

Sustainable energy and development in disadvantaged communities: New approaches from Bosnia and Herzegovina, Hungary, and Slovakia

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Abstract

This paper examines two community projects implemented by the United Nations Development Programme (UNDP). The first, Promoting Access to Energy Services to Foster Integration and Human Development for Disadvantaged Communities in Hungary and Slovakia with a Special Focus on the Roma, built on regional development work with isolated communities without reliable access to heat and electricity. The second, Energy Efficiency in Housing in Bosnia and Herzegovina (BiH), focused on a network of communities where rebuilding was underway following the Balkans conflict.

While the projects took place in different environments, both shared common approaches. First, they focused on community energy planning in areas where infrastructure was severely deficient. Planning was designed so that current investments in building stock would not have to be retrofitted later for efficiency. Second, they linked energy agencies and NGOs with institutions outside of the energy/environment community, such as the National Minority Self Government in Hungary and the Ministry of Refugees in BiH. The projects thus leveraged funds and expertise from new sources while raising awareness of sustainable energy issues in organizations already funding infrastructure.

While time and funding were limited by the terms of the grants, both projects established a foundation of information, planning, and partnerships. Both projects included baseline energy studies, training workshops, and practical guides for lo-

cal leaders. In addition, there were tangible community benefits in education (reliable heat supply for a new kindergarten), jobs creation (wood-chipping in a municipal forest), and business development (contracts for efficient construction).

Introduction

This paper examines two community projects implemented by the United Nations Development Programme (UNDP). UNDP supports work in energy and environment as one of its five “practices” because of the key role that energy and environment issues play in sustainable development. As the agency has aligned its development work with the Millennium Development Goals, the mandate for work in energy and environment follows from the following text in Goal Number 7: “Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources.”

Following the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, UNDP developed a Plan of Implementation to integrate social issues and environmental issues and launched several energy/development initiatives, including the Global Village Energy Partnership (GVEP) and a Thematic Trust Fund (TTF) to support projects in energy and environment. The trust fund currently has four service lines and is designed to complement ongoing UNDP work in the field, such as projects funded by the Global Environmental Facility (GEF) and the Capacity 2015 program. In fact, the presence of co-financing was a strong factor in selecting the initial TTF grant recipients. While the TTF was initially designed with the needs of least developed countries in mind, the following two projects focused instead on „pockets of poverty“ in the European region.

Rationale and Approach

Both of the projects discussed in this paper were developed as a means of introducing sustainable energy options into disadvantaged communities. In both projects, the target communities were also focusing on poverty alleviation, planning, and economic development but had not addressed energy issues directly. The communities presented an excellent opportunity to mainstream energy issues into ongoing community development efforts, because ties with community activists and local leaders were already established. In both cases, there was a desire to put sustainable energy solutions into place at an early stage rather than “paying twice” – once to put infrastructure and buildings into place, and then later to retrofit for efficiency.

HUNGARY AND SLOVAKIA

Hungary and Slovakia have transformed themselves over the past 17 years from centrally-planned economies to market-based, upper-middle-income economies and EU member states. While economic reforms continue, “pockets of poverty” have emerged among the Roma community, which comprises 5-10 percent of the total population in both countries.

Numerous studies have been conducted in the last decade on the living conditions of the Roma in Europe (see Ivanov et al.; Ringold, et. al.) that document spatial and social isolation. In geographic terms, 25 percent in Slovakia and 14 percent in Hungary inhabit isolated settlements in the eastern regions of their countries. Long-term unemployment tops 70 percent in some communities, and employment opportunities tend to be low-paid, low-skill jobs (UNDP Project Document, 2002). Energy-related issues in these communities reflect both poverty and isolation. Many Roma in rural settlements lack access to reliable energy services. Factors include geographic isolation from energy infrastructure, unclear ownership of land (which inhibits access to public utilities), and the mix of formal and informal housing. As a result, more than half of Roma in Slovakia use a wood-burning stove to heat water, as opposed to only 13 percent of non-Roma in surrounding areas. In segregated settlements in Slovakia, more than 86 percent of Roma use wood-burning stoves (Filadelfiová, 2007: 45). Illegal wood harvesting can aggravate social isolation and harm the local environment. Similar factors inhibit access to electricity, and illegal power tapping also exacerbates the relationship between Roma and local authorities.

Finally, poverty contributes to housing that may use more energy or lack basic efficiencies. For example, 12 percent of Roma in Slovakia live in shanty housing, and total of 18 percent in sub-standard housing, types of housing that are almost non-existent among the non-Roma population (Filadelfiová, 2007: 38-39). Roma communities were also more likely to use unbaked bricks, less likely to use bricks than general population; some also lived in wood housing, which was almost non-existent in the general population (Filadelfiová, 2007: 44).

At the same time, however, conditions in Roma settlements are unique when compared with similar settlements in low-income countries in other regions. Home heating is the major use of energy, social welfare systems are well developed, and these communities have relatively good proximity to the grid (UNDP Project Document, 2002).

Because of this complex situation, the TTF project for Hungary and Slovakia, *Promoting Access to Energy Services to Foster Integration and Human Development for Disadvantaged Communities in Hungary and Slovakia with a Special Focus on the Roma*, focused on access issues and community-centred problem solving. The project was designed to last one year as per the TTF requirements, and the budget totalled USD 110,000 (approximately 110,000 Euros at project signature, depreciating to 90,000 Euros at the end of the project), with USD 90,000 from TTF and USD 20,000 from UNDP core resources divided evenly between Slovakia and Hungary.

Because of the time and budget constraints, the project essentially “piggy-backed” on *Your Spíš*, an ongoing UNDP regional development initiative in Slovakia, and a similar project managed by Autonomía, a Hungarian NGO. The project consisted of five stages: 1) a current situation analysis; 2) participatory solution development; 3) small-scale trials, pilots, and demonstrations; 4) monitoring and evaluation of the trials; and 5) outreach and the development of policy recommendations and a project pipeline. The situation analysis involved basic energy surveys for selected communities, including energy audits of public buildings in Mníšek nad Hnilcom, Rudňany, and Spišské Podhradie and individual housing units in Spišský Hrhov in Slovakia. Both the Slovakia and Hungary projects held a combined study trip for mayors to Western Slovakia and the Czech Republic to become familiar with low-income community energy solutions that could be used in future for social housing, public housing. They also held a joint conference in Levoča, Slovakia, to compare findings and recommendations.

In the Slovak project, demonstration grants were delivered by the existing *Your Spíš* Fund. A heating system for a new kindergarten for Roma children in Rudňany based on a 30 kW boiler using wood chips and wood waste was critical to having the new institution function; the boiler was financed by the UNDP trust fund, and the municipality covers the costs of operation. The more than 50 children attending daily are better prepared to enter elementary school, and interest in education among their parents has also increased; the building also serves as a community center. Grants also supported the retrofit of the heating system in the Nalepkovo Retirement Home and the installation of energy-saving public lightning in Svedlar and Mníšek nad Hnilcom. Another grant covered the purchase of a wood chipping machine with a capacity of 4-8 m³/hour and a 70 HP tractor to supply fuel for disadvantaged settlements and eventually other. Currently a group of 12 unemployed Roma harvest and process wood in the forests around Spišské Vlchy using the machine described above and receive the wood for heating under the auspices of ETP, a community development agency that runs the ongoing *Your Spíš* project. The results also allowed ETP Slovakia to leverage funds for similar work from the International Organization for Migration and Habitat for Humanity International, including the purchase of 129 solid-fuel furnaces for Roma households and weatherization improvements for individual homes in Nalepkovo. Project beneficiaries were satisfied with these results (UNDP Final Report, 2005:3). Total energy savings are more difficult to measure. While substitute fuels for these settlements could include coal, electric space heating (in some cases), and low-efficiency stoves using logs or wood waste, in other cases the biomass products

addressed an unmet need: e.g., providing heating in a kindergarten where the premises were unheated. In these instances, energy savings were relative to other available sources. However, those sources were not available due to a lack of financing. In summary, a means of calculating energy savings and carbon impact in the affected communities was beyond the scope of the project.

BOSNIA AND HERZEGOVINA (BIH)

The special circumstances surrounding disadvantaged communities in BiH were quite different from the Hungary/Slovakia projects: most problems resulted from the civil war that took place in the country from 1992 to 1995. For this reason, the TTF project *Energy Efficiency in Housing in Bosnia and Herzegovina (BiH)* focused on a network of communities where rebuilding was underway.

Fighting during the civil war damaged or destroyed housing in many communities, and resulted in a significant reduction in housing stock (Wegelin, 2005: 1). This post-war shortage of housing has a social dimension in that it makes the resettlement of internally displaced persons and returning refugees more difficult. The international community is supporting the reconstruction of infrastructure, and UNDP's Area Based Development (ABD) program is looking at basic needs such as schools and health care facilities.

Within housing, heating is the greatest source of energy consumption, and the household/commercial sector consumes 50 percent of energy, versus an average of 41 percent in EU countries with similar climatic conditions (Stability Pact Watch, 2005: 18). At the same time, there has been relatively little attention given to energy efficiency and renewables, with a corresponding lack of investment. Sustainable energy policy and planning are complicated by the cumbersome political structure and multiple layers of authorities.

A focus on building stock and municipal planning seemed to be a natural entry point for energy issues and for "Making reconstruction and recovery more sustainable" (UNDP APR, 2006: 2). In addition to cooperation in project management with the ABD program, the TTF project also worked with two other UNDP projects, one focusing on returnees and the other on rights-based municipal planning.

Project activities were divided into three main parts: 1) a review of existing ABD programs; 2) energy efficiency options for municipalities; and 3) renewable energy options for municipalities in the form of biomass energy. The first review, which looked at tendering, contracting, and construction, led to "very successful cooperation with [a] couple of private companies which had presented their scope of works and new technologies represented in their work," and, as one project report went on to state, this public-private partnership is one of the first that has produced tangible results (UNDP APR, 2006:7).

For the municipal energy efficiency component, trainings for municipal officials from 14 municipalities in the theoretical and practical aspects of buildings efficiency were held in Sarajevo and Banja Luka. The training manual, *Energy Efficiency Improvements in Buildings*, was subsequently mailed to all municipalities in BiH. The training in business plan development led to 7 business plans for energy efficient reconstruction projects being considered for demonstration project funding. Ultimately, three business plans submitted by municipalities

were funded: primary schools in Mostar and Orasje and a secondary school in Bratunac. The project component assessing the potential biomass produced data on the potential for using wood waste in individual biomass-fired heaters in homes and a study on the biomass potential for rural buildings and rural productive uses. In addition, the TTF project funded the development of a proposal to the Global Environmental Facility on expanding the use of biomass energy in BiH. At present, 73 % of homes in BiH are heated with autonomous heaters or boilers, and the primary fuel used is coal; biomass use is down by nearly half from pre-war levels to 4.2 % (Ballard-Tremeer, 2006: 10). In school and other municipal buildings, oil and diesel comprise 77 % of fuels used (Ballard-Tremeer, 2006: 9). However, 40 % of the country is forest cover, and estimated annual energy potential totals 33 PJs, with nearly 40 % of that total coming from firewood and more than 20 % from residues from log processing (Ballard-Tremeer, 2006: 8-9).

Analysis

While the projects took place in different environments, both shared common approaches. First, they focused on community energy planning in areas described as "pockets of poverty" where infrastructure was severely deficient. Planning was designed so that current investments in building stock would not have to be retrofitted later for efficiency.

The projects also shared procedural similarities – they used an existing implementing agency for a quick start and better roots in the community. This approach was particularly important where groups might not have welcomed or trusted interventions they perceived as coming from outside of the community. The projects added several new stakeholders with energy expertise to existing steering committees to serve as an advisory board. While this originated in part due to the very limited project timeline proposed by the TTF, this design brought several benefits.

First, it linked energy agencies and NGOs with institutions outside of the energy/environment community. Groups such as the Slovak Republic Government Office (Section of Human Rights, Minorities and Regional Development), the Slovak Plenipotentiary for the Solution of the Problems of the Roma Minority, the Hungarian State Secretariat for Roma Affairs, and the Hungarian Ministry of Employment Policy and Labour (Directorate of Equal Opportunities), the BiH Ministry of Refugees were among the ministries involved with regional/rural development and economies that were exposed to sustainable energy planning through the projects. The projects thus leveraged funds and expertise from new sources while raising awareness of sustainable energy issues in organizations already funding infrastructure, particularly in BiH, where such spending is large in proportion to overall budgets. A secondary benefit was improved coordination within the donor agency, as projects officers with different portfolios worked together and learned from each other.

All of the projects also identified promising potential for biomass energy in disadvantaged communities. Benefits included limited jobs creation in Slovakia and potential energy savings (in the case of retrofits in BiH) that could shorten payback periods for "energy efficiency" projects and improve the potential for financing. In both projects, it was difficult to quantify the

impact of the projects in terms of energy or monetary savings, as fuel and energy were in a number of cases provided to address unmet need. Employment impact, however, differed among the projects. Apart from the 12 unemployed community members harvesting fuel wood in Slovakia, the efficiency and retrofitting measures have relied heavily on volunteers, and paid employment would be conditional on expanding the wood fuel market. In BiH, the project workforce was already reconstructing building stock; the project merely changed their direction. However, the project demonstrated the potential for firms providing energy efficient products and services to enter the reconstruction market. In both countries, the sustained need for heat and increasing oil and gas prices would indicate that the potential to develop biomass heating and weatherization further is only likely to increase.

In the longer term, both projects established a foundation of information, planning, and partnerships. They baseline energy studies, training workshops, and practical guides for local leaders should lay the groundwork for further work in all of the countries studied.

Two differences should be noted, both in project design. First, the BiH project took a more segmented approach to energy efficiency and renewables, treating the two components of the project separately. The Slovakia/Hungary project started from the perspective of sustainable energy planning, which allowed it to consider supply and demand issues simultaneously. Given that the BiH project found potential applications for renewable energy, it might be advantageous for subsequent projects to considering a supply and demand mix in the broader picture of community energy needs. Secondly, the Slovakia/Hungary project emphasized community assessments and some planning, followed by grants, while the energy efficiency component of the BiH project focused more on business plans and specific investments, with a competitive mechanism for demonstration projects. Subsequent projects in disadvantaged areas would likely benefit from emphasizing both of these components: thorough community-based assessments and training in energy management/public administration.

Conclusions

While time and funding were limited by the terms of the grants, both projects achieved tangible results. That said, the TTF requirement that project last no more than 12 months was not realistic. While the projects discussed were able to achieve their objectives, both required extensions that allowed them to operate over a longer timeframe (18-30 months). The project objectives of introducing new concepts, new approaches (such as business plan development), and certain types of implementation (including seasonal construction work) were better suited to a longer implementation schedule.

Overall, the approaches chosen seemed successful in the disadvantaged communities that participated in the project activities. Just as traditional energy programs in developed countries may not be applicable to developing countries, these projects confirm that disadvantaged populations may face unique challenges that require special approaches to community energy planning. Subsequent projects could benefit from the practice of utilizing ongoing community development/redevelopment organizations with strong ties to local leadership

and disadvantaged groups. They might also consider the need to approach the energy assessment in a holistic manner and to emphasize both planning and practice. Finally, similar projects in the future would benefit greatly from a monitoring and evaluation methodology that would include both community development indicators and more traditional energy and environment indicators.

Certainly, there is a great deal of potential for further work in this area. First, the projects themselves have identified follow-on activities, such as heating for additional kindergartens in Slovakia and retrofits in schools and health care facilities in BiH. In addition, this project approach lends itself to other work in disadvantaged communities throughout the European region and possibly also in other post-conflict situations. Just as energy issues have exacerbated poverty and social tensions in the participating communities, the solutions introduced by the projects went beyond energy benefits to include social benefits, such as improved standards of living, and improved community integration.

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