

# AID-FOR-TRADE CASE STORY

SWITZERLAND

## Economic Success through Resource Efficient and Cleaner Production (RECP)

**Date of submission:** 31 January 2011

**Region:** Latin America

**Country:** Colombia

**Type:** Technical cooperation (trade education/training, building productive capacities)

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## **Executive Summary**

Sustainable, efficient and socially responsible production and processing methods are increasingly becoming a *conditio-sine-qua-non* for integration of enterprises into international value chains. With the aim to strengthen the competitiveness of SMEs in developing countries and facilitate their access to international value chains, the Swiss State Secretariat for Economic Affairs (SECO) has joined forces with UNIDO and UNEP to promote resource efficient and cleaner production (RECP). Today, SECO supports 16 Cleaner Production Centers (bilateral initiatives as well as within the UNIDO/UNEP network) that deliver services to business, government and other stakeholders in their home country and assist them with the implementation of Cleaner Production methods, practices, policies and technologies. Preventive management strategies increase the productive use of natural resources, minimize generation of waste and emissions, foster safe production and thus ultimately lead to more competitive SMEs. Because modernized companies are better positioned to succeed in international markets, they are also interesting partners for technology transfer. RECP is a powerful response to the inefficient use of natural resources, including energy, water and raw materials, that lies at the heart of the key environmental challenges, including climate change and constitutes an important contribution to a Green Economy.

Taking the example of the Colombian Cleaner Production Centre, this case story illustrates the efforts in Colombia to improve the eco-efficiency of its economy so as to maintain and improve its competitiveness. A first national Cleaner Production (CP) Policy stipulated the establishment of a national Cleaner Production Center (CPC). The State Secretariat of Economic Affairs supported this initiative from the start, up to 2008. Today, 12 years later, a self-sustainable CPC has become a reference center for strengthening the production and trade capacity of industrial companies of all sizes by helping them to factor environmental concerns into the production and trade functions.

### **1. Issues Addressed**

To raise trade capacities and ensure greater integration into international value chains, it is vital that SMEs in developing countries are able to meet international technical norms and standards. Also, sustainable, efficient and socially responsible production and processing methods are increasingly becoming a *conditio-sine-qua-non* for integration into international value chains. The case presented here demonstrates a capacity- and institution-building effort to develop and improve environmental service provision to industry and services so as to increase their trade capacity.

### **2. Objectives Pursued**

The State Secretariat for Economic Affairs (SECO) is the Swiss federal government's competence centre for all core economic policy issues, such as trade and labour. SECO's Aid-for-Trade programmes include the strengthening of supply side capacities in developing countries, mainly through its cooperation with intermediary organisations. To this end, SECO supports, among other lines, business development services for industrial production to build up SME's ability to meet international norms and standards (SPS/TBT), strengthen their competitiveness (marketing, market research, quality management, procurement) and benefit from resource efficient sustainable production (cleaner production and compliance with ILO core labour standards). The ultimate objective is an increase in trade capacity among SMEs.

### **3. The National Cleaner Production and Environmental Technology Center in Colombia**

An early initiative by SECO to strengthen the supply of environmental services to SMEs in industry and services has been its offer to the Government of Colombia to support the establishment of a national Cleaner Production Center (CPC), as one example of its support to help build national capacities for increased trade.

#### *Origin*

In the Agenda 21 of the UN Conference on Environment and Development in Rio de Janeiro in 1992, industrial countries have committed themselves to provide developing countries access to sustainable production methods, practices and techniques. UNIDO and UNEP launched pilot CPCs in the mid-1990s to deliver services to business, government and other stakeholders in their home country and to assist with the implementation of Cleaner Production methods, policies, practices and technologies<sup>1</sup>. In parallel to these efforts, SECO engaged in similar initiatives on a bilateral basis and also supported the UNIDO/UNEP programme. Today, over 45 national CPCs exist.

Following provisions in Colombia's new Constitution of 1991, the Government of Colombia elaborated in the 1990s a national Policy of Cleaner Production, both to protect the environment and to increase the eco-efficiency of its productive sectors. The Swiss Federal Laboratories for Materials Science and Technology (EMPA), a technical reference institution in this field, initially advised the Ministry of the Environment in this respect. Together, they approached SECO for support to establish a national CPC as an implementation agent of its Cleaner Production policy approved and published in 1997.

Colombia's National CPC was founded in March 1998. Along with national partners, EMPA, mandated by SECO, provided ample managerial, technical and financial support for the institutional set-up and development of the CPC, up to 2006. Since 2007, SECO and EMPA continue working with the CPC in specific product lines (dealing with electronic waste; a green credit line incentivating more eco-efficient, less polluting technology; greenhouse gas reduction investments under the CDM mechanism of the Kyoto protocol).

#### *Design*

The initiators aimed at the establishment of a self-sustainable service provider and chose the form of an institutionally broad-based autonomous entity. 35 institutions from the public and private sector founded a "non-profit corporation", a flexible legal construct offered by the Colombian legislation, also with respect to the tax regime. Since the majority of the founders are private sector institutions, the corporation is governed by private law.

The CPC is located in Colombia's second-biggest industrial city of Medellín, where it could count on ample support from the private and academic sector, next to the national and regional public authorities. Its original mission consisted in introducing and disseminating the concepts of eco-efficiency, Cleaner Production and environmental technologies aimed at strengthening private and public enterprises. The Center was devised as a "one-stop-shop" which offers formal sector companies integral solutions to their environmental problems, including beyond CP (e.g. end-of-pipe solutions). It should, at the same time, not displace the offer of services in the market but strengthen existing and potential service suppliers. Its service portfolio was to include public advocacy and awareness raising, capacity building, technical assistance, training and an information clearing-house function with the purpose of improving both the quality of, and the demand for, CP and related services. It has been the

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<sup>1</sup> CP includes: i) Good Housekeeping; ii) Input Material Change; iii) Better Process Control; iv) Equipment Modification; v) Technology Change; vi) On-Site Recovery/Reuse; vii) Production of Useful By-Products; and viii) Product Modification.

policy of the Center to not provide any service to businesses free of charge, whatever their size.

### *Implementation*

With financing from national institutions and SECO, the Center took off rapidly with a range of services like environmental assessments and subsequent implementation of CP measures in companies, a variety of information activities (from conferences to publications), training workshops and special projects. It successively built up an ample portfolio which today encompasses 21 service lines. Three activity lines generated most income:

- training for CP in a number of industrial and service sectors
- support for building environmental management systems in larger firms
- a more eco-efficient use of resources (water, energy, waste)

Major clients have been environmental authorities and larger firms, and recently international institutions like the Environmental Protection Agency of the USA or IDB, apart from SECO. At municipal and regional level, the CPC is contracted to raise environmental awareness among groups of SMEs, preparing and conducting them to a first environmental assessment and to measures they can take without much financial investment, i.e. so called good housekeeping (appropriate provisions to prevent leaks and spills and to achieve proper, standardized operation and maintenance procedures and practices).

As a national Center in a middle-sized country with strong regions, a strategy was needed to reach out to further industrial clusters in the country. Since 1999, the CPC fostered the establishment of a regional network of sub-hubs. By 2000, seven regional initiatives had been established with the support of SECO/EMPA. After 2003, these sub-hubs were supposed to start maintaining their service supply on their own, with technical support from the national center.

The CPC also participated in the CPLatinNet, a network of CPCs from 12 Latinamerican countries established by UNIDO/UNEP with the support of Switzerland and Austria. The Colombian CPC became one of the reference Centers in Latin America along with others like those of Brasil, Nicaragua and Mexico.

## **4. Main challenges**

As to the approach chosen, the decision to provide services in CP and beyond mainly to businesses, positioned the CPC in-between the public and the private sector and at the two levels of i) direct service provision to companies and ii) information dissemination, awareness raising and promotion of technical service capacity in CP of third parties like consultants, an array of institutions, and regional sub-hubs. The first positioning responds to the need to be involved in, and professionally recognized by industries as well as to generate an income from its services, paid by companies. The second positioning is required to comply with its public purpose, mostly financed by public or international mandators. To balance the two, i.e. to avoid mission creep (e.g. to become pure consultants) or to put its survival at risk because of a lack of financial sustainability when overly emphasizing the public advocacy function, is the quintessential challenge of such a "business model". The design of the Colombian CPC and how it has been implemented, provide lessons on how such a complex positioning can be implemented successfully.

The complexity and process orientation of the two mentioned functions under the same roof presents a challenge to the formulation of a simple overall monitoring and evaluation framework, which is meaningful and still applicable at the end of the period. Furthermore, the correlation between improvements in CP and trade performance by companies and sectors is hard to establish.

A further challenge refers to the national outreach in a middle-sized country like Colombia. While a CPC attends principally the market where it is located, attending other regions with different sectorial characteristics and levels of economic development stretches the limit of the delivery capacity of a CPC where the regional institutional rooting of sub-hubs is not sufficiently forthcoming.

Concerning the achievement of cleaner production in SMEs and larger companies, a major limiting factor, next to knowledge, is the lack of financing for the conversion of existing to more resource efficient and less polluting technology.

## **5. Factors for success and limitations**

The Colombian CPC continued to comply with its objective after the financial support for the institution ended in 2006, and managed to grow. The following factors contributed to this success:

*Policy context:* The Colombian state availed of a CP policy and stated in it the political will to establish a national CPC as an implementation agent of the policy; both the Ministry of the Environment and private sector roof associations backed this declaration with their commitment.

*Ownership of the initiative:* Colombian professionals designed the CPC with the technical support of a recognized external expert institution. The principal promoters also succeeded in finding external financial support, which provided an important incentive for national and regional institutions to engage in this initiative. Finally, a key Colombian professional involved in the design was asked to postulate for the Directorship of the CPC; as the best qualified candidate, he was nominated. On all accounts, the CPC has grown out of a Colombian commitment.

*Membership:* The idea to establish a national CPC could count on a common interest of a large array of public, private and academic institutions, both at a national level and in a region traditionally known for its industrial vocation (Antioquia, with the capital Medellín). A broad membership of supporting institutions allowed a high degree of autonomy and freedom from political or sectorial pressure, to work in the best interest of reaching its objectives.

*Incorporation:* The Colombian legislation has facilitated a set-up which is in consonance with its public purpose, but also facilitates the delivery of professional services to business clients. The non-profit status, next to tax benefits, opened access to financing sources like e.g. the Fund for Environmental Action and Childhood (FPAA, installed as a result of a debt swap between the USA and Colombia), which can only support non-profit organizations.

*Governance:* Key national, regional and international institutions supported the CPC at the strategic level (General Assembly, Executive Committee), strengthening its credibility. Overall control was also assured by the requirements of the SECO-supported project.

*Management:* The management has been the key mover in shaping the development path of the CPC. It could count on close and flexible support from EMPA/SECO including substantial international expertise, which allowed it to respond to up-coming opportunities. A core management team involved in setting up the CPC has been developing the Center since its start, providing continuity and leadership, building market relationships and accumulating experience.

*Service portfolio:* A crucial element for success in the complex positioning of the Center has been its capacity to innovate, i.e. to maintain itself at the forefront of topics and of the instrumental development of environmental services, in CP and beyond. At present, the CPC offers over 20 different service lines to businesses and other clients, being well prepared to

react to new demands. Its promotional nature, e.g. information seminars for specific economic sectors, tends also to generate demand for subsequent technical services. The Center attends a variety of industrial sectors as well as environmental challenges in agriculture and services (hotels, hospitals), and this from a sectorial rather than individual enterprise perspective. Its permanent innovation function and ample perspective kept and keeps it ahead of potential competitors in service provision and is one of the factors allowing it to marry the two functions of direct service supply to businesses and training of further service supply capacity, largely avoiding conflicts of interest.

The CPC has also been involved at the policy level. It gained recognition not only as a facilitator for the implementation of the CP policy – the Ministry of Environment, Housing and Territorial Development used it repeatedly to provide solutions to upcoming problems in industrial and service branches –, its expertise is also sought for the adaptation of policies, norms and regulations. Thus, the Center was included in a small working group with representatives of a few national institutions which commented and worked on the new National Policy of Sustainable Production and Consumption, published in 2010, i.e. the new CP framework for the country. The Center also participates in expert groups on specific aspects, like sustainable transport or electronic waste, and has advised almost a dozen municipal and regional environmental authorities in the country on general or specific topics of environmental regulation.

*Outreach and networking:* Conceived as a national Center, a strategy of reaching out to industrial clusters beyond its captive market Antioquia has been applied since the year 2000, as mentioned above. However, only in regions which formally institutionalized this initiative – in one case a consulting outfit by four environmental engineers linked to a university, in the other an entity within the regional environmental authority –, these sub-hubs remained fully active, while in the capital, a public and private sector offer of services to businesses exists and the CPC attends it from Medellín; in other regions sub-hub activities have lost momentum.

The active participation in the Latinamerican network of CPCs in the framework of a UNIDO initiative (the CPLatinNet) has facilitated South-South cooperation between CPCs, next to further North-South cooperation.

## **6. Results Achieved**

The CPC has contributed in a number of ways to implement the CP policy: by training a large number of professionals in CP (over 10'000 until 2006); by disseminating what CP is about and how it is to be applied; by inducing firms to environmentally assess their production and services with the help of the Center and take measures to increase their eco-efficiency and reduce environmental damages; by developing services which respond to new requirements (like „green building“, electronic waste, greenhouse gas reductions under the Clean Development Mechanism, among others); and by building a relatively solid institution which pro-actively seeks the cooperation of complementary partners like international institutions (e.g. UNIDO), consultants, public authorities, universities, and larger clients. At output level, the Center attended in 11 years more than 1000 companies individually and established alliances with over thirty institutions.

Because of the wide range of different activities and lack of resources, no overall aggregate impact data have been collected. The Center did record, however, the effectiveness of its interventions for a more eco-efficient use of natural resources in a series of projects and established over 50 case stories of attended companies and obtained results (see [www.cnpml.org/casos](http://www.cnpml.org/casos) for the latest ones). A large project in the region of Antioquia including Medellín between 2004 and 2006 measured the overall impact in 158 firms which applied measures emanating from assisted in-plant environmental assessments. Compared to targets, water consumption and electric energy use have been reduced by two and even four

times the targeted levels, respectively. Solid waste reductions have almost been halved. CO<sub>2</sub> emissions also achieved reductions below targeted levels, and materials particles and sulfur oxide emissions (SO<sub>x</sub>) almost reached the target. An analysis of 11 cases of technical assistance to companies in the sectors of vehicle parts, health, food, agriculture and industrial transformation up to the year 2002 showed that their combined investment, mainly in new technology, for an amount of US\$ 580'000 resulted in yearly savings of US\$ 210'000.

The Center's impact evaluations of projects, programmes and company assistance did not record employment effects. However, the introduction of departments dealing with environmental affairs in larger companies, the training of service suppliers able to respond to growing demand for environmental and eco-efficiency-enhancing services, the training of in-company personnel in such aspects and the savings induced by the Center's services point are likely to engender, on average, a consolidation of existing jobs and an increase rather than reduction of employment (creation of green jobs).

Concerning impact on trade, the repeated closure of Venezuelan markets for Colombian suppliers in the past decade, which accounted for a substantial trade volume, forced them to look for new markets. In doing so e.g. in Mexico or Peru, they faced requirements for increased social and environmental product and production standards. Legislation, too, tended to improve the environmental behaviour of firms: grace periods in complying with standards have largely ended and environmental authorities include firms which do not comply with compulsory norms and regulations in a list of non-compliers accessible via internet.

At a systemic level, the new CP policy of the government (2010) establishes a number of baselines, allowing authorities in the future to monitor results.

## **7. Lessons Learned**

Major elements for the success of the CPC Colombia, of relevance to other countries, have been

- strong national and regional ownership of the initiative, which backed its commitment with resources and mandates;
- full alignment with the respective national policy;
- a broad institutional membership from the public, private and academic sector;
- a design which put a premium on an entrepreneurial (rather than academic or public enforcement) approach, favouring practical innovation;
- a focus on problem-solving at source rather than end-of-pipe solutions;
- a strong, continuous management which provided professional leadership combined with continuous coaching and staff training;
- competent and flexible technical and financial support from an international donor and reference institution, facilitating new services like complementary financing tools such as Green Credit Lines, new innovative technical services like the Life Cycle Analysis, or the implementation of Multilateral Environmental Agreements like the CDM.

Such a design of a CPC also included risks, particularly the combination of providing itself technical services to businesses, on the one hand, and public advocacy, training, networking and strengthening the service supply from third parties, on the other. Several factors are required to comply with such a complex positioning: a critical size, sufficient autonomy in management, a balance between specialization and breadth of sectors and services attended, and continuous innovation.

A limitation of this model is inherent in the logic of functioning of a self-standing institution: it sets limits to promotional activities it can finance itself, restraining its outreach. The consequence is visible in the limited national coverage of the CPC in Colombia. A second



limitation of an entrepreneurial approach is its market rather than planning framework orientation. For the former, the measure of success is the bottom line, impact being a matter to be assessed by the clients who pay. In donor-financed support projects, impact measurement needs to be explicitly included in the financing, also in the case of projects which instruct groups of interested smaller firms to conduct rapid environmental assessments and take measures to increase their eco-efficiency.

## **8. Conclusion**

The CPC Colombia presents lessons from successful institution-building in a specific context. Many of the lessons deserve to be reflected in other environments as well, also by already existing institutions.

The application of proven methods and practices to increase resource efficient and cleaner production (RECP) is a crucial response to the challenge to mainstream sustainable production and trade, particularly in the context of rising climate change effects and constitutes an important contribution to a Green Economy. Successful promotion modalities facilitating their adoption by industries and services requires an up-scaling of service delivery of the type the CPC Colombia offers.

SECO is supporting an up-scaling of efforts to increase the delivery capacity of the existing about 50 CPCs and expand the outreach of a joint UNIDO-UNEP RECP Programme in Developing and Transition Countries. The last global RECP Networking meeting was hosted by the Government of Switzerland in October 2009, during which new capacity building initiatives were launched on institutionalization and management of CPCs and on enterprise level RECP monitoring. Much more support is needed, particularly from government at different levels, the private sector and civil society institutions in host countries to facilitate and incentivate the adoption and mainstreaming of RECP, at a national, regional and global level.

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