

MCA-Armenia Program

Revised Beneficiary Estimates

MCA-Armenia made the beneficiary analysis consistent with the MCC updated approach which, on top of conceptual issues addressed in the analysis, basically reflects the approach of identifying and counting the expected individual beneficiaries of the project. The Beneficiary Analysis Guidance serves as a useful tool in discussing the evidence/assumptions used to forecast the project's impact on the poor and ensuring that MCA-Armenia is focused on cost-effective poverty reduction.

I. OVERVIEW and RATIONALE

Through this analysis MCA-Armenia updates and determines the number of beneficiaries of investments into Rural Roads Rehabilitation Project (RRRP), Irrigation Infrastructure and Water to Market Activities of the Irrigated Agriculture Project (IAP).

There are two main reasons for updating the beneficiary numbers:

- (a) To reflect the impact of the changes in the Program's scope on the number of beneficiaries;
- (b) To align the MCA-Armenia beneficiary approach with the most recent MCC approach to beneficiary analysis.

A. MCA-Armenia Re-scoping and Beneficiaries

Originally it was envisioned that approximately 360,000 rural inhabitants in 265 rural communities will benefit as a result of the rehabilitation of 943 kilometers of high priority rural roads in road lifeline network under the MCA-Armenia Rural Roads Rehabilitation Project (RRRP). It was also envisioned that 100,000 water users would benefit from increased irrigated land, 24,000 farmers with improved land through drainage and 28,000 farmers whose currently irrigated land will continue to be irrigated due to the Project rather than deteriorating to rain fed agriculture as a result of Irrigation Infrastructure activity of the Irrigated Agriculture Project (IAP). The estimated number of beneficiaries under the Water-to-Market Activity of the IA project was about 300,000 farmers through institutional strengthening of irrigation system entities (ISSA), around 60,000 farmers included in the regional irrigation schemes through on-farm water management and HVA trainings, and 300 enterprises and 15,000 farmers through improvements in post-harvest processing and marketing.

During the Compact implementation both RRRP and Irrigation Infrastructure had undergone significant changes and as a result were reduced by two-third. Changes were mostly due to the devaluation of the US dollar against the Armenian Dram over the past three years and construction price escalation. While Compact aimed at rehabilitation of 943 kilometers of rural roads or about one-third of Armenia's lifeline roads network (LRN), total length of which is 3019 kms, after re-scoping MCA-Armenia would be able to rehabilitate only 297 kilometers of rural roads. Within the Irrigation Infrastructure activity

construction of seven (7) reservoirs and eighteen (18) Gravity Schemes, as well as rehabilitation of 68 Pumping Stations, 198 kilometers of Main Canals and 588 kms of tertiary canals was envisioned under the Compact. However the re-scoped Irrigation Infrastructure Component would not construct any reservoirs and the remaining outputs are reduced significantly. Moreover, following the decision of the June 2009 MCC Board meeting, the Rural Roads Rehabilitation Project of MCA-Armenia is still on hold.¹ This implies that the remaining road links planned under the MCA-Armenia RRRP will not be rehabilitated by the end of the Compact.

As a result, there is a need to update MCA-Armenia beneficiary numbers to see whether the number of beneficiaries has decreased significantly as a result of re-scoping and recent changes in the Program's scope.

B. Defining the Beneficiaries in line with the MCC new guidelines

The most recent MCC Beneficiary Analysis Guidance basically categorizes beneficiaries into the following three groups:

- *National or Regional Investments*, including large-scale infrastructure projects that are expected to affect geographical areas of an economy, making all citizens in these areas beneficiaries.
- *Broad-Based Investments*, including other large-scale investments whose beneficiaries are typically counted as users of the new or improved public systems.
- *Targeted Projects*, including all other activities that benefit specific individuals and households, such as projects that focus on agricultural development, school construction or other educational development efforts.

MCA-Armenia considers that the expected beneficiaries under its RRRP and Irrigation Infrastructure Projects, as well as beneficiaries under the ISSA component of the IAP can be counted under the *Broad-Based Investments* Category, while the beneficiaries of the Water-to-Market Activity are counted as *Targeted Projects* beneficiaries.

Thus, in the following sections MCA-Armenia provides the updated beneficiary numbers for each of its programmatic components based on the re-scoping results and the new approach to the beneficiary analysis.

II. DESCRIPTION OF DATA ENTRY AND DATA ANALYSES

2.1. Approaches and Assumptions Made

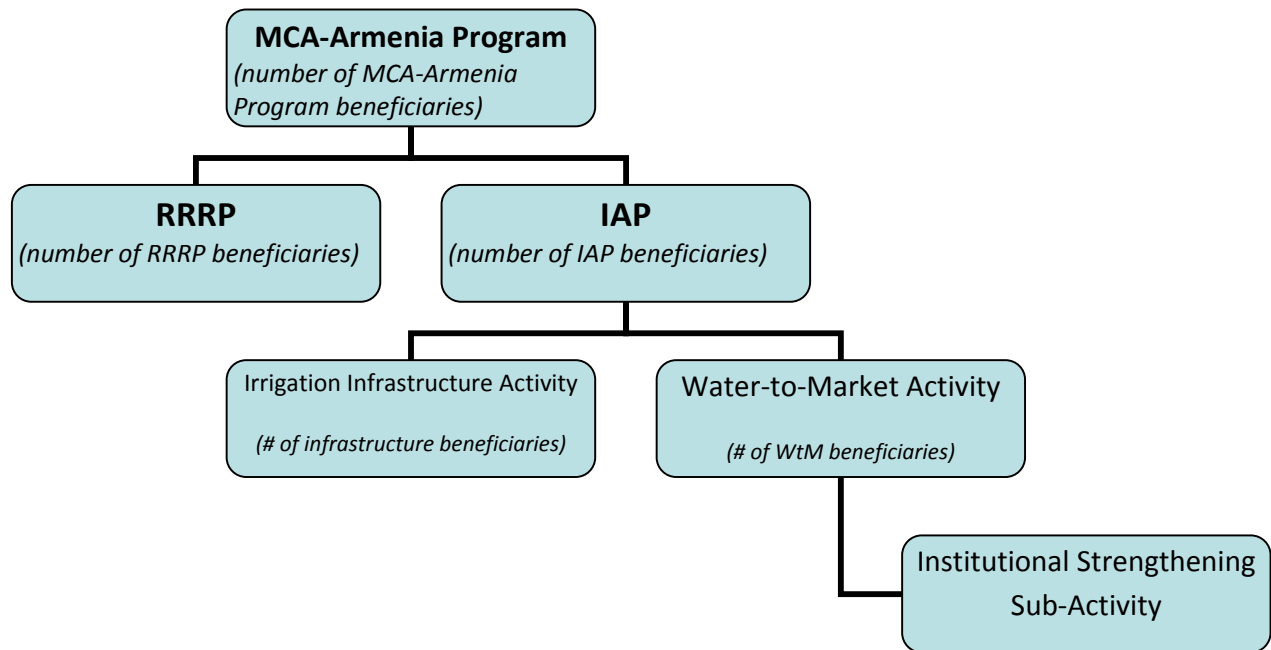
¹ In the press release dated June 10, 2009, MCC Board of Directors announced hold on funding for Armenia to remain in force, and stated that “MCC will not resume funding for any further road construction and rehabilitation” in Armenia.

2.1.1. General Approaches

The following general approaches have been followed for MCA-Armenia beneficiary analysis:

- While the created datasets should allow as much as possible data disaggregation, the beneficiaries should be aggregated and presented for at least two major programmatic levels: **program and project**;
- The TOTAL number of beneficiaries should not include any double-counting;
- The datasets should also allow disaggregation of beneficiaries by marz, community, gender, project, activity and sub-activity, if required.

As a result in this analysis the beneficiary numbers will be presented for MCA-Armenia Compact as a whole and for Rural Roads Rehabilitation (RRRP) and Irrigated Agriculture Projects (IAP) separately. The following chart indicates at what level the beneficiary numbers will be aggregated and/or presented.



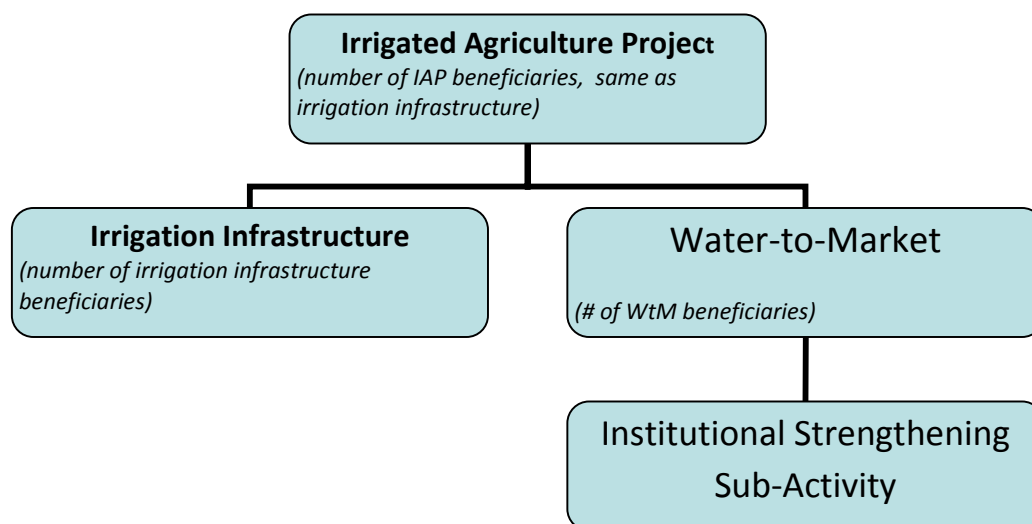
2.1.2. Approaches and Assumptions made for Rural Roads Rehabilitation Project (broad-based)

The following assumptions were made by MCA-Armenia for counting the RRRP beneficiaries:

- MCA-Armenia first assumed that our beneficiaries would be those rural communities that are located on the road links remaining in the RRRP after its re-scoping. Those are basically communities located on over 24 kms of Pilot Roads (fast track) already rehabilitated under the MCA-Armenia fast track and the communities located on the 273 kms of road links included in the first package. However, after the MCC Board’s June 2009 decision, in our final beneficiary estimates, we count only RRRP pilot roads beneficiaries as MCA-Armenia beneficiaries.
- Then MCA-Armenia assumed that the communities which are not located on the road links directly, but (a) have only one access to main roads and that access is through the link rehabilitated under the MCA-Armenia RRRP and (b) are no more than 5 kms far from a given RRRP road link would also benefit from the project.
- The next assumption was that the entire population currently residing in these communities as provided in the last Armenian Census (2001) would benefit from the Program. The Census provides two numbers: *de facto* and *de jure*, where *de facto* stands for the population residing in a given place as of the time of the Census, and *de jure* stands for the population registered in a given place as of the time of the Census. As a result, *de jure* numbers are always higher than the *de facto* numbers. To be conservative in our analysis, we then assumed that *de facto* population numbers of the rural communities included in our lists should be used to estimate the number of beneficiaries of MCA-Armenia RRRP.

2.1.3. Approaches and Assumptions made for Irrigated Agriculture Project (broad-based)

Irrigated Agriculture Project of the MCA-Armenia Program consists of two activities and one sub-activity: Irrigation Infrastructure and Water-to-Market (WtM) activities and Institutional Strengthening Sub-Activity.



In developing the approach to the beneficiary analyses for the Irrigated Agriculture, MCA-Armenia assumed that the total number of the IAP beneficiaries should be equal to the number of Irrigation Infrastructure beneficiaries. The assumption was mostly based on the following:

- The beneficiaries under the Irrigation Infrastructure Project can be counted under the *Broad-Based Investments* Category of MCC Beneficiary Guidelines, while the WtM beneficiaries are *Targeted Projects* beneficiaries, i.e. only those farmers who would adopt the practices taught under the WtM can be counted as WtM beneficiaries. This implies that the beneficiary number for the irrigation infrastructure would be higher than the ones for the WtM.
- Since the WtM communities mostly overlap with the communities under the irrigation infrastructure, we assume that even those farmer who adopt the practices introduced, i.e. the targeted beneficiaries, are most likely already captured under the irrigation infrastructure. Given that we are using the *de-facto* population numbers for the irrigation infrastructure, this implies that if we add the estimated number of adoptees to the irrigation infrastructure beneficiary numbers, we would most likely double-count the beneficiaries.
- The beneficiaries under the Institutional Strengthening Sub-Activity of the WtM Activity are also counted under the *Broad-Based Investments* category. However, given that the ISSA component mostly works with the Water User Associations (WUA) and not directly with the population, we assume that the changes envisioned under this component would happen very slowly and therefore we should be very conservative in our beneficiary estimates. On the other hand ISSA covers all the WUAs, and all the communities included in our irrigation infrastructure lists are WUA members. Thus we assume that the potential ISSA beneficiaries would be the same as the ones benefitting from the irrigation infrastructure. Moreover, those communities and their respective water users that are included in the irrigation infrastructure lists would get benefit streams under the IA Project as a whole, including infrastructure, WtM and ISSA.

2.1.4. In developing the approach to the beneficiary analyses for the Irrigation Infrastructure Activity MCA-Armenia has made the following assumptions:

- Communities that were identified by the Feasibility Study/Preliminary Design Consultants and then verified by MCA-Armenia Irrigation and ESI teams as benefiting from the specific infrastructure improvements are included in the beneficiary analyses.
- MCA-Armenia considers that the improvements to the main canals will not have a direct impact on those water users that are located closer to the beginning and middle parts of the canal (with better water flow), while those users that are located farther on will improve their irrigation considerably and increase their irrigated lands. Thus, MCA-Armenia will not count all the water users in communities benefiting from the main canals as beneficiaries of this intervention and will use a conservative estimate of 30 %.
- MCA-Armenia also considers that not all farmers would benefit from the rehabilitation of tertiary canals in the communities where tertiaries are envisioned. As in case with Main Canals, here also we used a conservative estimate of 30 %.

- In very rare cases, when a “city”² is indicated to benefit from the infrastructure rehabilitation, we also used a conservative estimate that only 30 % of the population is likely to benefit from the project.
- In case of the remaining interventions (gravities, pumping stations and drainage), MCA-Armenia assumes that all potential beneficiaries will benefit from the project.
- Initially, MCA-Armenia assumed that the potential beneficiaries of Irrigated Agriculture Project are the water users, i.e. the WUA members. As a result, Water User Associations (WUA) data was used to estimate the number of beneficiary water users from Irrigated Agriculture. Then the *de facto* population numbers for each community (total, male/female) were entered in the spreadsheet. As with the roads, the data source for population numbers was the last Armenian Census (2001). Then the entered number of water users was multiplied by the average number of HH members which is four (4) in rural areas as provided in the latest report of the Integrated Survey of Living Standards (ISLS). However, while performing this in many cases it was discovered that the resulting number is higher than *de facto* population for that same community. Given the issue, it was decided to use only *de facto* population numbers for making beneficiary estimates for the Irrigated Agriculture as well.

2.1.5. The number the beneficiary estimates for the Water-to-Market Activity are based on the following:

- While the TOTAL number of beneficiaries from MCA-Armenia Irrigated Agriculture Program (IAP) in our analysis equals to the number of Irrigation Infrastructure beneficiaries and this includes the WtM, the WtM beneficiaries are considered as *Targeted Projects* beneficiaries, i.e. only those farmers who would adopt the practices taught under the WtM can be counted as WtM beneficiaries. As a result, the number of WtM beneficiaries comes from the revised WtM ERR.

2.2. Beneficiary Datasets

The datasets are created in an excel environment and are disaggregated by the following three sheets:

- (a) **Compact BA estimates**, which represents the Armenia Compact Beneficiary estimates before and after June 2009.
- (b) **Beneficiary Master List**, which represents TOTAL beneficiary numbers for the entire MCA-Armenia Program, including RRRP and IA disaggregated by marz, community and male/female.³

² In Armenia there are some urban settlements where people are mostly involved in agriculture.

- (c) **IA**, which represents TOTAL number of Irrigated Agriculture beneficiaries. The numbers can be disaggregated by marz, WUA and community.
- (d) **RRRP**, which represents TOTAL number of RRRP beneficiaries before June 2009. The numbers can be disaggregated by marz, community, link and package.

2.2.1. The following steps have been followed to create the datasets:

- The first step was to create an updated master list in excel format, where all communities benefiting after the re-scoping of Irrigation Infrastructure Activity of Irrigated Agriculture Project of the MCA-Armenia Program are listed alphabetically by marz and WUA.⁴ The list is cleaned so as no double counts are allowed. The specific interventions are listed in front of each community.
- The communities entered were then cross-checked with RRRP communities. Those RRRP communities that were not covered under irrigation were entered into the system. The specific road links for each community that would benefit from RRRP were also inserted where appropriate.
- The *de facto* population numbers for each community (total, male/female) were entered in the spreadsheet. The data source for population numbers was the last Armenian Census (2001).
- After entering the population numbers, a new category was created, so called “Number of IA Beneficiaries.” Based on the approaches described above the following steps were followed for adjusting the data in this category: (a) if a community is listed under main canals or a tertiary only, and in case of urban communities we assumed that only 30% of the *de facto* population would benefit from the irrigation infrastructure interventions, and we multiplied the *de facto* population number by 0.3 for that communities; (b) if a community benefits from any other irrigation infrastructure activity, we have assumed that all people residing in the community would benefit and thus entered the *de facto* population numbers for that community.
- In our Master list (first sheet of the beneficiary dataset), we have created another category, so-called “Total Number of Beneficiaries.” Here we entered the adjusted numbers of Irrigation beneficiaries for each community from the respective cell of the “Number of IA Beneficiaries” column. In addition, we have added the *de facto* population numbers for those communities that would benefit from RRRP, but not from Irrigation. This way we derived the Total Number of MCA-Armenia Program beneficiaries.

³ Male/female numbers represent the *de facto* population breakdown and are not adjusted to get a gender disaggregated beneficiary numbers for IA and the Program.

⁴ The WUA refers to Water User Associations. The WUA category is included in Irrigated Agriculture Spreadsheet only.

III. MCA-ARMENIA UPDATED BENEFICIARY NUMBERS

The following tables 1, 2, and 3 present the MCA-Armenia updated programmatic interventions with their respective beneficiary numbers, while the last 4th table presents the updated overall beneficiary numbers for MCA-Armenia Compact.

Table 1: MCA-Armenia Rural Roads Rehabilitation Project

	Compact	After Re-scoping January 2008	As of July 1, 2009
Road Sections Rehabilitated	943 kms	297 kms	24.4 kms
Number of beneficiaries	360,000 rural inhabitants	142,909 rural inhabitants	6,356 rural inhabitants
Number of beneficiary communities	260	84	12

Table 2: MCA-Armenia IA Project: Irrigation Infrastructure Activity

	Compact	After Re-scoping in October 2008	As of July 1, 2009
Reservoirs (number)	7	0	0
Gravity Schemes (number)	18	7	4 ⁵
Pumping Stations (number)	68	17	17
Main Canals (kms)	198	34	27,7
Tertiary Canals (kms)	588	220	220
Drainage Systems (number)	13	13	13
Total Number of Beneficiaries ⁶	152,000	106,161	421,407
Number of beneficiary communities	362	286	298

⁵ The number of gravity systems was reduced from 7 to 4 after the official project re-scoping because of concerns of technical and economic feasibility.

⁶ The current beneficiary numbers are estimated based on the new approach which has been applied to make our beneficiary counts consistent with MCC new guidelines. As a result, the numbers presented in the column under "As of July 1, 2009" are based on de facto population numbers of the communities under the project, while the numbers for "Compact" and "Re-scoping" columns were based on the number of WUA members. For more on the approach to the beneficiary analysis, see the Annex 1 to the M&E Plan- MCA-Armenia Beneficiary Analysis.

Table 3: MCA-Armenia IA Project: Improving the Profitability of WUA member farmers Sub-Activity of Water-to-Market Activity			
	Compact	Revised after ERR revision in June 2009	As of July 1, 2009
Number of Farmers Trained in On Farm Water Management	60,000	45,000	45,000
Number of Farmers Trained in HVA	30,000	36,000	36,000
Number of Beneficiaries ⁷	38,350	28,834	28,834

Table 4: MCA-Armenia Compact Beneficiaries		
	Number of Beneficiary Communities	Number of beneficiaries
Estimated number of MCA-Armenia Irrigated Agriculture Beneficiaries	298	421, 407
Estimated number of MCA-Armenia Water-to-Market Activity Beneficiaries	411	28,834
Estimated number of MCA-Armenia RRRP Beneficiaries before June 2009	84	142, 905
Estimated number of MCA-Armenia RRRP Beneficiaries after June 2009	12	6356
Estimated number of MCA-Armenia TOTAL Compact Beneficiaries before June 2009	358	536,212
<i>Estimated number of MCA-Armenia TOTAL Compact Beneficiaries as of July 2009 (after the MCC June 10 Board Decision)</i>	310	427,763

⁷ The WtM Activity beneficiaries are categorized under the "Targeted Projects" beneficiaries based on the new MCC Beneficiary Analysis Guidance. This basically means that only those farmers who according to the ERR estimates would adopt the practices taught during the trainings should be counted as beneficiaries. The number of beneficiaries is different from the Year 5 target because it accounts for farmers who will be trained in Year 5, but adopt new technologies in Year 6.