban green infrastructure in both municipalities. The discussions highlighted several key issues, including limited availability of specialized personnel for green space maintenance, insufficient technical equipment and modern machinery, lack of communication with the general

public when certain activities take place (i.e., cutting down of dead or diseased trees), and the need for improved coordination between municipal services and construction activities taking place in urban areas. Particular attention was drawn to the problem of damage to existing trees during construction works, when heavy machinery is used without adequate protective measures for the surrounding vegetation. Such challenges emphasize the need for improved awareness, better technical guidelines, and enhanced professional skills among practitioners involved in the planning and maintenance of urban green areas.

The insights obtained during these workshops, together with the practical experience gained through the implementation of the project activities, were used for the development of the present methodology for knowledge sharing and skills development in municipal green infrastructure.

3. Importance of Knowledge Sharing in Municipal Green Infrastructure

The effective planning, establishment, and maintenance of urban green infrastructure require a combination of scientific knowledge, technical skills, and practical experience. Municipal administrations and public utility companies responsible for urban green areas often face the challenge of implementing complex environmental solutions with limited resources and personnel.

In such contexts, the exchange of knowledge, priorities, and practical experience becomes a key mechanism for improving the quality and sustainability of urban green space management. Adapted knowledge sharing enables municipalities to learn from each other's experiences, adopt proven practices, and avoid common mistakes in the planning and maintenance of urban green areas.

This is particularly important in cross-border regions where municipalities may face similar environmental conditions, urban development pressures, and institutional challenges. Through structured knowledge exchange processes, local administrations can strengthen their institutional capacity and improve the effectiveness of their urban green infrastructure management.

Urban green infrastructure includes a wide range of elements such as parks, urban forests, street tree lines, lawns, and other vegetated areas within the urban environment. The successful management of these elements requires multidisciplinary expertise, including landscape architecture, forestry, soil science, horticulture, and urban planning. However, in many municipalities the available expertise may be limited or unevenly distributed across different departments. Therefore, systematic knowledge transfer can provide significant benefits for municipalities. Notably, the management of urban green areas increasingly requires adaptive approaches that consider climate change impacts, biodiversity conservation, and the growing expectations of urban residents for high-quality green spaces. As a result, municipal staff responsible for green infrastructure must continuously update their knowledge and practical skills. The trends and approaches for mitigation of the negative impact of climate change are constantly evolving which requires active efforts to keep up with them. In the contexts of PARKS, the different status of the countries means that the municipal employees have different exposure to opportunities for skill and knowledge enhancement. Structured knowledge sharing initiatives can provide opportunities for professionals from different municipalities to exchange these experiences, discuss challenges, and jointly identify solutions. In particular, workshops, training sessions, field demonstrations, and technical guidelines represent effective tools for transferring knowledge and strengthening professional capacities. Within the framework of cross-border cooperation programmes, knowledge sharing also plays an important role in strengthening regional partnerships and fostering long-term collaboration between municipalities.

By working together and learning from shared experiences, local administrations can develop more coherent approaches to urban green infrastructure management and contribute to the sustainable development of the broader region. The PARKS project provides a practical example of such cooperation, where municipalities from North Macedonia and Bulgaria have jointly implemented activities aimed at improving urban green spaces while simultaneously building institutional capacity and professional expertise. The knowledge sharing and skills development activities implemented within the PARKS project are part of a broader framework aimed at strengthening municipal capacities for sustainable urban green infrastructure management.

The overall structure of this framework and its connection with the municipal and cross-border context of the PARKS project are illustrated in Figure 1.

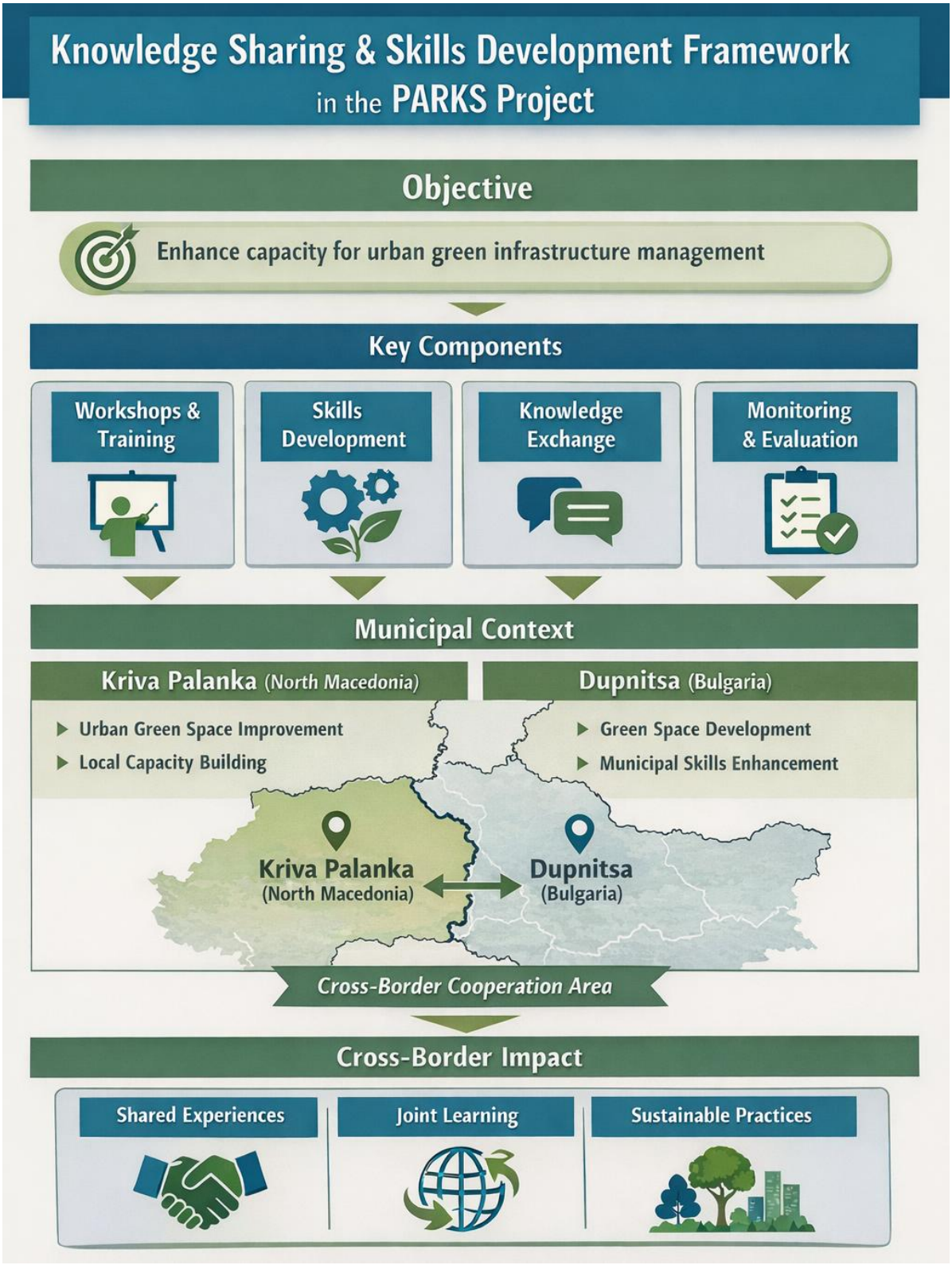

Figure 1. *Knowledge Sharing and Skills Development Framework in the PARKS Project within the cross-border cooperation area between North Macedonia and Bulgaria*

4. Conceptual Framework for Knowledge Exchange and Skills Development

The development of an effective methodology for knowledge sharing and skills development in municipal green infrastructure requires a structured conceptual framework that integrates practical experience, expert knowledge, and stakeholder engagement. As such, the framework should enable municipalities to systematically identify relevant knowledge and potential knowledge gaps, facilitate its transfer among professionals, and support the development of practical skills needed for the management of urban green areas. In the context of the PARKS project, the conceptual framework for knowledge exchange is based on three interconnected components: **knowledge generation, knowledge transfer,** and **skills development.** These components form a continuous learning cycle that supports the improvement of municipal practices in urban green infrastructure management.

Knowledge generation refers to the process through which new practical insights and experiences are created during the implementation of project activities. In the PARKS project, valuable knowledge was generated through the planning and establishment of two new urban parks in the partner municipalities. These pilot interventions provided opportunities to apply practical techniques related to site preparation, selection and planting of woody species, establishment of lawn areas, and maintenance planning. The practical experience gained through these activities represents an important source of knowledge that can be shared with municipal staff and practitioners in the cross-border region. This practical works also provided an opportunity to pinpoints more specific needs and gaps which can be directly addressed in future projects and activities.

Knowledge transfer involves the systematic dissemination of information, experiences, and good practices among relevant stakeholders. In the context of municipal green infrastructure, this process typically includes workshops, training sessions, expert consultations, and the preparation of practical guidance materials. The workshops organized within the PARKS project provided a platform for presenting the preliminary results of the project activities, discussing challenges encountered during implementation, and collecting feedback from practitioners directly involved in the maintenance of urban green areas. The involvement of the different stakeholders in workshops also provided an opportunity to obtain

understanding of the whole chain of activities and their attributes, both the strengths and weaknesses.

Skills development focuses on strengthening the practical capacities of municipal staff and professionals responsible for the management of green infrastructure. While knowledge transfer provides access to information and best practices, skills development ensures that this knowledge can be effectively applied in real-world situations. Training activities, face-to-face interactions and discussions, field demonstrations, and hands-on learning experiences play a particularly important role in this process.

Another important element of the conceptual framework is the **participatory approach**, which emphasizes the involvement of different local stakeholders in the knowledge exchange process. Municipal staff, public utility companies, landscape professionals, and other practitioners possess valuable practical knowledge that can complement expert recommendations. By actively involving these stakeholders in workshops and discussions, the knowledge exchange process becomes more relevant, practical, and responsive to local needs.

Finally, the conceptual framework also recognizes the importance of **cross-border learning,** where municipalities facing similar environmental and institutional conditions can benefit from each other's experiences. The cooperation between Kriva Palanka and Dupnitsa within the PARKS project demonstrates how cross-border partnerships can support mutual learning and contribute to the development of improved approaches for urban green infrastructure management. At the same time, it also highlights the need for creating structured opportunities for discussions and systematic transfer of knowledge and experiences. By integrating knowledge generation, knowledge transfer, and skills development within a participatory and cross-border framework, the methodology presented in this document aims to provide municipalities with a practical tool for further strengthening their institutional capacity and improving the long-term sustainability of urban green spaces.

The conceptual framework described above integrates knowledge sharing activities, skills development processes, and cross-border cooperation mechanisms within the PARKS project and it is presented through an infographic in Figure 2.

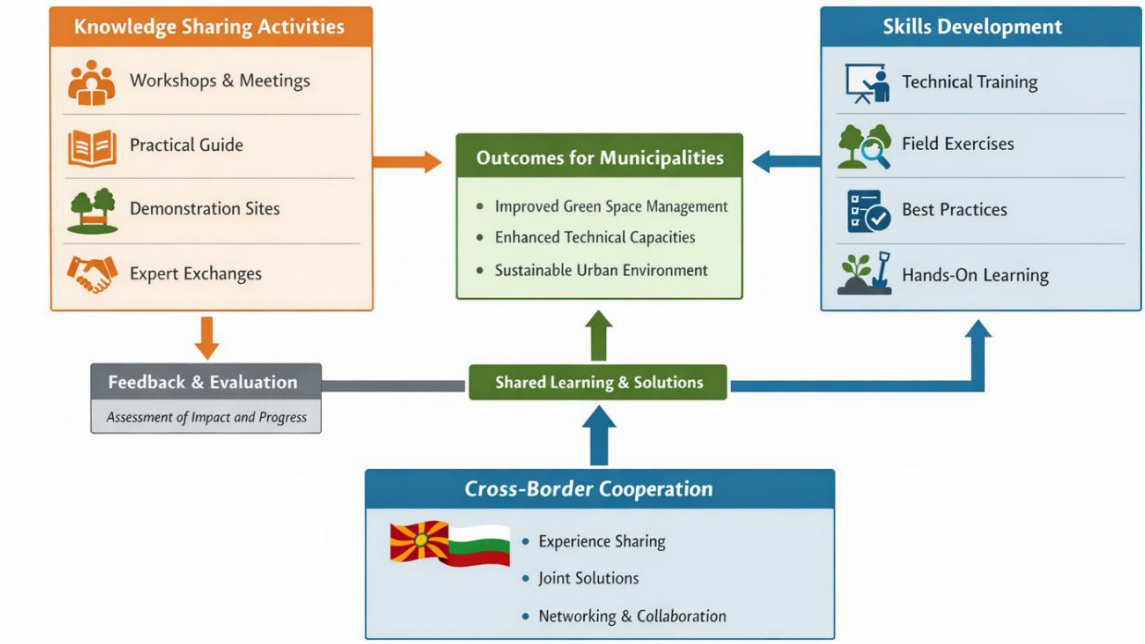

Figure 2. *Conceptual Framework for Knowledge Exchange and Skills Development.*

5. Methodology for Knowledge Sharing in Municipal Green Infrastructure

The methodology for knowledge sharing developed within the PARKS project aims to facilitate the systematic exchange of practical experience, technical knowledge, and best practices among municipalities and professionals involved in the management of urban green infrastructure. The methodology is designed to support cross-border cooperation, strengthen institutional capacity, and improve the practical skills of municipal staff responsible for planning, establishment, and maintenance of urban green spaces. As illustrated in Figure 1, knowledge sharing activities in the PARKS project rely on a combined approach of workshops, practical guidance materials, and field-based learning activities. These complementary approaches enable the effective transfer of practical knowledge and experiences between experts, municipal administrations, and practitioners responsible for urban green infrastructure management. The proposed methodology is based on a participatory and practice-oriented approach, where knowledge is generated through project implementation activities and subsequently transferred to relevant stakeholders through structured knowledge exchange mechanisms.

The methodology integrates complementary components including expert guidance, stakeholder engagement, practical demonstrations, and feedback collection.

In the context of the PARKS project, knowledge sharing activities were primarily implemented through expert-led workshops organized in the partner municipalities. These workshops served as a platform for presenting the preliminary results of the project, discussing practical challenges related to urban green infrastructure management, and collecting feedback from municipal practitioners and decision-makers.

The methodology for knowledge sharing consists of the following key steps:

Step 1 – Identification of Knowledge and Good Practices

The first step in the methodology involves identifying relevant knowledge and good practices generated during the implementation of the project activities. In the PARKS project, this process focused on documenting practical experience gained during the establishment of the two new urban parks in Kriva Palanka and Dupnitsa.

Key knowledge areas identified during this process included:

- Selection of appropriate woody species for urban environments.
- Planting techniques and establishment of healthy tree stands.
- Establishment and maintenance of lawn areas.
- Protection of existing trees during construction activities.
- Planning of maintenance and monitoring activities for newly established green spaces.

These practical experiences provided the foundation for the preparation of the *Guide for Planting and Maintaining Woody Species and Lawns in Urban Green Areas,* which represents one of the main tools for knowledge transfer within the project.

The relationship between the methodological components presented in this document and the practical recommendations included in the Guide is further illustrated in Annex 3.

Step 2 – Organization of Knowledge Exchange Workshops

The second step of the methodology involves the organization of structured workshops aimed at presenting project results and facilitating knowledge exchange among stakeholders.

Within the PARKS project, workshops were organized in order to present the preliminary version of the Guide to representatives of municipal administrations, public utility companies, and professionals involved in the maintenance of urban green areas in both municipalities.

The workshops provided an opportunity to:

- Present practical recommendations contained in the Guide.
- Discuss real-world challenges faced in the maintenance of urban green infrastructure.
- Collect feedback from practitioners working directly in the field.
- Identify additional needs for capacity building and professional training.

This participatory approach allowed the experts to incorporate practical insights from local practitioners into the final recommendations.

Step 3 – Stakeholder Engagement and Feedback Collection

An important component of the methodology is the active engagement of stakeholders involved in urban green infrastructure management. Municipal staff, landscape professionals, public utility company employees, and other practitioners possess valuable practical knowledge that contributes to improving the relevance and applicability of the proposed solutions.

During the workshops organized within the PARKS project, participants shared their experiences and identified several practical challenges encountered in daily work.

Among the most frequently mentioned issues were the limited availability of specialized personnel for green space maintenance, insufficient technical equipment and machinery, and the need for improved coordination between municipal services and construction activities in urban areas.

Participants also emphasized the importance of protecting existing trees during construction works. It was noted that the use of heavy machinery during infrastructure interventions can lead to unintended damage to healthy trees if appropriate protective measures are not implemented.

The feedback collected during the workshops was carefully considered and incorporated into the final version of the Guide and the present methodology.

Step 4 – Integration of Knowledge into Practical Guidance

The fourth step of the methodology involves transforming the collected knowledge and practical experiences into structured guidance materials that can be used by municipal staff and practitioners.

In the PARKS project, this process resulted in the preparation of practical recommendations related to planting techniques, establishment of lawns, and maintenance of urban green areas. The guidance materials were designed in a clear and practical format that facilitates their application in everyday municipal practice. In addition to written guidance, the methodology encourages the use of visual materials, demonstration sites, and field-based learning activities in order to enhance the understanding and practical application of the recommended practices.

Step 5 – Continuous Knowledge Exchange and Capacity Development

The final step of the methodology emphasizes the importance of continuous knowledge exchange and long-term capacity development. Urban green infrastructure management is a dynamic field that requires continuous learning and adaptation to new environmental, technical, and institutional challenges. Municipalities are therefore encouraged to maintain regular communication and cooperation with partner institutions, exchange experiences with other municipalities in the cross-border region and continue organizing professional training activities related to urban green infrastructure.

By applying this structured methodology for knowledge sharing, municipalities can strengthen their institutional capacity, improve professional competencies, and ensure more effective and sustainable management of urban green spaces.

6. Methodology for Skills Development in Municipal Green Infrastructure

The sustainable management of urban green infrastructure requires not only access to information and technical guidelines but also the development of practical skills among professionals responsible for planning, establishment, and maintenance of urban green areas. Municipal staff and practitioners involved in these activities must be able to apply appropriate techniques in real-world situations, often under complex environmental and operational conditions. For this reason, the methodology developed within the PARKS project places particular emphasis on skills development as a complementary process to knowledge sharing. While knowledge exchange provides theoretical understanding and access to best practices, skills development ensures that this knowledge can be effectively translated into practical action.

The proposed methodology for skills development is based on a **practice-oriented training approach,** combining theoretical guidance with practical demonstrations and hands-on learning experiences. This approach allows municipal staff and practitioners to gain practical competencies necessary for the effective management of urban green infrastructure. An example training programme for municipal staff involved in urban green infrastructure management is provided in Annex 2.

6.1 Identification of Training Needs

The first step in the skills development methodology involves identifying the specific training needs of municipal staff and practitioners responsible for urban green infrastructure management. Training needs may vary depending on the size of the municipality, the availability of specialized personnel, and the technical capacities of public utility companies responsible for green area maintenance. During the workshops organized within the PARKS project, participants highlighted several priority areas where additional training and capacity development would be beneficial. These included practical techniques for planting woody species, proper establishment and maintenance of lawn areas, protection of existing trees during construction activities, and planning of maintenance operations for newly established urban green spaces.

Identifying these training needs allows municipalities to design targeted capacity-building activities that directly address the practical challenges encountered in everyday work and also to provide space for the different stakeholders to voice their needs, concerns and observations.

6.2 Development of Training Modules

Based on the identified needs, the methodology proposes the development of structured training modules that focus on key aspects of urban green infrastructure management. Training modules should combine theoretical explanations with practical guidance and visual demonstrations in order to facilitate effective learning. Examples of potential training modules, some of which were also applied within the PARKS project, include:

- Selection of appropriate woody species for urban environments.
- The importance and value of using climate-resilient native (autochthonous) species.
- Proper planting techniques and establishment of healthy tree stands.
- Establishment and maintenance of lawn areas in urban conditions.
- Protection of trees and green areas during construction activities and extreme climatic events.
- Planning and implementation of maintenance programmes for urban green spaces.
- Planning and implementation of year-round monitoring plans of urban green spaces.
- Proper informing and communication with the public regarding maintenance activities in the urban green spaces.

Notably, each training module should include clear learning objectives, practical recommendations, and examples of good practices that can be applied by municipal staff and practitioners.

6.3 Practical Demonstrations and Field-Based Learning

Practical demonstrations and field-based learning represent an essential component of the skills development methodology. Urban green infrastructure management involves many technical operations that can be more effectively learned through direct observation and practical engagement.

The newly established urban parks within the PARKS project provide valuable opportunities for such field-based learning activities. Demonstration activities conducted in real urban green spaces allow participants to observe planting techniques, maintenance practices, and management approaches under actual conditions. Field-based learning also facilitates interactive discussions among participants, enabling practitioners to share their own experiences and exchange practical solutions to common challenges.

6.4 Peer Learning and Cross-Border Exchange

Another important element of the skills development methodology is the promotion of peer learning and cross-border exchange. Municipal professionals often benefit from observing how similar challenges are addressed in other municipalities facing comparable environmental and institutional conditions. The cross-border cooperation between Kriva Palanka and Dupnitsa creates opportunities for mutual learning and exchange of practical experience. Through joint workshops, study visits, and professional discussions, municipal staff can gain insights into alternative approaches for managing urban green infrastructure. Such exchanges also contribute to strengthening professional networks among municipal practitioners and encourage the adoption of innovative solutions for improving urban green space management.

6.5 Continuous Capacity Development

The final component of the skills development methodology emphasizes the importance of continuous professional development. Urban green infrastructure management is an evolving field influenced by new environmental challenges, technological advancements, legislation requirements, and changing expectations of urban communities.

Municipalities are therefore encouraged to establish mechanisms that support ongoing learning and professional development for staff involved in green space management.

These mechanisms may include regular training sessions, participation in professional workshops, collaboration with academic institutions and experts, and continuous exchange of experiences with partner municipalities.

By integrating structured training activities, practical demonstrations, and cross-border knowledge exchange, the proposed methodology supports the long-term development of professional competencies necessary for the sustainable management of urban green infrastructure. The operational process of knowledge sharing and skills development is summarized in Figure 3.

Figure 3. *Knowledge Sharing Process in the PARKS Project (5-step cycle).*

Based on this process-oriented approach, several thematic training modules are proposed in order to support the development of practical competencies among municipal staff.

Table 1. Proposed Training Modules for Municipal Staff Involved in Urban Green Infrastructure Management

Training module	Main topics covered	Target participants	Expected learning outcomes
Selection of woody species for urban environments	Criteria for species selection, tolerance to urban conditions, biodiversity considerations	Municipal planners, landscape professionals	Improved decision-making in species selection for urban planting
Planting techniques for trees and shrubs	Site preparation, planting procedures, root system management, initial care	Municipal workers, landscape technicians	Correct implementation of planting operations and improved plant survival
Establishment and maintenance of lawn areas	Soil preparation, seeding techniques, irrigation, mowing practices	Public utility company staff	Improved quality and sustainability of lawn areas
Protection of trees during construction works	Tree protection zones, soil compaction prevention, root protection measures	Municipal engineers, construction supervisors	Reduced damage to existing trees during infrastructure works
Maintenance planning for urban green spaces	Seasonal maintenance activities, monitoring of plant health, pruning practices	Municipal managers and maintenance teams	More efficient planning and organization of maintenance operations

7. Workshop-Based Knowledge Transfer Model

Workshops represent one of the most effective tools for facilitating knowledge exchange and professional interaction among stakeholders involved in the management of urban green infrastructure.

In the context of the PARKS project, workshops were used as a primary mechanism for presenting project results, exchanging practical experience, and collecting feedback from municipal practitioners and decision-makers. An example structure for organizing knowledge exchange workshops is presented in Annex 1. The workshop-based knowledge transfer model developed within this methodology is designed to support interactive learning and encourage active participation of professionals involved in urban green space management. Unlike traditional lecture-based training approaches, the model emphasizes dialogue, practical discussion, and the sharing of real-world experiences.

7.1 Objectives of the Workshops

The workshops organized within the PARKS project were designed to achieve several complementary objectives:

- Presentation of project results related to the establishment of new urban parks.
- Introduction of practical guidance for planting and maintaining woody species and lawns.
- Exchange of experiences among municipal staff and practitioners responsible for green space maintenance.
- Identification of challenges faced in the management of urban green infrastructure.
- Collection of feedback to improve the practical applicability of the developed guidance materials.

By combining expert presentations with interactive discussions, the workshops created an environment where participants could actively contribute their own knowledge and experiences.

7.2 Structure of the Workshops

The proposed workshop model consists of several key components that facilitate effective knowledge exchange:

Introductory session

The workshop begins with a presentation of the objectives of the meeting and an overview of the PARKS project activities related to urban green infrastructure. This session provides participants with a general understanding of the project context and the purpose of the knowledge exchange activity.

Presentation of project results

Experts present the main outcomes of the project, including the establishment of new urban parks and the development of practical guidance materials. Particular attention is given to the practical experience gained during project implementation.

Presentation of the Guide and technical recommendations

During this session, participants are introduced to the practical recommendations contained in the Guide for planting and maintaining woody species and lawns in urban green areas. Key aspects such as species selection, planting techniques, and maintenance planning are discussed. The relationship between the knowledge sharing methodology presented in this document and the technical recommendations contained in the Guide is further illustrated in Annex 3.

Interactive discussion session

Participants are invited to share their experiences and discuss challenges related to the maintenance of urban green areas in their municipalities. This discussion allows practitioners to raise practical issues encountered in their daily work and to explore potential solutions.

Collection of feedback and recommendations

The final part of the workshop focuses on collecting feedback from participants regarding the presented recommendations and identifying additional needs for knowledge exchange and professional training.

7.3 Key Discussion Topics Identified During Workshops

The workshops organized within the PARKS project provided valuable insights into the practical challenges faced by municipal administrations and public utility companies responsible for urban green infrastructure.

Several key discussion topics emerged during these meetings. Participants emphasized the need for improved technical capacity and access to modern equipment for maintaining urban green areas. In both municipalities, limited availability of specialized personnel and machinery was identified as a significant challenge for the effective management of green spaces.

Another frequently discussed issue was the protection of existing trees during construction activities. Participants reported that during infrastructure interventions and urban development projects, heavy machinery is sometimes used in close proximity to existing trees without adequate protective measures. Such practices may lead to damage of tree trunks, root systems, and surrounding soil structure, potentially compromising the long-term health and stability of urban trees. Practical recommendations for protecting existing trees during construction and infrastructure works are presented in Annex 4.

Participants also noted challenges related to public feedback and reactions regarding certain maintenance activities (e.g., removal of diseased trees). This highlighted the need for active and adapted information dissemination so that the maintenance can be done more effectively.

These discussions highlighted the importance of developing clear practical guidelines and raising awareness among municipal staff, construction companies, and other stakeholders regarding the protection of existing vegetation during construction works.

7.4 Benefits of the Workshop-Based Approach

The workshop-based knowledge transfer model provides several important benefits for municipal administrations and professionals involved in urban green infrastructure management. First, workshops create opportunities for direct communication and exchange of experiences among practitioners working in similar institutional and environmental contexts.

Such interactions help identify common challenges and encourage the adoption of practical solutions that have already proven effective in other municipalities. Second, workshops support the integration of expert knowledge with local practical experience.

By engaging practitioners directly in the discussion process, the developed recommendations become more realistic and applicable to local conditions. Finally, workshops contribute to strengthening cross-border cooperation and professional networks among municipal staff and experts involved in urban green infrastructure management. These networks can facilitate future collaboration and support the continuous exchange of knowledge and best practices beyond the duration of the project.

Through the application of this workshop-based knowledge transfer model, municipalities can enhance their institutional capacity and improve the effectiveness of urban green space management while promoting sustainable and resilient urban environments.

Table 2. Key Challenges in Municipal Green Infrastructure Management Identified During Workshops

Challenge	Description	Implications for municipal management
Limited specialized personnel	Municipalities often have a small number of professionals specifically trained in urban green infrastructure management.	Reduced capacity for proper planning, planting, and maintenance of green spaces.
Insufficient technical equipment	Lack of modern machinery and tools required for efficient maintenance of urban green areas.	Slower maintenance operations and reduced quality of green space management.
Damage to existing trees during construction	Construction activities sometimes occur near existing trees without adequate protection measures.	Long-term damage to tree health, loss of mature trees, and increased costs for restoration.
Limited coordination between municipal departments	Urban development, construction, and green space management are often managed by separate municipal units.	Increased risk of conflicts between infrastructure development and preservation of green areas.
Need for updated practical knowledge	Municipal practitioners may lack access to updated guidelines and modern practices in urban green infrastructure management.	Inefficient management practices and missed opportunities for improving green space sustainability.

8. Tools for Knowledge Exchange in Municipal Green Infrastructure

Effective knowledge exchange in the field of municipal green infrastructure requires the use of appropriate tools that facilitate communication, learning, and dissemination of good practices among stakeholders. These tools support the transfer of knowledge from experts to practitioners while also enabling the sharing of experiences between municipalities facing similar challenges in urban green space management. Within the PARKS project, several complementary tools were used to facilitate knowledge exchange and support the development of professional capacities in the partner municipalities. These tools combine traditional forms of knowledge dissemination with more interactive and practice-oriented approaches.

8.1 Practical Guidance Materials

One of the key tools for knowledge exchange developed within the PARKS project is the Guide for Planting and Maintaining Woody Species and Lawns in Urban Green Areas. The Guide provides practical recommendations for municipal practitioners and the general public on the selection of suitable plant species, proper planting techniques, establishment of lawn areas, and maintenance practices for urban green spaces. The preparation of the Guide allowed project experts to consolidate the knowledge and practical experience gained during project implementation and present it in a structured and accessible format. Practical guidance materials such as this Guide represent an important resource that can continue to support municipal staff and practitioners beyond the duration of the project.

8.2 Workshops and Professional Meetings

Workshops and professional meetings represent an important interactive tool for knowledge exchange. They provide opportunities for experts, municipal staff, and practitioners to engage in direct discussions, share experiences, and jointly explore solutions to practical challenges related to urban green infrastructure management.

In the context of the PARKS project, workshops were used to present project results, discuss the preliminary version of the Guide, and collect feedback from participants involved in the maintenance of urban green areas.

These meetings also helped identify practical challenges faced by municipal administrations and provided valuable insights that contributed to improving the final recommendations.

8.3 Demonstration Sites and Field Observations

Demonstration sites represent another effective tool for knowledge exchange, particularly in fields that involve practical technical operations such as planting, landscaping, and maintenance of urban green areas.

The newly established urban parks in Kriva Palanka and Dupnitsa serve as practical examples of how good practices in urban green infrastructure can be implemented in real urban environments.

Field observations conducted at such sites allow participants to better understand the practical application of recommended techniques and management approaches. Demonstration activities also encourage interactive learning, where participants can observe practical solutions and discuss their applicability in other contexts.

8.4 Cross-Border Cooperation and Networking

Cross-border cooperation represents a valuable mechanism for knowledge exchange between municipalities that share similar environmental conditions and development challenges.

Through cooperation between Kriva Palanka and Dupnitsa, the PARKS project has created opportunities for professionals from both municipalities to exchange experiences and learn from each other. Professional networking established during the project activities contributes to long-term cooperation between municipal administrations and encourages the continued exchange of knowledge and best practices beyond the lifetime of the project.

8.5 Continuous Access to Knowledge Resources

In addition to direct knowledge exchange activities, municipalities benefit from maintaining access to relevant knowledge resources, including technical guidelines, scientific publications, and expert consultations. Collaboration with academic institutions, professional organizations, and environmental experts can further strengthen the knowledge base available to municipal administrations. By combining practical guidance materials, workshops, demonstration sites, and cross-border cooperation, the proposed set of knowledge exchange tools provides municipalities with a comprehensive framework for strengthening their professional capacities in urban green infrastructure management.

Table 3. Knowledge Transfer Tools Used in the PARKS Project

Knowledge transfer tool	Description	Role in knowledge sharing
Practical guide for planting and maintenance	Structured guidance document containing practical recommendations for planting and maintaining woody species and lawns in urban green areas.	Provides long-term reference material for municipal practitioners and the general public.
Expert-led workshops	Interactive meetings involving experts, municipal staff, and practitioners responsible for urban green space maintenance.	Facilitates exchange of knowledge, discussion of challenges, and collection of stakeholder feedback.
Demonstration sites (urban parks)	Newly established urban parks serving as practical examples of good practices in urban green infrastructure.	Enables field-based learning and observation of recommended practices.
Cross-border professional exchange	Collaboration between partner municipalities within the cross-border cooperation area.	Promotes exchange of experiences and strengthens professional networks.
Continuous access to technical knowledge	Access to guidelines, expert consultations, and scientific information related to urban green infrastructure.	Supports long-term professional development of municipal staff.

9. Monitoring and Evaluation of Knowledge Sharing and Skills Development Activities

Monitoring and evaluation represent essential components of any knowledge sharing and capacity development initiative. They allow project partners and participating municipalities to assess the effectiveness of implemented activities, measure the impact of knowledge transfer processes, and identify opportunities for further improvement.

Within the framework of the PARKS project, monitoring and evaluation of knowledge sharing and skills development activities aim to ensure that the proposed methodology contributes to strengthening institutional capacities and improving the management of urban green infrastructure in the participating municipalities.

9.1 Objectives of Monitoring and Evaluation

The main objectives of monitoring and evaluation within the knowledge sharing process include:

- Assessing the effectiveness of workshops and training activities.
- Evaluating the usefulness and practical applicability of the developed guidance materials.
- Identifying improvements in professional knowledge and practical skills among participants.
- Monitoring the level of engagement of municipal staff and other stakeholders.
- Identifying opportunities for further capacity development and knowledge exchange.

Through systematic monitoring and evaluation, municipalities can gain valuable insights into the effectiveness of the implemented activities and adapt future knowledge sharing initiatives accordingly.

9.2 Monitoring Indicators

The monitoring process may include both quantitative and qualitative indicators that help assess the outcomes of knowledge exchange and skills development activities.

Examples of relevant monitoring indicators include:

Participation indicators

- Number of workshops and knowledge exchange events organized.
- Number of participants representing municipal administrations and public utility companies.
- Diversity of professional backgrounds among participants.

Learning and knowledge indicators

- Level of participant engagement during workshops and discussions.
- Participant feedback regarding the clarity and usefulness of the presented materials.
- Self-assessed improvement of knowledge related to urban green infrastructure management.

Practical application indicators

- Implementation of recommended practices in municipal green space management.
- Adoption of improved maintenance practices for urban trees and lawns.
- Increased awareness regarding the protection of existing trees during construction activities.

These indicators help municipalities evaluate whether knowledge sharing activities contribute to tangible improvements in urban green infrastructure management.

9.3 Feedback Collection Mechanisms

Participant feedback represents an important source of information for evaluating the effectiveness of knowledge sharing activities. Feedback can be collected through structured questionnaires, informal discussions during workshops, and follow-up communication with municipal staff and practitioners involved in green space management. An example evaluation form that can be used for collecting participant feedback during knowledge exchange workshops is presented in Annex 5.

During the workshops organized within the PARKS project, participants provided valuable feedback regarding the practical challenges encountered in their daily work and the relevance of the presented recommendations. Such feedback contributes to improving the quality and applicability of future knowledge exchange initiatives.

9.4 Long-Term Impact and Sustainability

Beyond the immediate outcomes of workshops and training activities, monitoring and evaluation should also consider the long-term impact of knowledge sharing and skills development initiatives. Sustainable improvements in urban green infrastructure management depend on the continued application of acquired knowledge and skills by municipal staff and practitioners.

The methodology developed within the PARKS project encourages municipalities to maintain ongoing cooperation, continue organizing professional training activities, and build upon the professional networks established during the project implementation. By fostering continuous knowledge exchange and collaboration, municipalities can ensure that the benefits of the project extend beyond its formal duration.

The integration of monitoring and evaluation mechanisms within the knowledge sharing methodology therefore supports the continuous improvement of municipal practices and contributes to the sustainable management of urban green infrastructure in the cross-border region.

10. Conclusions and Recommendations

The PARKS project has demonstrated the importance of cross-border cooperation and knowledge exchange for improving the management of urban green infrastructure in municipalities facing similar environmental and institutional challenges. Through the establishment of new urban parks in Kriva Palanka and Dupnitsa, as well as through the organization of expert-led workshops and the development of practical guidance materials, the project has created a valuable foundation for strengthening professional capacities in urban green space management.

The methodology for knowledge sharing and skills development presented in this document aims to facilitate the systematic transfer of knowledge and practical experience among municipal administrations, public utility companies, and other professionals involved in the management of urban green areas. By combining expert guidance, stakeholder engagement, practical demonstrations, and cross-border cooperation, the proposed methodological framework supports the development of more effective and sustainable approaches to urban green infrastructure management.

The workshops organized within the project highlighted several practical challenges faced by municipal practitioners, including limited availability of specialized personnel, insufficient technical equipment for green space maintenance, and the need for improved coordination between municipal services and construction activities in urban areas. These findings underline the importance of strengthening institutional capacity and improving access to practical knowledge and training opportunities.

Another important issue identified during the knowledge exchange process relates to the protection of existing trees during construction activities. Participants emphasized that greater awareness and improved technical guidance are needed in order to prevent damage to healthy trees during infrastructure works. Addressing such challenges requires not only technical solutions but also improved coordination between different municipal departments and stakeholders involved in urban development.

Based on the experiences gained during the implementation of the PARKS project, several key recommendations can be formulated for municipalities seeking to improve the management of urban green infrastructure:

- Continue organizing professional workshops and training activities focused on urban green infrastructure management.
- Strengthen cooperation between municipal administrations, public utility companies, and external experts.
- Promote practical guidance materials that support the application of good practices in planting and maintenance of urban green areas.
- Encourage cross-border cooperation and exchange of experiences between municipalities facing similar challenges.
- Increase awareness regarding the protection of existing trees and green areas during construction activities.
- Support continuous professional development of municipal staff involved in green space planning and maintenance.

The main components of the knowledge sharing and skills development methodology applied within the PARKS project are summarized in Table 4.

Table 4. Summary of the Knowledge Sharing and Skills Development Methodology of the PARKS Project

Methodology component	Main activities	Key tools used	Expected outcomes
Knowledge generation	Implementation of pilot interventions for establishment of new urban parks	Practical experience from park planning, planting, and maintenance activities	Identification of good practices in urban green infrastructure management
Knowledge sharing workshops	Organization of expert-led workshops in partner municipalities	Presentations, professional discussions, stakeholder engagement	Exchange of practical experience among municipal practitioners
Skills development activities	Training modules and field-based demonstrations	Practical training sessions, demonstration sites	Improved professional competencies of municipal staff
Cross-border knowledge exchange	Cooperation between partner municipalities in the CBC area	Workshops, professional networking, exchange of experiences	Transfer of good practices between municipalities
Monitoring and feedback	Collection of participant feedback and evaluation of knowledge sharing activities	Workshop evaluation forms, discussions with practitioners	Continuous improvement of training and knowledge exchange activities

By implementing these recommendations, municipalities can further strengthen their institutional capacities and improve the quality, sustainability, and resilience of urban green infrastructure.

The methodology developed within the PARKS project provides a practical framework that can be applied not only in the partner municipalities but also in other municipalities within the cross-border region and beyond.

Through continued knowledge exchange, capacity development, and cooperation, municipalities can contribute to the creation of healthier, greener, and more sustainable urban environments for their communities.

The methodology presented in this document may also serve as a reference framework for other municipalities seeking to strengthen their capacities for knowledge sharing and professional development in urban green infrastructure management.

The integration of methodological approaches for knowledge exchange with practical guidance materials and evaluation tools further strengthens the capacity development potential of the PARKS project (see Annexes 3–5).

11. Illustrative Application of the Methodology in Municipal Context

The following section provides an illustrative example of how the proposed methodology for knowledge sharing and skills development in municipal green infrastructure may be applied in a municipal context within the cross-border cooperation area. Within the PARKS project, two municipalities – Kriva Palanka in North Macedonia and Dupnitsa in Bulgaria – have been involved in activities related to the improvement of urban green spaces and the exchange of professional knowledge.

The experiences associated with these municipal environments provide a useful reference for illustrating how the methodological framework described in this document may support professional capacity development and knowledge exchange among municipal administrations and practitioners responsible for urban green infrastructure.

11.1 Municipality of Kriva Palanka

The Municipality of Kriva Palanka, located in the northeastern part of North Macedonia, represents an example of a local administration where the improvement and sustainable management of urban green spaces has become an increasingly important aspect of urban development.

As in many municipalities of comparable size, the management of urban green infrastructure involves a range of practical and institutional challenges, including limited availability of specialized personnel, constrained technical resources, and the need for improved coordination between municipal departments involved in urban planning, infrastructure development, and environmental management.

In such contexts, structured knowledge sharing and professional capacity development represent important tools for strengthening the effectiveness of municipal green infrastructure management. The methodology presented in this document offers a framework through which municipal staff and practitioners can enhance their technical knowledge and practical skills related to the establishment and maintenance of urban green spaces.

Through mechanisms such as expert-led workshops, professional discussions, and the use of practical guidance materials, municipal practitioners can exchange experiences, discuss practical challenges, and explore solutions applicable to local conditions. These processes contribute to strengthening institutional cooperation within municipal administrations while supporting the adoption of improved practices in the management of urban trees, lawns, and other elements of urban green infrastructure.

11.2 Municipality of Dupnitsa

The Municipality of Dupnitsa, located in southwestern Bulgaria, shares a number of similarities with other municipalities in the cross-border region in terms of environmental conditions, urban development dynamics, and institutional structures responsible for managing urban green areas. As urban environments continue to evolve, the role of green infrastructure in improving environmental quality, supporting biodiversity, and providing recreational opportunities for local residents becomes increasingly significant.

Effective management of urban green infrastructure in such contexts requires continuous professional learning and access to updated technical knowledge. The methodology presented in this document supports this process by promoting structured knowledge exchange and skills development among municipal professionals and practitioners responsible for green space management.

Through workshops, professional discussions, and training activities, municipal staff can exchange practical experiences and gain insights into modern approaches for planting, maintaining, and protecting urban vegetation. Such learning opportunities allow practitioners to improve their understanding of sustainable urban green infrastructure management while strengthening collaboration among different municipal departments and stakeholders.

11.3 Cross-Border Learning and Knowledge Exchange

An important dimension of the methodology presented in this document is the promotion of cross-border learning and cooperation between municipalities that share similar environmental conditions and development challenges. The cross-border cooperation area between North Macedonia and Bulgaria provides a particularly relevant environment for the exchange of experiences and professional knowledge related to urban green infrastructure management.

Through structured knowledge sharing activities, municipal professionals can compare different approaches to urban green space planning and maintenance, discuss common challenges, and identify practical solutions that may be adapted to their respective local contexts. Such exchanges not only contribute to improving technical knowledge but also foster professional networks among practitioners and institutions involved in urban environmental management.

Cross-border cooperation therefore plays an important role in strengthening institutional capacities and promoting the dissemination of good practices in urban green infrastructure management. By illustrating how the proposed methodology may be applied within municipal contexts in the cross-border region, this section highlights the practical relevance of the knowledge sharing and skills development framework presented in this document.

Annex 1. Example Agenda for Knowledge Exchange Workshop

The following agenda provides an example structure for organizing a workshop aimed at facilitating knowledge exchange and professional discussion related to municipal green infrastructure management. It is based on the positive experiences from the workshops held as part of the PARKS project.

Time	Session	Description
09:30 – 10:00	Registration of participants	Arrival of participants and informal networking.
10:00 – 10:15	Opening remarks	Welcome speech by representatives of the host municipality and introduction to the objectives of the workshop.
10:15 – 10:45	Presentation of the PARKS project	Overview of project goals, activities, and results related to urban green infrastructure.
10:45 – 11:30	Presentation of the Guide for planting and maintaining woody species and lawns	Experts present key recommendations related to species selection, planting techniques, and maintenance practices.
11:30 – 11:45	Coffee break	Informal networking and discussion among participants.
11:45 – 12:30	Practical challenges in municipal green infrastructure management	Discussion of challenges encountered by municipal staff and public utility companies responsible for green space maintenance.
12:30 – 13:15	Protection of trees during construction activities	Presentation and discussion of recommended measures for protecting existing trees during infrastructure works.
13:15 – 14:00	Field visit (optional)	Visit to a nearby urban green space or demonstration site for practical observation and discussion.
14:00 – 14:30	Feedback and conclusions	Collection of participant feedback and identification of future cooperation opportunities.

The proposed agenda can be adapted depending on the objectives of the workshop, the number of participants, and the specific topics that need to be addressed.

Annex 2. Example Training Programme for Municipal Staff Involved in Urban Green Infrastructure Management

This example training programme outlines a potential structure for capacity-building activities aimed at strengthening the professional competencies of municipal staff and practitioners responsible for urban green infrastructure management.

Training topic	Duration	Main content	Target participants
Introduction to urban green infrastructure	1 hour	Importance of urban green spaces, ecosystem services, and environmental benefits	Municipal staff, public utility companies
Selection of woody species for urban environments	2 hours	Criteria for species selection, adaptation to urban conditions, biodiversity considerations	Landscape professionals, municipal planners
Proper planting techniques for trees and shrubs	2 hours	Site preparation, planting procedures, root system management, initial plant care	Municipal maintenance teams
Establishment and maintenance of lawn areas	1.5 hours	Soil preparation, seeding methods, irrigation practices, mowing regimes	Public utility company staff
Protection of trees during construction activities	1.5 hours	Tree protection zones, soil compaction prevention, coordination with construction teams	Municipal engineers and construction supervisors
Planning and organization of green space maintenance	1 hour	Seasonal maintenance activities, monitoring plant health, efficient resource management	Municipal managers and maintenance coordinators

We recommend the training sessions to be delivered through a combination of **presentations, practical demonstrations, and field-based learning activities.** When possible, at least part of the training activities should be conducted in urban parks or other green spaces where participants can observe, try, and discuss practical techniques in real conditions. This type of practical training programmes contributes to strengthening professional competencies and improving the overall quality of urban green infrastructure management in municipalities. Furthermore, when they include staff from different municipalities as participants, they can encourage sharing of personal experiences and proposal of different solutions.

Annex 3. Linking the Methodology and the Guide for Planting and Maintaining Woody Species and Lawns in Urban Green Areas

A3.1 Purpose of the Annex

The methodology for knowledge sharing and skills development presented in this document is linked with the practical recommendations contained in the *Guide for Planting and Maintaining Woody Species and Lawns in Urban Green Areas in the Municipalities of Kriva Palanka (North Macedonia) and Dupnitsa (Bulgaria)*. While the present document focuses on the **methodological framework for knowledge exchange, professional training, and skills development,** the Guide provides the **technical guidance and practical instructions** related to the establishment and maintenance of urban green infrastructure.

Therefore, the Guide serves as an important **knowledge resource** that supports the implementation of the knowledge sharing activities and capacity development processes described in this methodology. This annex illustrates how the different components of the proposed methodology are supported by thematic areas and practical recommendations included in the Guide.

A3.2 Role of the Guide within the Knowledge Sharing Methodology

Within the framework of the PARKS project, the Guide serves as a key reference document used during knowledge exchange activities and training initiatives targeting municipal staff and practitioners responsible for the management of urban green areas.

The Guide supports the methodology in several ways:

- By providing **practical examples and technical recommendations** that can be presented during knowledge sharing workshops;
- By supporting **skills development activities** aimed at improving the professional competencies of municipal staff;
- By serving as a **reference source for practical demonstrations and discussions** during training sessions;
- By contributing to the dissemination of **good practices in the establishment and maintenance of urban green infrastructure.**

Through the integration of methodological approaches for knowledge sharing with the practical guidance provided in the Guide, the PARKS project promotes the development of sustainable and well-managed urban green spaces in the cross-border cooperation area.

A3.3 Links Between the Methodology and the Guide

The table below presents an overview of the main methodological components described in this document and their connection with the thematic areas addressed in the Guide.

Methodology component	Related content in the guide	Purpose within the knowledge sharing process
Knowledge sharing workshops	Selection of suitable woody species for urban green areas	Presentation of practical knowledge and exchange of professional experience
Training sessions for municipal staff	Step-by-step instructions for planting trees and shrubs	Development of practical skills related to the establishment of urban greenery
Practical demonstrations and field-based learning	Establishment of lawn areas and recommended soil preparation practices	Demonstration of recommended techniques for urban green space establishment
Awareness raising among practitioners	Recommendations for protection of existing trees during urban interventions	Promoting responsible management and protection of urban vegetation
Maintenance planning and management	Seasonal maintenance calendar for trees, shrubs, and lawns	Supporting long-term sustainability of urban green infrastructure

A3.4 Contribution of the Guide to Capacity Development

The integration of methodological approaches for knowledge sharing with practical guidance materials contributes to strengthening the professional capacities of municipal administrations and practitioners responsible for urban green infrastructure. By linking structured knowledge exchange activities with the technical recommendations presented in the Guide, municipal professionals can more effectively translate theoretical knowledge into practical application. This combined approach supports the development of sustainable urban green infrastructure management practices and contributes to improving the long-term quality and resilience of urban green spaces within the cross-border cooperation area.

Annex 4. Practical Guidelines for Protection of Existing Trees during Construction and Infrastructure Works

A4.1 Purpose of the Annex

Urban development and infrastructure works often take place in close proximity to existing trees and other elements of urban green infrastructure. If appropriate protective measures are not implemented, construction activities may cause unintended damage to tree trunks, root systems, and surrounding soil structure. Such damage may compromise the long-term health, stability, and ecological value of urban trees.

The purpose of this annex is to provide practical guidance for municipalities, construction companies, and infrastructure contractors regarding the protection of existing trees during construction and infrastructure works. The recommendations presented in this annex aim to support the preservation of mature trees and to reduce the risk of damage to urban vegetation during urban development activities.

A4.2 Common Risks for Trees during Construction Activities

Urban construction works may affect trees in several ways. The most common risks include:

- Soil compaction caused by heavy machinery operating near tree root zones.
- Mechanical damage to tree trunks and branches due to accidental contact with construction equipment.
- Root damage during excavation works, particularly when trenches for infrastructure installations are dug near trees.
- Changes in soil level resulting from filling or removal of soil around tree bases.
- Storage of construction materials in areas surrounding tree root systems.
- Chemical contamination from fuels, construction materials, or other substances.

Such impacts may not always be immediately visible but can gradually lead to reduced tree vitality, increased susceptibility to pests and diseases, and eventual tree decline.

A4.3 Tree Protection Measures before Construction Works

Before construction activities begin, it is important to identify existing trees and establish appropriate protection measures.

Recommended actions include:

- Inventory and assessment of existing trees within the construction area.
- Identification of trees that require protection during the implementation of construction works.
- Establishment of Tree Protection Zones (TPZ) around the base of trees.
- Installation of temporary protective fencing around trees and their root zones.
- Marking protected trees on construction plans and site maps.
- Informing construction workers and site managers about the importance of protecting existing vegetation.

Proper planning before construction begins significantly reduces the likelihood of accidental damage to trees.

A4.4 Protection Measures during Construction Activities

During construction works, particular attention should be given to preventing direct and indirect damage to trees.

Recommended measures include:

- Avoid operating heavy machinery within established Tree Protection Zones.
- Prevent soil compaction around tree root systems by restricting vehicle movement.
- Avoid excavation activities close to tree trunks whenever possible.
- If excavation near trees is unavoidable, perform it manually or with specialized equipment to minimize root damage.
- Protect tree trunks using temporary protective boards or padding if machinery is operating nearby.
- Prohibit the storage of construction materials, soil, or waste within tree protection zones.
- Ensure that construction supervisors and municipal representatives monitor compliance with tree protection measures.

These actions help ensure that construction activities can be implemented while minimizing negative impacts on urban vegetation.

A4.5 Post-Construction Inspection and Recovery Measures

After the completion of construction works, municipalities and site managers should conduct inspections to assess the condition of nearby trees.

Recommended actions include:

- Inspection of tree trunks, branches, and root zones for signs of damage.
- Removal of temporary protection structures.
- Soil aeration in areas affected by compaction.
- Supplemental irrigation if necessary to support tree recovery.
- Pruning of damaged branches under professional supervision.
- Monitoring tree health during the first growing season following construction activities.

Such post-construction measures can significantly improve the recovery of trees affected by nearby infrastructure works.

A4.6 Recommended Minimum Tree Protection Distances

The table below provides indicative protection distances for trees during construction works.

Tree trunk diameter (DBH)	Recommended minimum protection radius
Up to 20 cm	1.5 m
20 – 40 cm	2.5 m
Over 40 cm	3 – 4 m

These distances may be adjusted depending on tree species, soil conditions, and the specific characteristics of the construction site.

A4.7 Importance of Integrating Tree Protection in Urban Development

The preservation of mature trees represents an important component of sustainable urban development. Mature urban trees provide multiple environmental benefits, including shade provision, reduction of the urban heat island effect, improvement of air quality, and enhancement of urban biodiversity.

By integrating tree protection measures into construction planning and implementation processes, municipalities can ensure that infrastructure development and urban greenery preservation are addressed in a balanced and sustainable manner.

Annex 5. Example Evaluation Form for Knowledge Exchange Workshops

A5.1 Purpose of the Annex

Workshops organized within the PARKS project represent an important mechanism for facilitating knowledge exchange, presenting practical guidance materials, and strengthening the professional capacities of municipal staff involved in urban green infrastructure management.

In order to assess the effectiveness of these knowledge sharing activities and to improve the quality of future training initiatives, it is important to collect feedback from workshop participants. Evaluation forms provide a structured mechanism for gathering participant opinions regarding the relevance, clarity, and practical usefulness of the presented information.

The purpose of this annex is to present an example evaluation form that municipalities and project partners may use when organizing knowledge exchange workshops and training events related to urban green infrastructure management.

A5.2 Example Workshop Evaluation Questionnaire

Participants may be invited to evaluate different aspects of the workshop using a simple rating scale from 1 (very poor) to 5 (excellent).

Evaluation aspect	**Rating (1–5)**
Relevance of the workshop topics	
Clarity of presentations	
Practical usefulness of the information presented	
Quality of discussions and interaction	
Organization of the workshop	
Overall satisfaction with the workshop	

A5.3 Open Feedback Questions

In addition to numerical ratings, open-ended questions allow participants to provide more detailed feedback and suggestions for future activities.

Participants may be asked to respond to questions such as:

- Which part of the workshop did you find most useful?
- Which topics would you like to see further developed in future training activities?
- What practical challenges do you face in the management of urban green infrastructure in your municipality?
- Do you have suggestions for improving future workshops or training sessions?

Such qualitative feedback can provide valuable insights for improving the design and implementation of future knowledge exchange initiatives.

A5.4 Use of Evaluation Results

The information collected through workshop evaluation forms can be used by municipalities and project partners to improve the effectiveness of future knowledge sharing activities.

Evaluation results may help identify:

- topics that require additional training or clarification;
- practical challenges faced by municipal practitioners;
- opportunities for improving the structure and content of future workshops;
- additional capacity development needs among municipal staff.

By systematically collecting and analysing participant feedback, municipalities can strengthen the quality and relevance of knowledge exchange activities and ensure that future training initiatives better address the needs of practitioners involved in urban green infrastructure management.