Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Cooperation Office Kosovo

MINISTRY OF FOREIGN AFFAIRS DENMARK

Horticulture Promotion in Kosovo
Summary of Impact Study 2010 - 12

By

Hans Rudolf Felber

Edvin Kotherja

Stuart Pettigrew

Hamit Qeriqi

Zurich and Pristina, March 2013

HELVETAS Swiss Intercooperation | KOSOVO

nadel
Nachdiplomstudium für Entwicklungsländer
Centre for Development and Cooperation

Summary

This report looks at highlights from the Impact Surveys over the period 2010 to 2012. Under the guidance of Ruedi Felber from ETH-Nadel in Zurich, a team of locally based staff from HPK undertook this study over 3 periods in 2010, 2011 and 2012. Neither was a baseline survey conducted in 2001 nor were impact assessments carried out during the first 4 phases of the project. This was recognised as a gap in the project.

Horticulture Producers

By 2012 direct beneficiaries had greater incomes than non-beneficiaries (+75%); rented more land for production (+ 50%) and took more credits (4 times higher). The difference between direct and indirect beneficiaries increased over the 3 years of the survey, indicating that direct beneficiaries get more out of their activities and increasingly see it as a good income opportunity.

Horticulture continues to be an important source of employment; mostly for family members, but also for youth and women in hired seasonal labour.

Post-Harvest & Trading Activities

Income and trading activities of post-harvest actors increased significantly from 2010 to 2012, reflecting both a maturing of several businesses, but also continued growth of more organised trading.

Reduced Reliance on HPK

It should be noted that many of the results stabilized between 2011 and 2012 after significant increases in 2011. This is the desired outcome for HPK, reflecting the reduced amount of support, in particular to nurseries and producers, yet activities sustained at a similar level.

Study objective and design

This paper summarizes relevant data and key conclusions of the three annual surveys (2010, 2011 and 2012) of the impact study conducted for Horticulture Promotion Kosovo (HPK). The main purpose of this study is to assess the impacts of HPK on the economic situation of households and small and medium-scale enterprises in terms of employment and income from horticulture activities.

The study is based on data collected from Kosovo's five main types of horticulture actors. While the attribution analysis for farm advisors, producer associations, nurseries and post-harvest actors is possible to a certain level (limited sample size, but full-fledged survey), it is difficult to properly assess the impact attribution of HPK's project intervention at the level of the individual horticulture producers due to a missing comparison group.

Identifying such a comparison group at the level of the producer is difficult due the limited geographical size of Kosovo, the fact that HPK has worked across all regions, the high-expected spillover effects from direct beneficiaries to their neighbouring horticulture producers, and the influences of other project interventions in the field of agricultural production. Another difficulty facing the study is the missing baseline data for outcome and impact indicators. Nevertheless, two types of producers were included into the study design:

1. *Direct beneficiaries* (= treatment group) who have received direct project support including training by project staff or advisors, financial support, subsidized inputs or support provided via collection centres, processors and traders.
2. *Indirect beneficiaries* (= spillover group) who benefit from spillovers originating from direct beneficiaries living in the same or in surrounding villages. Spillover results from the replication of improved (project) techniques or new marketing opportunities. While such spillover effects are desirable from the project's perspective, these effects are more difficult to handle in an impact study as it might seem that the project has less impact than it actually exerts.

Table 1. Sample size

Horticulture actors	Direct beneficiaries			Indirect beneficiaries		
	2010	2011	2012	2010	2011	2012
Individual producers	84	84	75	78	78	71
Farm advisors	22	23	23	7	4	4
Producer associations	16	15	14	-	-	-
Nurseries	12	17	15	-	6	3
Post-harvest actors	28	27	24	-	8	6
TOTAL	**162**	**166**	**151**	**85**	**96**	**84**

Results

Horticulture Producers

The average of the cultivation areas of fruits and vegetables are 2.4 ha (2011) and 2.3 ha (2012) per direct beneficiary and 1.9 and 1.6 ha per indirect beneficiary.

About 30% of the producers took credits for horticultural activities. The average annual credits increased over the years and were significantly higher (at 5% level) for the direct beneficiaries compared to the indirect beneficiaries. This is an interesting result that indicates higher investment by direct beneficiaries for horticultural activities.

Table 2. Credits taken

	Direct beneficiaries			Indirect beneficiaries		
	2010	2011	2012	2010	2011	2012
Average credit (€)	7'354**	9'600**	12`786**	3'725	3'167	3`017
Interest rate (%)	n.a.	8 - 18%	8 - 22%	n.a.	3 - 22%	12 - 28%

** *significant at 5% level (with a probability of 95%, there is a difference between the values of direct and indirect beneficiaries of the same year)*

At the level of horticultural production, HPK provided training and coaching support until 2010 to improve cultivation techniques for open-field and greenhouse production of top fruit (apple, plum), soft fruit (strawberry) and vegetables (13 species). HPK also introduced the Integrated Production (IP) which promotes the production of healthier products at affordable prices. This is achieved by reducing the use of agro-chemicals to a minimum. It is expected that these improved production systems lead to higher productivity and increased crop quality.

Due to the limited sample size, a detailed analysis on productivity and on total production for the individual crops, and a comparison between the results of direct and indirect beneficiaries are not possible.

However, the following table shows that the apple producers are convinced of the IP and improved techniques, as these new techniques are largely preferred compared to conventional techniques. There is also some evidence that the indirect beneficiaries copy the improved apple production systems. In contrast, there is a trend that vegetable producers switch back to conventional techniques once the direct project support stopped in 2010. It would be interesting to investigate this result in more detail to find out the

reasons. Nevertheless, the use of conventional techniques is much higher for the indirect beneficiaries in vegetable production.

Table 3. Number of apple and vegetable producers with conventional production system

	Direct beneficiaries			Indirect beneficiaries		
	2010	2011	2012	2010	2011	2012
Number of apple producers (% of the production area)	9 of 33 (18%)	5 of 40 (6%)	6 of 35 (8%)	16 of 20 (81%)	8 of 23 (15%)	11 of 20 (19%)
Number of vegetable producers (% of the production area)	24 of 45 (29%)	25 of 45 (42%)	28 of 41 (51%)	46 of 56 (77%)	49 of 59 (86%)	40 of 49 (87%)

The following table shows that direct beneficiaries consistently derived greater gross incomes than the indirect beneficiaries over the last three years. The biggest gap was observed in 2012 with impressing 75% higher income.

Table 4. Total value and average income per producer from horticulture activities (see details in Annex 1)

	Direct beneficiaries			Indirect beneficiaries		
	n valid	Total value products (€)	Average income per producer (€)	n valid	Total value products (€)	Average income per producer (€)
2010	74	1'129'206	15'260*	72	808'312	11'227
2011	76	980'579	12'902*	72	750'012	10'417
2012	69	1`252'674	18`155**	68	703`657	10`347

** significant at 10% level; ** significant at 5% level*

The producers were also asked through which marketing channels they are selling their products. In 2011 and 2012, the vegetable producers (direct beneficiaries) still sold more than 2/3 of their products through own marketing channels. Nevertheless, the trade through collection centres or traders is substantially higher in comparison to indirect beneficiaries who sell about 90% of their products through own marketing channels.

The following tables summarize the employment data over the period 2010 – 2012. The data proves that horticulture is an important source of labour in the rural areas of Kosovo. Family members make up over 80% of the total labour used in production, which largely explains why the female and youth labour constitutes a large portion of the labour. In many cases, additional youth from within the village or immediate vicinity of the property are employed.

Direct beneficiaries engage significantly more people from within the household and employ more hired workers. Horticulture also is an important source of work for the youth. The data shows that direct beneficiaries employ significantly more youth and minorities than indirect beneficiaries.

*Table 5. Overview on employment for horticultural activities by producers. Including youth and minorities. (Percentage = female employment). *** significant at 1% level*

		Direct beneficiaries			Indirect beneficiaries		
		n	Total (days)	Average (days)	n	Total (days)	Average (days)
201	- Household labour	76	53'743 (38.5%)		72	66'438 (38.6%)	

0	- Hired labour **TOTAL LABOUR**		5'805 (5.5%) **59'551 (35.3%)**	**784**		3'824 (2.1%) **70'262 (36.6%)**	**976**
2011	**-** Household labour - Hired labour **TOTAL LABOUR**	82	82'102 (37.1%) 19'658 (17.8%) **101'760 (33.4%)**	**1'241******	76	68'907 (41.7%) 2'876 (5.2%) **71'783 (40.3%)**	**945**
2012	**-** Household labour - Hired labour **TOTAL LABOUR**	75	76'254 (38.1%) 13'407 (9.8%) **89'661 (33.9%)**	**1'195*****	71	52'679 (40'9%) 3'898 (8.6%) **58'577 (38.8%)**	**825**

Table 6. Employment for youth and minorities offered by horticulture producers

		Direct beneficiaries			Indirect beneficiaries		
		n	Total (days)	Average (days)	n	Total (days)	Average (days)
2011	- Youth (17-25 years)	68	32'603	479***	59	18'510	314
	- Minorities	24	1'901	79**	12	529	44
2012	- Youth (17-25 years)	59	48`941	833*	46	25`753	385
	- Minorities	32	4'153	130*	14	826	59

** Significant at 10% level ** significant at 5% level *** significant at 1% level*

Post-Harvest Actors

Post-harvest actors include product aggregators, traders (wholesale and retail) and processors. Some of these actors work in products outside of horticulture as well, but the data attempts to separate the horticulture income from that of the general businesses. Not all HPK partners could be included in this survey, but the data represents at least 3/4 of the companies working directly with the project.

Income and trading activities for post-harvest actors were substantially higher in 2011 and 2012compared to 2010 when HPK started to support post-harvest actors with the aim to achieve one of the central goals of HPK – namely an increase of market system integration. The pattern of traded products shows that there is still potential to increase the quantity of locally purchased products.

Marketing & trading of horticulture products

The marketing of fresh fruits and vegetables is a complex system, with producers marketing their products directly to the public, to retailers, to traders and also via collection centres and processors. In addition, traders often act as importers and exporters, as well as aggregating products from local farmers to sell on to processors and retailers.

With all crops, the majority of the enterprises undertake their own, direct marketing to traders and the retail market. Traders not only buy from local farmers, but also import products both during the off-season as well as in competition to local production.

Processed products

In 2010, 16 processors were surveyed, with total sales of €1.86 million, of which 70% was exported. The main products were frozen berries and mushrooms, as well as processed vegetables. In 2011, 20 processors were surveyed, with total sales of €4.05 million, 67% of which was exported. Again, berries and mushrooms were the most dominant products accounting for approximately half of the total quantity. A wide range of fruit and vegetable products made up the remainder of the processed sector, with peppers both for 'ajvar' and pickled products the most common.

A similar profile of processed products was sold in 2012, with a total of €4.52 million of processed products marketed (or in storage). There was a large increase in locally processed fruit juices (mainly wild apple juice, with a value of €230'000) and pickles (mainly peppers and gherkins (with combined value of €441'350) as well as a continued increase in the production and export of ajvar (€462'200) made from locally sourced peppers, 60% of which was exported.

HPK supported several fruit processors in 2010 and 2011, and it is a pleasing result to see the lower grade fruits now being used for local production of products that were traditionally imported.

The following table provides an overview of traded and processed horticulture products over the last three years.

Table 7. Traded quantities (Qty) and value of horticulture products (sum of top and soft fruits, vegetables and medicinal and aromatic plants) by the HPK post-harvest actors. Percentages with traded volumes (tons)

		Purchase		**Origin purchase**		**Sale destination**		**Processing**	**Storage**
	n	Qty total tons	Value '000 €	Local %	Import %	Local %	Export %	%	%
TOTAL 2010	29	10'584	2'626	61.0%	39.0%	57.8%	38.4%	3.8%	n.a.
per company		365	91						
TOTAL 2011	35	22'262	6'291	56.9%	43.1%	67.1%	14.2%	16.2%	2.4%
per company		636	180						
TOTAL 2012	29	14'782	4'990	52.0%	48.0%	73.9%	12.4%	12.5%	1.3%
per company		510	172						
		100%		=100%		=100%			

Table 8. Employment generated in trading and processing activities by post-harvest actors

		n	Male	Female	**Total**
2010	- full-time workers	28	196	136	**332**
	- non-permanent workers (days)		13'810	3'641	**17'451**
2011	- full-time workers	35	316	330	**646**
	- non-permanent workers (days)		5'000	4'100	**9'100**
2012	- full-time workers	29	132	154	**286**
	- non-permanent workers		9'880	14'560	**24'440**

	(days)				

In 2011, the post-harvest actors employed more full-time and less non-permanent workers. It would be the interesting to find out the reasons. In 2012, 10% of the full-time workers and 50% of the non-permanent workers were employed youth (17-25 years old). Minorities provided around 20% of the non-permanent work.

Nurseries

Nurseries also significantly increased their income and employment rate due to increasing demand of producers for quality inputs and planting material. In 2012, gross income reached an average of €75'556 compared to €13'324 in 2010. Employment has increased to a similar degree, with full time employment up from 55 in 2010 to 80 in 2012. This result reflects the work undertaken by HPK in not only improving nurseries but also showing the benefits of using better planting material to producers.

Table 9. Employment generated by nurseries

		n	Male	Female	**Total**
2010	- full-time workers - non-permanent workers (days)	11	36 1'425	19 284	**55** **1'709**
2011	- full-time workers - non-permanent workers (days)	14	60 3'255	20 662	**80** **3'917**
2012	- full-time workers - non-permanent workers (days)	15	58 4'560	22 4'560	**80** **9'040**

In 2012, around 65% of full-time workers and 45% of the non-permanent workers were employed youth. In the same year, 20% of the non-permanent workers were minorities.

Associations and Advisory services

A higher number of direct beneficiaries are members of associations; with around 66% of direct and only 35% of indirect beneficiaries reporting membership (results are similar for 2010, 2011 and 2012). This is to be expected, as HPK has promoted associations, both formal and informal, as part of the project activities for many years.

Most of these members pay annual fees, ranging from €5 to €150 per year, with an average of €38 in 2012. Services provided by the associations are most commonly accessing advisory services and some collective buying of inputs. Collective marketing reduced from 8 associations in 2010, to 4 in 2011, and only 3 in 2012. However, a trend observed by HPK in both, 2011 and 2012, was for 'informal' groups to form around a collection centre. It is very likely that more trading activities took place in these "informal" groups. 6 of these "informal" groups were very active in 2012. The results of their trading activities, however, are not reflected in this survey as this only includes data gathered from formal associations.

Most associations engaged advisors in all 3 years, with an overall increase in the number of days partly paid by associations in 2011 and a similar result in 2012. No advisor relied on

this income solely though, with input supply (including nursery plants) and other horticulture activities remaining important sources of income.

Overall, the association members reported being generally satisfied with the associations. Still, with no increase in activities in 2011 and 2012 compared to earlier years, and in fact a declining role in buying and selling, it is not clear if these associations will continue without direct project support.

Some Lessons

Commencing a survey after 9 years of project implementation was predestined to be a difficult undertaking. . The surveys were quite complex, and this may have led to some results being less than ideal – a simpler survey might have resulted in more precise answers, and possibly not as many participants dropping out over the survey period. However, at the design stage, without knowing what data we would be able to collect, such a broad survey was considered necessary. One of difficulties was the missing baseline data (e.g. income and employment information) which makes it difficult to estimate project attribution.

The use of trained enumerators was important, and the ability to retain most of the same team for the 3 years was pleasing.

Much of the data was based on 'recall' surveys, where participants were asked to provide data from the previous 10 months. In this scenario, employment data are difficult to capture and interpret, and some of the variations in results may be attributed to this. It would be appropriate to train and encourage the different beneficiaries to use farm management tools including data for production and sale information.

Despite these methodological limitations, the results obtained are pleasing. The results reflect the importance of the horticulture sector in Kosovo and the fact that in many areas HPK had a major impact on the sector.

Annex 1 Horticulture production: Total income and income per producer

(including the estimated value of products not sold at the period of the survey**)**

Top fruit: Total income and average income per producer in 2010, 2011 and 2012

	Direct beneficiaries			Indirect beneficiaries		
Top fruit	2010 (n = 37)	2011 (n = 41)	2012 (n = 41)	2010 (n = 23)	2011 (n = 24)	2012 (n = 24)
Total value of top fruit sales* (€)	**147'118**	**222'103**	**193`156**	**134'340**	**145'561**	**143`123**
Average income per top fruit producer (€)	**5'449**	**6'532**	**6`439**	**7'463**	**8'087**	**7`951**

Soft fruits: Total income and income per producer in 2010, 2011 and 2012

	Direct beneficiaries			Indirect beneficiaries		
Soft fruits	2010 (n = 14)	2011 (n = 19)	2012 (n = 15)	2010 (n = 6)	2011 (n = 6)	2012 (n = 6)
Total value of soft fruit sales (€)**	**118'720**	**92'130**	**90`146**	**7'645**	**15'850**	**10`415**
Average income per soft fruit producer (€)	**8'480***	**5'419**	**7`512**	**1'911**	**5'283**	**1`736**

** Significant at 10% level*

Vegetables: Total income and average income per producer in 2010, 2011 and 2012

	Direct beneficiaries			Indirect beneficiaries		
Vegetables	2010 (n = 45)	2011 (n = 44)	2012 (n=38)	2010 (n = 56)	2011 (n = 57)	2012 (n= 48)
Total value of vegetables sales* (€)	**863'368**	**635'384**	**945`946**	**666'326**	**567'036**	**489`508**
Average income per vegetable producer (€)	**19'186****	**14'441****	**24`893*****	**11'899**	**9'948**	**10`198**

*** Significant at 5% level; *** significant at 1% level*