

**Assistance for Capacity Building Through Enhancing  
Operation of the  
National Agricultural Policy Center  
FAO Projects GCP/SYR/006/ITA  
and  
TCP/SYR/2906 (A)**

**Comparative Advantage Study**

**Lessons drawn from the implementation of  
the study and recommendations for follow-up  
actions**

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February 2005

Comparative Advantage Study – Lesson drawn from CAS implementation and recommendations for follow up actions  
FAO Project - GCP/SYR/006/ITA and TCP/SYR/2906(A)

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## 1. Background of and objectives:

### *1.1. The comparative advantages study.*

The National Agricultural Policy Centre (NAPC) has decided to assess the comparative advantages of the Syrian Agricultural products in a systematic way, with the technical and financial support of FAO through the projects GCP/SYR/006/ITA and TCP/SYR/2906(A).

To this end, a pilot study, entitled the Comparative Advantage Study (CAS), has been designed to initiate the process with two major objectives:

- a) To assess the comparative advantages through the application of the Policy Analysis Matrix (PAM) to selected commodities in order to provide a first set of analysis to decision makers.
- b) To build within NAPC the required expertise to further expands the application of the PAM to other relevant Commodity Chains (CC) and to update results from the CAS.

The CAS was implemented by a team of six NAPC staffs under the supervision of NAPC director and FAO Chief Technical Advisor of Project GCP/SYR/006/ITA. The CIRAD's international experts from Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) provided technical and methodological backstopping for information and data collection, data analysis, reporting dissemination and discussion of the CAS results. The CIRAD's international experts also set up a mechanism (tools and method) to further expand the analysis of the comparative advantages of the Syrian agriculture in a systematic way and to use the information collected to measure the standard indicators of supports to the agriculture (Producers/Consumers Support Estimate and the Aggregate Measure of Support) The CAS also benefited from the assistance of National Consultants recruited by FAO to assist in secondary data collection and to discuss the results of the PAMs. The CAS also made use of farm level data collected by the Farming System Study (FSS) concurrently implemented by the NAPC with the technical and financial support of the FAO.

This report takes stock of lessons drawn from the study implementation from September 2003 until June 2004 and proposes possible actions for institutionalizing the analysis of comparative advantage within the NAPC.

## 2. Lessons drawn from the CAS implementation.

From the very beginning the project aimed at both, building the capacity within NAPC for comparative advantage analysis, and providing a first set of knowledge and indicators to decision makers. The training component certainly took advantage of the training/study association since it increased the motivation of the trainees, while, on the contrary, the study would have gained by allocating more time to the results analysis and interpretation per se rather than putting the focus on the development and computation of the PAMs.

### 2.1. *Implementation schedule*

The study actually started in September 2003 and terminated for data, information collection and analysis in June 2004, while the finalization of project reports and other written reports ended in March 2005. Figure 1 presents the sequence of activities conducted during the 10 months of data collection and analysis, the initial schedule being represented by the striped cells.

A gradual shift is observed after the implementation of the second training focusing on data analysis. This shift is due to various factors:

The CAS was implemented in combination with the FSS study that has to undertake a much more challenging task in terms of data collection. The delay, compared to the initial schedule for providing a clean and reliable data set of gross margin to the CAS, led to the finalization of the Farm level budget in April 04. However, these delays were not a constraint per se in the development of the PAMs, as additional time was allocated to on-the-job training at CIRAD centre in France for the development of the PAMs.

The availability of a spreadsheet format to compile and organize the data needed to build the PAMs is not a sufficient condition to ensure a speedy process of the computation as adjustment are needed to respond to the particularities of the different systems analyzed. In addition, the computation of the PAMs should be considered as a cycle of computations rather than as a linear process. Actually, each PAM's spreadsheet required 2 to 3 revisions before coming to an acceptable result that can be used for policy dialogue. The December '03 trainings sessions was devoted to the first elaboration of the PAMs focusing mainly on training the team on data entry, the February-March 04 training focused on the completion of the PAMs (all budget introduced, introduction of sensitivity analysis), while the last cycle of modifications in April focused on validation of the value of technical coefficients and other parameters. In total, around four weeks of on-the-job training was spent for the computation of the PAMs. While this process could be reduced in the future, when trained staff will develop new PAMs, it is clear that the time requirement for this part of the project was underestimated at the beginning.



Figure 1 Calendar of activities implementation

Phase	Tasks	2003						2004							
		6	7	8	9	10	11	12	1	2	3	4	5	6	7
<b>Study implementation</b>															
<b>Definition of the objectives</b>	Review of available information														
	Consultation of the price committee														
	Definition of the commodity/ systems to be covered														
<b>Data collection</b>	Farm level (FSS)														
	Processing and marketing														
	Data on economic environment (National consultant)														
<b>Data analysis</b>	Data entry and validation														
	Pam development (adjustment of the format)														
<b>Data interpretation</b>	Pam validation														
	Discussion with resources persons														
<b>Results dissemination</b>	Reports writing														
	Seminar with decisions makers														
<b>Training</b>															
<b>1st training</b>	PAM principle														
	Method of computation														
	Survey technique														
<b>2nd training</b>	Data analysis														
	Validation of the data collected														
	Application on Excel spreadsheet														
	Identification of the complementary data required														
<b>3rd training</b>	Final development of the PAM														
	Sensitivity analysis														
	Interpretation of preliminary results														

## 2.2. Human Resources

NAPC staff's commitment to the project has been a major asset, although their heterogeneous educational backgrounds did not put all of them at ease for interpreting the results. A large part of the effort has been directed toward data collection and the computation of the PAMs, while the analytical part has been addressed at the end of the study. This is unavoidable in term of learning process, and hopefully with the level of skill acquired in computing the PAMs the trained staff will shift, from now on, their focus to the analytical part of the process.

The size of the team (6 persons) was appropriate, as it was small enough to remain manageable in terms of monitoring and backstopping and large enough to gather expertise and knowledge in various domains pertaining to the Syrian agriculture, to establish connection with resources persons within and outside NAPC and, eventually, to share expertise in terms of computing skill. It is also important to note that part of the training was devoted to the reinforcement of staff's skills in mastering certain function of the software. It would have been useful to associate NAPC or FAO project's computer specialists more formally and more closely to the implementation of the study, while they were called upon only on an ad hoc basis.

The association of National Consultants with the project was also an asset. It facilitated the collection of information on several commodity chains and certainly contributed to strengthen the interaction between decision makers' circle and the study team and to develop a sense of ownership and knowledge sharing. However it should be noted that their inputs were limited with regard to the assessment of the macro-economic environment (potential distortion on the currency and financial markets or on the factor market). For follow up actions and studies, it would be useful for the team to develop contacts with resource persons who are more familiar with macro-economic issues. If these resources are more difficult to trace in Syria, one option could be to consider experts based in neighboring countries (Jordan, Egypt, Lebanon, etc.) who are familiar with the overall regional context<sup>1</sup>. Along the same lines, and taking advantage of any link that could be developed with the agro-business communities on the basis of the current CAS, the association of resource persons coming from agro-food industries would be an asset to improve the reliability of the representative system characterization.

### **2.3. Study coverage**

The CAS covered six agricultural commodities - Cotton, Wheat, Olive, Tomato, Orange and Cattle – corresponding to 12 final outputs. On one hand, the range of product covered was an asset in term of training as it helped in differentiating the method applied for what was of a more generic nature (organization of the agents' budget) from what relates to specific adjustment (annual crops versus perennial crop). On the other hand, the somewhat rather large range of products covered hampered the capacity of the team to invest more in a detailed analysis and to include more qualitative aspects into the analysis of the quantitative results.

Along the same line, there was a trade off between the objective of achieving a comprehensive coverage of a given subsector (where all types of outputs that can be produced from a given raw commodity are included) and the relevance and the quality of the analysis.

To summarize all the policy issues in a comparative advantage perspective might be misleading and put too much emphasis on computing indicators, whereas the focus should be more on other issues such as the sustainability of the agricultural practices, the capacity of a given agro-food product to match quality requirement of the targeted export markets and so fort. To some extent, the value added of the CAS could be as much in the development of a consistent accounting framework (in a commodity chain perspective) as in the computation of the comparative advantage indicators.

The development of accounting for an entire commodity system tends to increase the "black box effect" and make the interpretation more difficult. For instance, the integration of various sub-systems into one global commodity system might be relevant in the case of cotton, as it concerns the same final output (i.e. lint cotton). But, the aggregated results in the case of the wheat commodity system are more difficult to analyze, as they relate to two different outputs (flour and pasta) that do not have the same status in terms of policy orientation.

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<sup>1</sup> The FAO regional office or other bodies such as the Economic Research Forum (<http://www.erf.org.eg/default.html>) or the Arab Monetary Fund may provide assistance in identifying such expertise.

## **2.4. Information collection**

In term of primary data collection, no particular obstacles were faced apart from the time constraint that may have prevented the team to strengthen their relationship with potential informers in the agro-business community in particular. The multiplication of interviews and meetings does not necessarily aim at improving data representativeness from a pure statistical perspective, but, rather, at having the opportunity to select the best source of information.

The CAS made the best use of its association with the FSS for collecting primary data for crop budget, although the FFS perspective did not necessarily provide an optimum coverage for assessing the costs of production for certain systems, such as soft wheat, or for cropping practice applying a specific technology (drip irrigation).

One of the challenges faced by the study was to find an appropriate reference to compute the parity prices for several main final outputs that do not have an international reference market (wheat flour, wheat pasta, tomato paste,). The elicitation of a parity price also required making assumptions on the quality of the product, while the lack of knowledge concerning the standard prevailing on the international market was another constraint. With regards to the estimation of parity prices, another the team faced difficulties in estimating the international shipment cost to and from Syria.

## **3. Proposed follow-up actions**

The follow-up actions can be divided around four major directions:

- improving the set of PAMs already developed;
- expanding the coverage in terms of commodity, area and farming system;
- taking action to facilitate the computation of new PAMs and the revision/update of the PAMs already developed;
- strengthening the policy dialogue with commodity systems' stakeholders.

### **3.1. Consolidation of the current set of PAMs**

One of the first issue with regards to current set of PAMs developed is to assess and improve their reliability. As any analytical tool, the accounting framework developed to compute the PAMs and their related indicators is only a simplified representation of a complex reality and would therefore never be as accurate as the "real world". The sensitivity analysis carried out for each representative system, however, clearly indicates that the PAMs' outputs are highly sensitive to a limited set of variables that are yield, conversion rate at the processing stage and the parity price for the main final output. These three categories of variable might be reviewed to cross-check that the current value inputted are commensurate with the real ones.

A first run of discussion and validation of the yields inputted in the budget at the farm level have been carried out during the CAS study. However, the discussion focused on the yield level for the main ecologies (irrigated, well irrigated and rainfed) but did not take into consideration the input side of the budget. In the case of farm level data, there is usually a higher variability in terms of input-output relations than the one observed at the post-harvest stages. This variability might be due to the location of the farm where the data has been collected (agro-ecological zones) and to farm characteristics (large, small, intensive or extensive one, etc.). Therefore, the accuracy of the farm level budgets might be improved



only by further disaggregating the system on the basis of specific cropping techniques within the main categories already identified. This could be done if the analysis of FSS final data set of gross margins indicates major differences in the utilization of major inputs.

For the post-harvest level, the sample of agents interviewed was rather limited due to the time constraint and the difficulty encountered by some team in meeting processors or traders (especially for orange processing). However, given the lower variation in terms of input-output relations observed for post harvest operations, the size of the sample is less an issue than the quality of the information collected. In this case, the presentation of the CAS results to a selected group of processors and traders, on a commodity basis, might be the best way to improve the reliability of the data. Depending on the sensitivity of the commodity system considered and the issue discussed, it might even be more productive to organize individual meetings with managers that were open to collaboration.

Commodity wise, there is certainly a need to improve both the reliability and the coverage of the data for the cattle system. The CAS only took into account the highly specialized cattle fattener while other systems have to be covered. The accuracy of the data set used for estimating cost of production for milk has been somewhat questioned and should be further assessed.

The estimation of the parity price for the main final output, and their intra and inter-annual variations, could also be improved. A first option is to obtain price data from market monitoring authorities in targeted export markets (especially the one within GAFTA zone and the European Union), such as wholesale market offices or statistical services in Ministry of Economy or Agriculture. The second option is to further develop contacts with exporters in Syria to get additional information on foreign market prices' behaviors. These contacts might also be useful to better capture the cost attached to international shipments.

### **3.2. *Development and Expansion***

The simultaneous computation of several PAMs is much more relevant in the perspective of policy analysis and formulation, since it provides elements for comparing the effect of policy changes on the respective commodity systems, and helps in identifying the most suitable or economically efficient alternative to the least efficient systems. It is therefore important to expand the list of systems that was covered by the CAS.

This expansion can be done in different ways, such as adding new product or computing PAMs for a new/alternative technology for a product that was already covered in the initial study. The computation of new PAMs can either be done at national level or focusing on a specific ecology or farming system.

#### **3.2.1. Crop coverage**

In term of product coverage, based on the CAS experience, it would be more relevant to put a priority on subsectors or commodity chains that are targeting the national market as a substitute to importation. These are systems that benefit from specific trade regulation such as the sugar commodity chain. Along the same lines, it would also be more relevant to assess the comparative advantage of agricultural product that are strategic input for other agro-food subsectors such as animal feed (maize, barely, etc.) since distortions induced by the current



policy may have an impact on the feeding practices of cattle raiser and, thus, affect the technical and economic efficiency of the cattle raising and milk commodity chains.

There is a rather lower priority to assess the comparative advantage of agro-food product targeting foreign market as an extension to domestic demand, since most of the distortions observed on the basis of the CAS study concerned the tradable output side of the PAMs rather than the input part of the tradable. In other words, current agricultural policies do not affect significantly the development of these commodity chains either through higher costs for intermediate inputs or through subsidies. Major issues for the development of these main final output commodities targeting foreign markets are more related to the competitive advantage (quality issue, access to foreign market and capacity to strengthen commercial connections) rather than to the comparative advantage of these systems.

### **3.2.2. Comparative advantage of farming systems and agro-ecological zones.**

Based on the result of the FSS it might also be relevant to assess the comparative advantage of different cropping systems at the farm level for a specific agro-climatic zone. For this type of analysis, the focus should be on the farm level budget, while the information on post-harvest stages of the system could be limited to the minimum indispensable. The post-harvest budgets can be rapidly developed using, as a proxy, data already collected for product of the same category (wheat, fruit, vegetable, etc.) following a similar process (milling, packaging). In any case it should be kept in mind that the largest share of the tradable inputs and domestic factors are located at the farm level (around 80% based on CAS dataset), therefore the impact of post-harvest operations on the PAMs values are somewhat limited.

In terms of cropping systems analysis and assessment of possible cropping alternatives, priority should be given to the irrigated based cropping systems in order to improve the estimation of the water shadow price.

### **3.2.3. Specific issues**

The follow-up activities could also focus on a better estimation of certain variables that were not thoroughly analyzed during the CAS implementation.

Accordingly it is proposed to have a better assessment of transportation cost at different stages, i.e., collection - from farm to processing/wholesale, and long distance transportation within Syria. This information will allow having a better assessment of the possible impact of farm and consumers/end-users' locations on the performance of the selected systems.

With respect to the macro-economic level, a specific research might be devoted to the assessment of the opportunity cost of capital and prevailing distortions on the capital and financial markets. It will include an analysis of the current fiscal policy on capital investment that was not adequately covered by the CAS.

As already mentioned, in the previous section, a better coverage and knowledge of international shipment costs to and from Syria, and international price quotations for the selected main final outputs would also improve the reliability of the PAMs computation.

### **3.3. *Putting in place a monitoring system.***

The establishment of an adequate human capacity within the NAPC in terms of comparative advantage analysis aimed at providing a continuous support to decision makers through systematic assessment of the impact of policy change on the economic efficiency of several agro-food subsectors. But the PAM is a static tool that provides a snapshot of the performance of given system at a given time. It should therefore be used with a lot of care when analysts want to simulate any possible changes of output, input and domestic factors' prices. A consistent simulation of large changes of those prices, especially for domestic factors, would require the development of ad hoc mathematical programs that are even more time, data and skill consuming than the PAMs, and, very often, much more difficult to interpret.

A regular update of the budgets developed to compute the PAMs offer a feasible way to assess the impact of policy changes on the performance of the selected system. This update can be done along different time frequency, depending upon the types of variables used in the PAMs. Some information are by nature much more volatile than the other, while other variables will changes more gradually due to inertia, rigidity in the systems and lower capacity of the agents' to opt for new product or new combination of tradable input and domestic factors. Along this line, two sets of data might distinguish which would require a different timing in update.

Volatile information that could be easily updated on a yearly basis includes prices for main final output (including international shipment price) as well as inputs and yield at farm level. Any changes in the trade or fiscal policies affecting the price of input and domestic factors should also be monitored on a yearly basis.

Technical coefficients (quantity of tradable and domestic factors used per output) could be revised at a slower pace (4 to 5 years) depending upon opportunities (new study carried out on specific product and areas). A re-evaluation of the coefficients applied for decomposing complex intermediate inputs into their tradable, labor and domestic factor component could be carried out at the same pace. The revision of these technical coefficients being very costly, as it requires collecting new data, could be carried out more economically in the context of existing data collection systems managed by the Ministry of Agriculture, Ministry of Industry or Economy.

With regards to the practical management of the set of spreadsheet, it is suggested to update the relevant variables directly on the spreadsheet developed rather developing a new set of spreadsheet for each update. The updated PAMs indicators and values can then be easily extracted from the Summary spreadsheet and append into another database where each set of variables stored (PAMs' values, PAMs' indicators, etc.) contains an additional record mentioning the date of reference.

### **3.4. *Strengthening policy dialogue with commodity systems' stakeholders.***

While the primary objective of the CAS was to build the human capacity to assist decision makers in policy formulation, the information gathered and the results of the analysis can also be used to support the development of a policy dialogue between the authorities and the

different categories of agents involved in each commodity system. Furthermore, the discussion of the main findings of the studies can also contribute to the development of a dialogue between agents of the commodity systems themselves.

The debate on the results can contribute to better explain the rationale behind the implementation of policy measures or their removal. It can also show that policy interventions for protecting the Syrian market cannot be by themselves a solution and that other issues, such as the quality of the coordination between the different agents of the systems, have to be addressed to improve the overall efficiency of the system. For systems that enjoy a strong comparative advantage, the discussion can focus on the requirements in terms of quality management to expand and strengthen the Syrian share of foreign market.

The comparison of points of view and interests of different stakeholders, which are not necessarily converging, may be detrimental if it is not carefully prepared. The dialogue can be gradually implemented through various meetings with each category of stakeholders before organizing a meeting with all stakeholders. The quality and usefulness of the dialogue also depend heavily on the nature of the participants and their capacity to voice the concern of their category. It will be facilitated if the different categories of agents or actors are already formally organized.





