PILOT PPP CASE STUDY:

Vinnytsia SWM and Landfill Gas Energy Production
Vinnytsia Solid Waste Management and Landfill Gas Energy Production

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ABOUT THE PUBLIC-PRIVATE PARTNERSHIP DEVELOPMENT PROGRAM

The goal of the Ukrainian Public-Private Partnership Development Program (P3DP), implemented by FHI 360 and funded by the United States Agency for International Development (USAID), is to broaden the use of PPPs in Ukraine and expand the role of private sector finance, expertise, and modern technology to improve infrastructure, the quality of public services, and the environment. The program provides assistance to the Government of Ukraine at national, regional and municipal levels to improve the legal and institutional framework, enhances the capacity of individuals and organizations to design and engage in PPP activities, and supports the implementation of pilot PPP projects. Importantly, P3DP assistance is developing the capacity of government to work effectively with the private sector in building or rehabilitating infrastructure, improving or restoring public services, and developing the economy.

Beginning operations in October 2010, the Program is pursuing the achievement of four interrelated, mutually-reinforcing objectives, each contributing to the development of PPPs in Ukraine in full alignment with USAID’s Country Development Cooperation Strategy for Ukraine:

1. **Create a Legal and Regulatory Framework Conducive to PPPs** by improving legislation, regulations, and policies that support PPP initiatives at national and municipal levels.

2. **Strengthen the MOEDT’s Capacity to Guide and Support PPPs** so that it serves as valuable resource for municipalities and government agencies seeking to improve the efficiency and quality of public services and infrastructure through private sector participation. The MOEDT coordinates much of its PPP support work through the recently established PPP Unit.

3. **Develop PPP awareness and capacity** of municipalities to create and implement PPPs while improving local governance practices. Training, workshops, seminars, conferences, and study tours contribute to the growing body of knowledge on PPPs at the local level. P3DP also demonstrates how strategic communication programs that reach out to the general public and media provide valuable input during the PPP development process.

4. **Implement Pilot PPPs in key sectors** by providing technical assistance to selected municipalities in all phases of development, from initial concept through the transparent, competitive tendering process. Practical experiences and lessons learned provide valuable feedback to further improve the PPP environment and processes in Ukraine.
P3DP assisted efforts of municipal leaders to introduce pilot PPP projects to improve infrastructure and public services. The practical insights and lessons learned through these experiences guided the work to improve Ukraine's PPP regulatory and legal environment and were fed into the Program's training events. The efforts also resulted in creating replicable PPP models for improving infrastructure and public services.

P3DP has created a series of case studies – each with complementing videos, sectoral briefs, guidance notes and other knowledge tools – to share these experiences and lessons learned for future PPP practitioners in Ukraine. The series includes:

- **Parks & Recreation**
  - Kyiv Hydropark Sports Facility
  - Simferopol City Park

- **Municipal Waste Management**
  - Ivano-Frankivsk SWM and Landfill Gas Energy Production
  - Vinnytsia SWM and Landfill Gas Energy Production

- **Municipal Heating**
  - Malyn Biofuel Heating

- **Healthcare**
  - Zaporizhia Health Care Facilities and Services

- **Education**
  - Kyiv Education Facility Maintenance and Management

- **Urban Transportation**
  - Lviv Parking

Each case describes the problem being addressed, steps taken by municipalities with P3DP support to resolve the problem, the anticipated benefits, and the result. Key lessons learned and insights gained from pursuit of the pilot PPP projects are described.

Government and city officials, private firms, and other stakeholders with an interest in developing PPPs will benefit from the many lessons of P3DP’s experience. Several Ukrainian municipalities are already adapting the processes, diagnostic tools, and contracts to replicate PPPs in key sectors of education, parks & recreation, municipal heating and solid waste management.
**Vinnytsia SW Landfill Management, Gas Treatment and Electricity Generation Project**

**Sector:** Solid Waste Management  
**Type:** Build-Own-Operate-Transfer (BOOT)

Project will generate power from landfill gas at a municipal landfill. Expected benefits:  
- Six jobs created; six more expected in 2015.  
- Up to US$2.2 million in private investment  
- UAH 60 million in taxes to be collected during life of project  
- Carbon emissions reduced by 20,000 tons annually.

**Processes completed:**

- Feasibility study and tender documents completed. Financial model updated to reflect current economic situation in Ukraine.  
- Environmental evaluation approved.  
- Using P3DP analysis, documents, and recommendations, City officials persuaded the private firm currently flaring gases to install technology needed to convert gas to electricity.  
- The City indicates that the PPP bidding process is delayed until improvement of the investment climate.
SECTOR SUMMARY

Solid waste management is a major problem in Ukraine. A 2014 study by the International Finance Corporation reports that Ukraine produces up to 13 million tons of municipal solid waste annually with recycling rates in the 3 – 8 percent range. That means most solid waste ends up in its 6,700 landfills and dumps, many of which are unauthorized, overfilled, or fail to meet sanitary requirements. Government has taken some positive steps to deal with the problem: it has improved solid waste management legislation and plans to meet European Union standards for recycling. But Ukraine is grappling with an economic crisis, a simmering war with Russia, and 1.5 million internally-displaced persons in urgent need. Simply put, government does not have the financial, technical, or managerial resources to address these problems. In the meantime, toxic pollutants contaminate water and soil, and landfills emit methane, a virulent greenhouse gas. Landfills are running out of space. And the economic cost of not recycling – in terms of lost raw materials – are significant.

In response, the Government of Ukraine aims to reform its highly-inefficient solid waste management sector and understands that private sector participation in the sector can help it reduce costs, increase recycling, introduce new technologies, improve management, and protect public health and the environment. P3DP has been active in the sector: it has collaborated with the National Commission for Communal Services Regulation and the Ministry of Regional Development, Housing and Communal Services to establish a rational, clear, and consistent SWM tariff methodology for the disposal of waste at municipal landfills, an essential factor for successful public-private partnerships in the sector.

A promising component of a comprehensive SWM strategy is generating power by harnessing harmful methane gas produced by landfills. This approach not only produces energy, but reduces negative environmental impact and contributes to long-term maintenance and post-closure activities on the landfill.

BACKGROUND

Vinnytsia, a city of 370,000 located 260 km west of Kyiv, planned to generate electricity using landfill gas at an existing municipal landfill through a PPP. Earnings from the produced electricity would be used to re-cultivate and close down the landfill once its capacity expired and provide resources for post-closure care. This would be important for addressing long-term environmental safety at closed landfills. In addition, the City planned to reduce its carbon emissions and need for power generated from more polluting sources.

The project would require installation of new equipment at the existing municipal landfill to combine the current biogas flaring system with a newly-built electrical generation system. The City looked into the public-private partnership (PPP) model for implementing the project.
P3DP’S ROLE

P3DP worked with the municipal government in both Vinnytsia to develop PPPs that harness biogas emissions as part of their comprehensive SWM systems. To do so, P3DP joined other stakeholders to advocate for wider reform of the sector to establish a modern and effective system based on EU standards. Led by the Ukrainian Ecological Alliance, a working group was formed comprised of more than 15 leading waste management companies and key government agencies. It sought to develop a unified advocacy plan to reform the regulatory and policy environment. Members included representatives from Parliament, the Ministry of Ecology and Natural Resources, the State Ecological Inspection, and the Ministry of Regional Development. P3DP and key educational institutions also participated.

P3DP developed a financial model for the project to forecast potential proceeds of electricity sales at a higher “green tariff,” and identifying what maintenance, closure and post-closure measures the city can reasonably request from the private partner. P3DP also conducted legal and environmental assessments, prepared the feasibility study and tendering documents, and defined key provisions of the PPP agreement. P3DP also conducted study tours to demonstrate best practices of SWM in Hungary and Austria, which significantly improved the city’s understanding of PPPs. A BOOT PPP agreement structure was recommended for the project.

In October 2013, the Vinnytsia City Executive Committee approved the PPP Appraisal Opinion and submitted the PPP package to both the MOEDT’s PPP Unit and the Ministry of Finance. Over a two-month period, P3DP worked with the agencies by providing necessary information about the benefits of the project and relevant legal requirements and procedures. The project was approved by the Ministry of Finance in December 2013.

MOEDT’s PPP Unit approved the project feasibility study submitted by P3DP, allowing the Vinnytsia City Council to proceed with developing the project. In February 2014, the Vinnytsia City Council voted in favor of the PPP. The decision initiated the pre-tender stage, during which all necessary documents are to be prepared prior to tender.

P3DP assisted the Committee to prepare components of the tender documents package, including the draft PPP agreement, tender instructions for bidders, and qualification criteria for evaluation of bids. These were submitted to the municipality for review. The environmental assessment was drafted and approved by USAID. At the request of the municipality, P3DP updated the financial model to reflect current currency exchange rates, inflation, costs, solid waste collection and utilization tariffs, and projected revenue.

CHALLENGES
• **Uncertainties about the Green Tariff**, which allows for a higher tariff for electricity produced from renewable sources, made the long-term financial prospects of the project unclear. This in turn raised the project’s risk profile, making it less attractive to potential investors. The method for calculating tariffs is also important.

• **The inability to make long-term budget commitments** under Ukrainian legislation also hampered the pilot. This, however, led to budget code revisions under P3DP’s objective to improve the enabling environment for PPPs.

**OUTCOMES**

The updated financial model demonstrated that Vinnytsia needed to increase landfill tariffs and control capital expenditures of the private operator. However, as part of the Government of Ukraine’s efforts to reduce costs, green tariff rates were temporarily reduced in March 2015 by approximately 50 percent. This development significantly alters the business model of the project and lowers the incentive for the private sector to participate in the project.

This, in addition to worsening economic conditions and a sharp increase in the cost of necessary imported equipment (due to devaluation of the Ukrainian Hryvnia), led the municipal government to conclude that it would be unable to secure a transparent and competitive tender at this time. It therefore put the tender on hold until the long-term status of the green tariff is resolved and economic conditions allow a competitive tender. The city used P3DP materials and analysis to persuade the private firm currently flaring gases to install technology needed to produce energy until economic conditions enable a full tender.

Although the PPP competitive tender was not conducted, the City benefited from P3DP’s technical, environmental and legal analysis. The financial model created can be adjusted to reflect new tariff rates and projected revenues. Prospects for the project improved with the passage of Draft Law 2010-d On Amendments to Some Laws of Ukraine to Ensure Competitive Conditions for Electricity Production from Alternative Energy Sources on June 4, 2015.

Should the project be brought to completion, the City can expect the following benefits:

• The project when implemented will reduce the need for power from more polluting sources, resulting in reduced gas emissions equaling 20,000 tons of carbon dioxide annually by utilizing methane, which is many times more hazardous than carbon dioxide;

• 380,000 citizens will benefit from better landfill maintenance and a healthier environment at and near the landfill;

• Investments of up to $2 million are expected, with six new jobs created. The state will benefit from UAH 60 million in taxes during the life of the project.
LESIONS LEARNED

- Landfill gas PPPs have the potential to generate funds (in addition to power) that can be used by cash-strapped municipalities for maintaining and modernizing landfills.
- The private sector requires greater certainty about tariffs – and also tariff calculation methodology – before it will have the comfort it requires to participate in such projects. More information is available on tariff calculation methodology on ppp-ukraine.org.
- The ability of government to make long-term budget commitments is important for the viability of PPPs.