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PROJECT PERFORMANCE ASSESSMENT REPORT

ARMENIA

**EARTHQUAKE RECONSTRUCTION PROJECT
(CREDIT 2562-AM)**

March 31, 2004

*Sector and Thematic Evaluation Group
Operations Evaluation Department*

CURRENCY EQUIVALENTS

Currency Unit = Armenian Drams (AMD)

1993 (Dec)	US\$1.00	=	AMD 80	(Earthquake Reconstruction Approved)
1997 (Oct)	US\$1.00	=	AMD 502	(Earthquake Reconstruction Completed)

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
CAE	Country Assistance Evaluation (by OED)
CIDA	Canadian International Development Agency
ERR	economic rate of return
EU	European Union
FAO/CP	Food and Agriculture Organization/World Bank Coop.
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
ILO	International Labor Organization
IMS	irrigation management system
M&E	monitoring and evaluation
MIS	management information system
O&M	operation and maintenance
PPAR	Project Performance Assessment Report
SAR	Staff Appraisal Report
TA	technical assistance
UNDP	United Nations Development Program
USAID	United States Agency for International Development

FISCAL YEAR

Government: January 1 — December 31

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OED Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Operations Evaluation Department assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, OED annually assesses about 25 percent of the Bank's lending operations. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons. The projects, topics, and analytical approaches selected for assessment support larger evaluation studies.

A Project Performance Assessment Report (PPAR) is based on a review of the Implementation Completion Report (a self-evaluation by the responsible Bank department) and fieldwork conducted by OED. To prepare PPARs, OED staff examine project files and other documents, interview operational staff, and in most cases visit the borrowing country for onsite discussions with project staff and beneficiaries. The PPAR thereby seeks to validate and augment the information provided in the ICR, as well as examine issues of special interest to broader OED studies.

Each PPAR is subject to a peer review process and OED management approval. Once cleared internally, the PPAR is reviewed by the responsible Bank department and amended as necessary. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the OED Rating System

The time-tested evaluation methods used by OED are suited to the broad range of the World Bank's work. The methods offer both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. OED evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (more information is available on the OED website: <http://worldbank.org/oed/eta-mainpage.html>).

Relevance of Objectives: The extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). *Possible ratings:* High, Substantial, Modest, Negligible.

Efficacy: The extent to which the project's objectives were achieved, or expected to be achieved, taking into account their relative importance. *Possible ratings:* High, Substantial, Modest, Negligible.

Efficiency: The extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. *Possible ratings:* High, Substantial, Modest, Negligible. This rating is not generally applied to adjustment operations.

Sustainability: The resilience to risk of net benefits flows over time. *Possible ratings:* Highly Likely, Likely, Unlikely, Highly Unlikely, Not Evaluable.

Institutional Development Impact: The extent to which a project improves the ability of a country or region to make more efficient, equitable and sustainable use of its human, financial, and natural resources through: (a) better definition, stability, transparency, enforceability, and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Institutional Development Impact includes both intended and unintended effects of a project. *Possible ratings:* High, Substantial, Modest, Negligible.

Outcome: The extent to which the project's major relevant objectives were achieved, or are expected to be achieved, efficiently. *Possible ratings:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry and supported implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of the project). *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower assumed ownership and responsibility to ensure quality of preparation and implementation, and complied with covenants and agreements, towards the achievement of development objectives and sustainability. *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

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Principal Ratings and Key Staff Responsible

ARMENIA: EARTHQUAKE RECONSTRUCTION PROJECT (CREDIT 2562-AM)

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Sustainability	Likely	Uncertain	Likely
Institutional Development Impact	Substantial	Substantial	Modest
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible operational division of the Bank. The ICR Review is an intermediate OED product that seeks to independently verify the findings of the ICR.

<i>Project</i>	<i>Task Manager</i>	<i>Division Chief/ Sector Manager</i>	<i>Country Director</i>
Appraisal (1994)	A. Nassau	Dominique Lallement	Basil Kavalsky
Completion (1997)	Erik Peterson	Margaret Thalwitz	Ricardo Halperin

Preface

This is the Project Performance Assessment Report (PPAR) prepared by the Operations Evaluation Department (OED) for the Armenia Earthquake Reconstruction Project. The project was approved in February 1994 for an IBRD Credit of US\$20 million. It was closed one year behind schedule in June 1997 when US\$0.026 million was cancelled.

This report is based on the Implementation Completion Report (ICR) prepared by the European and Central Asia Region, the Memorandum and Recommendation of the President, Staff Appraisal Report (Report No. 11964, dated January 5, 1994), loan documents, project files, and discussions with Bank staff. An OED mission visited Armenia in September 2003 and met stakeholders. *Inter alia* the mission discussed the effectiveness of the Bank's assistance with development and financing partners, project implementing agencies, private sector agencies, and beneficiaries. The cooperation and assistance of central government and regional officials and staff, nongovernmental stakeholders, cofinanciers, and other interested parties are gratefully acknowledged.

The rationale for the assessment is that Armenia was a new Bank client and a more thorough evaluation was required to support OED's Country Assistance Evaluation (CAE) due in the spring of 2004. The ICR of this project was of a very high quality and indicated that sustainability of benefits was an issue because of a challenging social and economic transition, reliance on subsidies, and institutional restructuring needed to facilitate divestiture to beneficiary management and/or ownership. Thus an important part of OED's evaluation was to review sustainability issues six years after project completion. Additionally, the findings will contribute to an ongoing study: "*Natural Disasters and Emergency Reconstruction: an OED Review of Bank Assistance.*"

Following standard OED procedures, this draft PPAR was sent to the borrower for comments. Comments received from the borrower are attached as Annex C. In accordance with the Bank's disclosure policy, the final report will be available to the public following submission to the World Bank's Board of Executive Directors.

Summary

After the 1988 earthquake that killed over 30,000 people and left 530,000 homeless, a massive Soviet-led reconstruction effort built new peri-urban dormitory towns in the northwest region. However, with the fall of the Soviet Union and the macroeconomic crisis in Armenia, over 7,000 apartments remained incomplete, 25,000 inner-city apartments were uninhabitable because of structural damage, and urban water supplies remained damaged. Over 100,000 people lived in about 24,000 units of emergency accommodation called *domiks*, 87 percent of which were located in the cities of Gumri, Vanadzor, and Spitak.

The Government of Armenia launched the Earthquake Reconstruction Project in 1994 with three objectives. First, to provide improved housing for about 2,200 families and improve living conditions through better water supplies benefiting 500,000 residents in the Earthquake Zone; second, to reconstruct basic infrastructure, mainly factories, supporting creation of employment for 2,500 workers; and third, to develop a longer-term sustainable program for rehabilitation.

The project was highly relevant, and was in the first round of lending soon after Armenia joined the Bank. The outcome of the project was moderately satisfactory. The first objective was substantially achieved but with some shortcomings. While over 2,800 apartments were either completed or strengthened, the inability of most beneficiaries to meet Bank conditions and co-pay a quarter of the incremental cost led to partial completion of units that delayed their occupation. Municipal loans to beneficiaries overcame this problem, but repayment was not pursued for political reasons. Paradoxically, this debt later disqualified privatization of Bank-assisted apartments, one of the Bank's sector objectives. The bar to privatization was only removed in 2002 when, following a USAID request to government, the homeowners' debts were written off. Low incomes and lack of housing finance instruments frustrated a small private sector housing component. Municipal services, including public bathhouses, were constructed and fully met local demand for permanent inner-city facilities. Water supplies were upgraded as planned.

The second objective to reconstruct factories to provide employment was unsuccessful – fewer than 500 jobs were created. The project rehabilitated 10 factories, accounting for almost a quarter of project costs (US\$7 million). Because of fluid economic conditions, cessation of market links to the former Soviet Union, lack of commercial experience, and outmoded products, only two of the factories remain in operation.

The third objective to develop a longer-term sustainable program for rehabilitation was partly achieved. Housing policy reforms were implemented only slowly because government gave this a much lower priority than civil works and construction activities, as did the Bank. Other development partners (especially USAID) were quite keen to take up the challenge and did. Even so, the government approved in 1995 the Laws on Collateral and Real Property building on the 1993 Housing Privatization Law and the 1991 Land Privatization Law and Land Code. A draft Housing Policy Action Plan was produced at mid-term review as scheduled, and initiated setting up of condominium associations.

Overall, institutional development impact is rated modest. While encouraging the growth of a private sector construction industry and creation of the Earthquake Engineering Center were very successful, government and project management's focus on construction led to neglect of housing policy and systemic sector reform issues. There was only modest information and outreach to beneficiaries on key policy initiatives, such as condominium associations and beneficiary contribution to housing costs and maintenance, and the public mostly remained unaware of the reduced role of the state at the end of the project.

Sustainability is rated likely for the housing and community components that accounted for the bulk of project investment. Ownership of housing units is currently being established with USAID assistance, and government and project beneficiaries are being weaned from the idea that housing is a public good. However, with continued high levels of unemployment and poverty incidence at 48 percent, government subsidies for housing will be required for some time.

Bank and borrower performance are rated satisfactory but with some shortcomings. Government at the central and local levels performed less well on the reform agenda because they continued to see housing as a primarily public good, and also supported factory development made non-viable by the permanently realigned market links with the former Soviet Union. And several changes of Bank staff and management reduced the Bank effectiveness on sector issues. As a result, longer-term reform of housing policy was sidelined.

There are three lessons from this experience:

- A phased approach to reconstruction programs after natural disasters provides flexibility and avoids locking into inappropriate activities. A first phase needs to carefully identify and prioritize immediate, short- and long-term needs while simultaneously building local capacity and information, tasks that generally require well-targeted technical assistance. Important considerations include factoring in macroeconomic realities, determining incentives frameworks, balancing direct and indirect costs, and fostering innovation.
- Disaster recovery projects, with their immediate physical objectives, may not be suitable vehicles for achieving longer-term policy reforms.
- Reconstruction efforts should be designed to preserve communities, enhance supporting services, and take great care that self-help features are cognizant of cultural norms and realistically reflect household's ability to pay. In turn, this requires that the Bank give more attention to social and poverty assessments in disaster reconstruction activities.

Gregory K. Ingram
Director-General
Operations Evaluation

1. Background

1. Armenia is a small, mountainous landlocked country in the Caucasus with an area of 29,800 square kilometers and a population of about 3 million. A third of the population live in Yerevan, which is located in the wide Ararat valley that forms the southwestern border with Turkey. A second focus of population in the northwest region runs from the second-largest city, Gumri, eastwards into the mountains toward the cities of Spitak and the Vanadzor industrialized area. Under the former centralized economic system of the Soviet Union, Armenia experienced relatively robust economic development, unparalleled among other former Soviet republics, which created a diversified industrial infrastructure, a flourishing agriculture, and modern transport network. As a producer of industrial, intermediate and finished goods, most trade was with Russia and surrounding republics – Georgia to the north and Azerbaijan to the east.

2. The earthquake of December 1998, centered on Spitak in the northwest region, was the first of several devastating blows to the economy. Extensive damage to infrastructure and housing stock destroyed 40 percent of the country's manufacturing capacity, killed 25,000-30,000 people and left 530,000 homeless.¹ After regaining independence in 1991, the loss of Soviet support, markets and highly subsidized energy led to rapid decline in industrial output, high unemployment, and a drop in GDP by almost two-thirds. Agriculture was more resilient, its contribution to the contracting economy rose threefold to 37 percent of GDP, and its share of total employment increased from 18 percent to over 25 percent by 1993.

3. Efforts to recover from the earthquake were thwarted by the breakup of the Soviet Union. Most of the recovery works initiated under a committee of the Supreme Soviet were incomplete when Soviet workers were repatriated in 1991. Withdrawal of Soviet troops allowed the Nagorno-Karabakh conflict to erupt, reinforcing the already poor relations with Turkey and causing Azerbaijan to close the main gas pipeline from Russia in 1991. Only the Iranian and Georgian borders remained open. Subsequently, international aid efforts focused on relief for an estimated 250,000 immigrant refugees displaced by the six years of hostilities.² After the Chernobyl disaster in 1988, Armenia's Medzamor nuclear power plant of the same design was closed, only reopening in 1995. Closure of gas and nuclear power (accounting for almost 80 percent of Armenia's energy consumption) was crippling to the economy. In response to all these adverse effects on the economy, the budget deficit reached 55 percent of GDP in 1993 and inflation hit 5,000 percent. Because of increasing poverty, high unemployment and rapidly falling living standards, an estimated 800,000 people emigrated to find better prospects.³

1. The earthquake registered 6.9 on the Richter scale. The actual number of fatalities was suppressed as it reflected badly on Soviet preparedness and building standards – Armenian officials indicated probable fatalities were in the range 50-65,000.

2. A cease-fire was mediated by Russia in July 1994 among Azerbaijan, Karabakh, and Armenia. A permanent peace settlement has not been agreed and Nagorno-Karabakh is under Armenian administration.

3. The incidence of poverty rose to 55 percent in 1996 and 1997. The Gini coefficient declined from 0.30 in 1990 to 0.57 in 1998/99 (the Gini coefficient would be zero for perfect income equality and one for total inequality). OED, Country Assistance Evaluation, 2003.

4. Despite these setbacks, government initiated some reforms before initiating membership in the international financial institutions (IFIs). Before 1993, most commodity prices, with the exception of bread, were freed. The government broke up the collective farms and transferred property and land to rural residents, and liberalized retail and producer prices for agricultural goods. Early steps were taken to privatize most housing. These efforts received an impetus in 1994, following the Nagorno-Karabakh ceasefire, from a comprehensive reform program supported by the international community – its primary aim was fiscal stabilization, overhaul of the tax system, and substantial expenditure cuts. The Earthquake Reconstruction Project was included in this first round of Bank assistance (FY93-94).

5. Armenia has made good progress in its transition from a centrally planned economy to a market economy and GDP growth is now among the highest in the FSU countries. Although reform progress slowed after 1997, it accelerated again from 2000 with a focus on improving the business environment and implementing bankruptcy and liquidation proceedings. The growth of small and medium-sized private firms, which in many transition economies make a major contribution to employment growth, is hindered by inadequate enforcement of contracts, unavailability of adequate financing for private firms, and slow development of adequate government capacity to support a market economy.

6. Armenia continues to have the highest income inequality among the countries of the Europe and Central Asia (ECA) Region.⁴ The incidence of poverty was estimated at 55 percent in 1996 and 1998.⁵ Recent 2001 data indicate that poverty has declined by seven percentage points – but still remained high at 48 percent; extreme poverty has fallen from 27 percent to 20 percent. Confronting poverty and improving social indicators remain a key challenge, as fiscal austerity will continue to limit the resources available for social sector expenditures, although recent efforts at improving targeting have helped ease the plight of the poor.

2. The Project

7. **Objectives.** The Earthquake Reconstruction Project (ERP) was designed to help Armenia alleviate pressing economic and social problems in the housing sector and provide an opportunity to implement basic reforms in housing and infrastructure. Even though five years had elapsed since the earthquake, government had been unable to complete reconstruction without international assistance for the reasons discussed above. Surveys commissioned during 1995 showed that over 100,000 people lived in about 24,000 units of emergency accommodation called *domiks*, 87 percent of which were located in the cities of Gumri, Vanadzor, and Spitak.⁶

4. World Bank, “Armenia Poverty Profile in 2001,” p. 24. The Gini coefficient of earnings went from 0.296 in 1991 to 0.486 in 2000; the latter figure, while high, is only slightly above other CIS-7 republics (Falkingham, p. 8).

5. Comparison of 1996 poverty data with that collected later in the decade is difficult due to differences in the definitions and measures used.

6. The term *domik* is Russian for “little house.” *Domiks* are typically freight containers, railway wagons or oil tanks converted into single family accommodation.

8. The project had three main objectives that emphasized completion of unfinished apartments and repair of damaged apartment blocks, reconstruction of infrastructure to support employment creation, and longer-term planning. It was expected that 2,000 households would receive permanent shelter and 2,500 workers benefit from employment in the reconstructed factory shells. About 500,000 people were expected to benefit from better sanitary facilities. Table 1 lists the components to achieve these objectives and costs.

9. The ERP was approved for an IDA credit of US\$28.6 million or 61 percent of total appraised project costs of US\$46 million, which include US\$17.3 million in sunk costs representing government's investment in infrastructure and partially completed housing.

Table 1: Earthquake Reconstruction Project: Objectives, Components and Costs

Objectives	Components	Costs (US\$, million)	
		Appraisal	Actual
1. Provide improved housing and living conditions to residents of the Earthquake Zone (EZ)	<input type="checkbox"/> Completion of unfinished apartments	4.67	8.52
	<input type="checkbox"/> Repair/strengthening of damaged buildings	1.53	6.73
	<input type="checkbox"/> Land development and construction of serviced plots and starter houses for single families and self-help expansion	2.38	0.63
	<input type="checkbox"/> Provision of bathhouses in temporary areas	1.17	1.27
	<input type="checkbox"/> Community facilities	0.60	2.96
	<input type="checkbox"/> Completion of selected water supply and sewerage in subprojects in Spitak, Vanadzor, Stepanovan	1.50	2.27
2. Reconstruct infrastructure supporting employment creation	<input type="checkbox"/> Complete factory shells for existing profitable industries	7.04	6.92
3. Develop a longer-term sustainable program for rehabilitation in the earthquake zone	<input type="checkbox"/> Procurement and construction supervision	1.83	0.41
	<input type="checkbox"/> Housing reform & policy and regional development in EZ	0.20	
	<input type="checkbox"/> The Earthquake Engineering Center	0.18	
	<input type="checkbox"/> Evaluation of first phase program	0.35	
	Physical and Price Contingencies	6.84	-
	Total Cost	28.62	29.71

IMPLEMENTING AGENCIES

10. The Ministry of Economy (MoE) had the primary responsibility for the earthquake reconstruction efforts and policy reform. A project preparation unit within MoE designed the project after which it became the Project Implementation Unit (PIU). The Director of the PIU reported to the MoE, and all PIU employees were consultants independent of government. The PIU employed some international consultants in the initial stages of the project to advise on procurement, project planning, and supervision. In addition, specialist advisors, provided through bilateral aid programs, worked closely with the PIU's earthquake reconstruction team – France, and the United States' USAID and Peace Corps were particularly helpful in this respect. The municipalities of Gumri, Spitak, and Vanadzor interacted directly with the PIU on the scheduling and design of local reconstruction efforts.

DESIGN ISSUES

11. A number of risks were clearly identified. Because of the regional political situation, the highest risk was that a resumption of the blockade would disrupt the economy, jeopardizing counterpart funding and progress toward a market-based economy. It would also hinder the import of essential building materials.

12. Preparation started in the fall of 1992 soon after Armenia joined the Bank. The challenge was enormous as reconstruction efforts had stopped in 1991. The appraisal team's first task was to develop a viable plan from a host of proposals put forward by competing clients at the central, regional, and municipal levels. The Prime Minister requested that factory shell completion should be a major goal of the project, thus enabling resumption of exports and production as inputs to other Armenian industries. Local officials in Spitak and Gumri, backed up by the center, proposed completion of privately owned single-family houses that had stalled from lack of materials and credit for homeowners. Others felt apartment blocks were the priority. There was also pressure to alleviate the privation of the 85 percent of residents living in *domiks* while the project works were being completed – thus mobile bathhouses and better water supply and sanitation were proposed. And there were differing views about the trade-off among building quality and coverage and the role of self-help labor-intensive construction compared with the traditional Soviet machine- and energy-intensive construction, the use of credit or grants, and the balance between single-family houses and apartment blocks.

13. The Bank, in line with its sector policy on housing that emphasized privatization of domestic housing, added a condition that project beneficiaries should contribute to housing costs. This was regarded as an important condition for the credit and sector reform in general. While the government resisted wide-scale privatization, voluntary privatization was introduced in 1993, albeit at minimal cost to beneficiaries.⁷ Even so, all new apartments constructed in the earthquake zone were allocated to families by the state and this continued throughout the project.⁸ It was recognized also that there was a conflict between Bank policy that required housing beneficiaries to pay, and the inability of those most in need to do so (unemployment in the worst-affected areas was 70 percent or more). Thus the Bank could only reasonably seek to recover incremental costs to complete apartments and government agreed that beneficiaries should pay a contribution. The final arrangement was that Bank funds should be used to finance three-quarters of completion costs, and that beneficiaries should finish the apartments at their own cost.

7. In June 1993 the 1989 Housing Privatization Law was repealed and replaced by a new law on Privatization of State Housing Stock that took effect in September 1993. The new law allowed voluntary privatization of state housing, the only cost being a small fee (equal to two month's minimum state salary) to offset administrative costs. A Law on Condominiums was proposed at the same time to create private owners' associations and transfer responsibility for housing services from the public to the private sectors.

8. Government Decree N147 on March 1992 laid out the criteria for allocating housing units in the earthquake zone based on a submission by the Executive Committee of Gumri City. Criteria were fairly inclusive and included invalids, families who had lost a breadwinner, Heroic mothers, Heroes, recipients of Glory, Work Glory, and Serving for the Motherland in the Military forces of the USSR awards, partisans in WW II, former Soviet pensioners, etc.

14. Criteria for selection of permanent housing were agreed quickly. These included location in viable neighborhoods with functioning community facilities, near-completed infrastructure and buildings, and a high level of earthquake resistance. Additionally, the project focused on maintenance planning and a master plan addressing the role of the private sector.

15. A review of water supply and sanitation needs in Gumri, Vanadzor, Spitak, and Stepanavan quickly concluded that few of the proposed or semi-complete schemes would qualify for Bank financing. Prime reasons were that most had been designed to over-dimensioned Soviet standards to meet excessive per capita water consumption rates and paid little attention to recurrent costs, assuming that high energy subsidies would continue. Accordingly, as the Charkali gravity supply scheme for Spitak (population 25,000) had the fewest problems, this was short listed for inclusion in the project – subject to independent and external engineering review.

16. The project was fully appraised within seven months because of the availability of US\$1.0 million Japanese Grant Funding. But Board presentation was delayed by a resumption of hostilities in Ngorno-Karabakh in June 1993. Because of the high-risk situation, implementation under the project was split into two phases. The first phase (lasting until May 1994) was to address immediate needs of shelter and employment and was to focus on completion of nearly finished apartments and initiation of factory shell construction.⁹ It also included pilot testing of single-family housing and community bathhouses, which, if successful would be expanded in the second phase. At the end of the first phase, a mid-term review would provide a means of reorientation and fine-tuning of project objectives.

17. Although the credit was negotiated in early July 1993, it took seven months before Board approval. It was feared that the resumed conflict could jeopardize project implementation and raise questions about the fungibility of Bank assistance. The Bank was concerned also that early lending to Armenia would be seen also as discrimination against Azerbaijan that was even more adversely affected by the refugee problem. And because of the uncertain security situation, the Bank felt it was premature to produce a CAS to provide a framework for assistance. Eventually, the Board approved the IDA credit, Armenia's first, in February 1994 and it became effective in April.

IMPLEMENTATION

18. Civil works comprised 98 percent of expenditures and most components disbursed almost twice the appraisal projections. The additional funds to finance the enlarged civil works program came from redistribution within the credit amount and SDR appreciation equivalent to US\$1.75 million. An additional US\$0.6 million accrued from contractor penalties – although the amount realized was smaller due to litigation and seizure of property rather than payment in cash. At mid-term review technical assistance was substantially reduced when it became apparent that local capacity was much better than assumed, and parallel bilateral programs, particularly USAID programs, were financing some of the sector policy work.

9. Factory shells construction was a major project component and focused on completing damaged or partially rebuilt factories that housed viable industry that would guarantee employment.

19. Implementation proceeded with few problems. Procurement was less of a problem than anticipated mainly because of the small-scale nature of the work and early acceptance of the Bank's procurement procedures. Even so, initially there were problems over specifications and poor documentation, and the lack of contractors' experience with competitive bidding, which led to widely divergent tender prices. Several contracts were rebid and most problems were solved in the first 18 months. Selection and financial justification for factory shell completion proved to be more difficult than anticipated because of poor financial and business data, and most of the work was delayed. Similar delays occurred in the bathhouse program because municipalities argued for fixed downtown locations instead of the mobile facilities proposed. As a result, project closing was extended by a year to allow completion of construction contracts.

3. Results

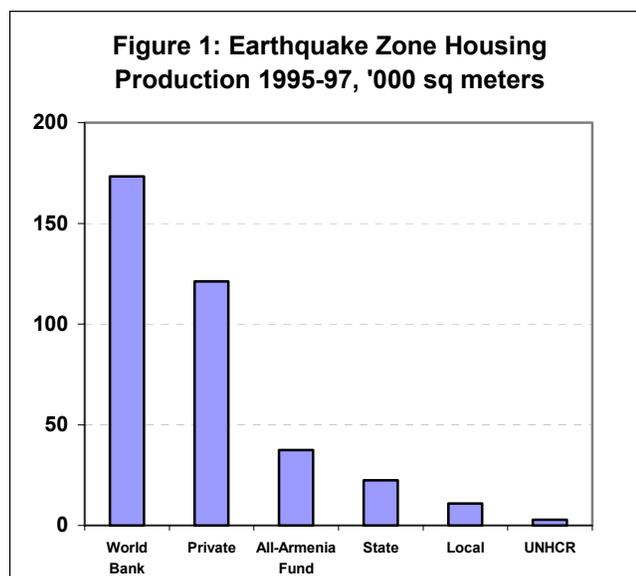
Objective 1: Provide improved housing and living conditions

20. Temporary housing, domiks, comprised much of the residential housing stock in earthquake cities even after the project. This comprised 90 percent of Spitak's population (5,000 families or 20,000 people), a third of the Gumri's (18,000 families or 72,000 people), and 9 percent of Vanadzor's (3,800 households or 5,200 people).

21. During the period 1995-97, the Bank-supported project was the largest provider of new and reconstructed building space in the earthquake zone, accounting for almost a half (Figure 1). In the first two years, the Bank's assistance provided the majority of space, about 60 percent, falling to 30 percent in 1997. Overall, 2,857 apartments were completed replacing 11 percent of all the housing stock lost in the earthquake.

22. The private sector accounted for 30 percent of housing. This was mostly small-scale, household-level investment financed from private sources – in many cases from expatriate Armenians living in the former Soviet Union.

23. The All-Armenia Fund, financed by the Armenia 'diaspora', the state and local municipalities, and UNHCR accounted for the balance. While the total area produced was relatively small (20 percent), the quality of finish was much higher than the Bank's, and beneficiaries did not have to make any financial contribution. Conversely, the Bank



Source: Ministry of Housing, Republic of Armenia

required beneficiaries to contribute 25 percent of incremental costs. These differing policies created acceptability problems for the Bank-financed units (paras. 25-29).

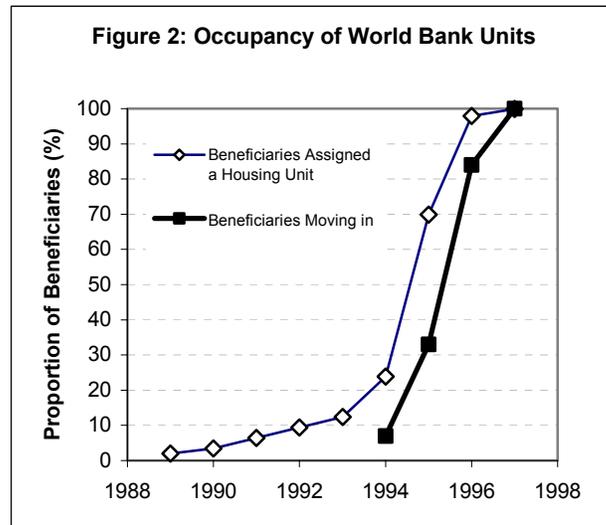
24. **Unfinished apartments were successfully completed.** This was the largest component and 1,759 units were finished, 13 percent more than planned at appraisal. Average cost per apartment was \$4,844 compared with the appraisal estimate of \$2,999 – the higher cost was due to a smaller proportion than expected of ‘almost-finished’ apartments and increased unit costs for materials. There was also a trade-off on some of the Bank’s selection criteria (para. 14). Most structurally sound but uncompleted works were in the new Soviet-style housing estates on the periphery of cities, not in the town centers or even near *domik* settlements, which occupied downtown parks and building lots. Thus Bank-financed apartments were mostly in isolated new developments where few people lived and most communal and public services were poor or absent.

25. **Ensuring occupancy of completed apartments was a problem because of conflicting housing policies.** People moving to new apartments would lose the benefits associated with *domiks* – a small garden, government allowances, and NGO support programs, including help with fuel and food.

26. A World Bank survey also found that delays in occupying apartments was because allocation by the municipality lagged behind construction.¹⁰ The survey indicated that almost half the new owners moved in within 6 months and 71 percent within a year (Figure 2). A minority, 18 percent, took two or more years to move. Once allocated, delays occurred because of time to finish the apartment, financial reasons, reluctance to move away from community services in the *domik* areas in winter, and during school term.

27. A further disincentive to occupancy was the Bank’s policy beneficiaries made a 25 percent co-payment either in cash or kind. Almost a third were unable to make a down payment for ‘ownership’ registration even though this was very small – 12,000 Drams or US\$24. Some (22 percent) just did not have the cash. Others (15 percent) did not know they had to pay, and a third stated that there was a lack of official documentation—these latter problems indicating institutional problems and information asymmetry.

28. Levels of satisfaction also delayed relocation. Bank-financed apartments were made habitable to a modest level of finish, economizing on items seen as luxuries – for example, new owners had to install baths,



Source: World Bank Survey, 1997

10. The World Bank survey was undertaken in 1997 on project completion by the University of Armenia and included 296 beneficiaries.

complete wiring, put in double-glazing, and provide internal doors.¹¹ And 85 percent said it was unfair to leave finishing work to beneficiaries. Where the owners could not raise the cash, the municipality gave loans to complete apartments, but to fairly low standards. In contrast, similar works by the state and NGOs delivered fully finished units. While three quarters of new owners had new apartments that were bigger than those they had before the earthquake, 60 percent said the internal fixtures were of poorer quality. Almost 40 percent felt dissatisfied by their new apartments, the primary reasons being unfinished units, bad construction, and lack of central heating and water.

29. Two years into implementation, average occupancy was 50 percent (range across four towns 30-70 percent), rising to 74 percent (range 51-90 percent) on completion in the third year. Lowest occupancy was in Gumri and Vanadzor because of the remoteness and poor public facilities (markets, schools, transport etc.) in the isolated new town areas. Highest occupancy was in Spitak where most of the original buildings had been destroyed. In September 2003, at the time of the evaluation mission, all the building works repaired or completed by the Bank were fully occupied.

30. **The component to repair and strengthen earthquake-damaged buildings, mostly in town centers, was successful.** Unlike the apartment completion component, it aimed to allow families vacated from damaged buildings to return to their former homes. The 1,061 completed were double those planned but at greater unit cost – \$5,407 compared with \$3,000 anticipated at appraisal.

31. **The single-family starter-houses and serviced plots component was unsuccessful.** According to the SAR, this component was to support central and local governments' wish to pilot initiatives to foster private home building and test affordable designs.¹² According to government's completion report "at project preparation, local authorities, government representatives and PIU specialists believed the experiment would not succeed."¹³ Even so, 260 units were planned and 144 were to be tested under Phase I. The first problem arose when Gumri municipality requested that its allocation be cancelled – after tenders had been released – because there had been no interest in the 217 plots and house foundations it had put on the market independently, even though the plots were offered free of cost, the only stipulation being that the new owners had to finance the houses. In Vanadzor, the main contractor defaulted and the contracts had to be rebid. Eventually only 80 units – mostly starter 'core' units, foundations, and a few complete two-storied houses – were made available for allocation. At the end of the project, only 37 were completed at an average cost of \$16,959, the most expensive \$18,000 – far beyond the means of most Armenians.¹⁴ The

11. Would-be owners put a high premium on baths because they provided essential water storage to mitigate unreliable water supplies.

12. Even in the Soviet era about 30 percent of homes remained in private ownership, particularly in rural areas. All building codes and regulations, however, were aimed principally at large-scale urban public housing in 40-unit apartment blocks.

13. ICR, Annex B, page 3.

14. Component savings of US\$1.75 million were transferred to apartment completion, and repair and strengthening activities.

assessment mission visited some areas and found abandoned foundation sites. Apart from affordability, another disincentive was the uncertain status of land ownership and title. The project was only able to offer “long-term transferable occupancy rights,” which was a new concept and not understood by beneficiaries.

32. **Multiple-occupancy private ventures had difficulties too.** A new three-story apartment building was to be constructed in Gumri with a 40 percent equity contribution from would-be owners.¹⁵ But higher-than-expected costs meant that several participants withdrew and had their deposits returned. In the circumstances, the Bank and municipality agreed to limit construction to only two floors.

33. **The bathhouses component was successful after redesign.** Originally intended to provide 54 mobile bathhouses to relieve hardship in the *domik* areas, design and contractual problems delayed implementation. In the elapsed time, the city municipalities of Gumri, Spitak, and Vanadzor decided that they would rather build new or reconstruct central bathhouse located in the city centers, and operate them under concession arrangements. There were three reasons for this. First, many officials felt that the Bank funding should be spent on permanent fixtures that would help rejuvenate city centers: bathhouses are very much a community meeting place. Second, providing bathhouses to *domik* communities would provide adverse incentives for inhabitants to relocate to rehabilitated buildings. Third, the cities were anxious to clear the *domiks* from central areas to reclaim city parks and gardens for civic use.

34. Eleven bathhouses were finally constructed at an average cost of US\$115,636 each and proved to be very popular. In addition, the concept of seismic isolation was piloted, using bathhouses, for the first time in Armenia.¹⁶ On completion, the Bank provided technical assistance via the American University of Armenia to assist municipalities in designing and letting lease/concession contracts for private operators. While a concession was agreed for Vanadzor, Gumri, and Spitak municipalities continue to operate their bathhouses.

35. **Community facilities were successfully provided.** This was a demand-led exercise and each city had its own priorities for reconstruction work. A library and stadium were built in Gumri and an historic community center reconstructed – even through the Bank felt there was no justification for the stadium. Vanadzor received two hospitals, a municipal building, a kindergarten, and a telephone exchange, while Spitak acquired a new school and sports facility. Four other schools were built in the region and the total number of student places created was 2,598.

15. 42a Pobedy St, Gumri – earlier listed as 24a Hakhtanaki Street, Gumri. Total cost was estimated to be \$276,000.

16. Seismic isolation is designed to isolate buildings from earthquake shock waves traveling through the earth’s crust and was first used in 1970s. Buildings are elevated above their foundations on bearings that minimize the seismic energy transferred from the ground to the building. In consequence, buildings do not shake themselves apart. The project piloted elastometric bearings that has alternating layers of rubber and steel. The stiff steel plates provide lateral constraint on each rubber layer when the bearing is subjected to vertical load, but does not constrain the horizontal shearing deformation of the rubber layers. This produces a bearing that is very stiff in the vertical direction and very flexible in the horizontal direction. Consequently, structure will be decoupled from the damaging components of the ground acceleration.

36. **Earthquake proofing piloted by the project in Armenia was successful.** In addition to the bathhouses, two apartment blocks were constructed using base-isolation. In Spitak, base-isolation enabled construction of the four-story Shahumyan Street apartment building when the local zoning was restricted to two stories. In Vanadzor, one building had base isolation, and two were fitted with ‘Additional Isolated Upper Floor’ protection. Since the project, there have been ten significant earthquakes, the one of 1999 being the worst. The efficacy of the earthquake isolation system in Spitak was proved by these events, Box 1, and local people during the assessment mission affirmed this experience. Closer inspection of the Vanadzor buildings, however, showed that, when tenants filled the seismic isolation gaps, minor damage occurred – clearly building occupants were unaware of the function of the isolation gaps. Since the project, the total number of buildings seismically isolated has increased to 14, the most important being a large secondary school in Vanadzor. The school’s Director described to the OED mission how isolators were installed without having to vacate the building and disrupt teaching – a global first.

Box 1: Base Isolation from Earthquakes Works

Professor Nazaretyan reported the results of his research: “During the 1999 Spitak earthquake with an intensity of 5-6, the tenants of the Shahumyan Street building in Spitak and the Yerevan #149 building in Vanadzor did not feel the earthquake, while people in neighboring building ran outside.”

AZG Armenia Daily No. 29. November 21, 2001.

37. **Water supply was improved in three cities.** Emergency replacement of water supply pipelines to Gumri, Spitak, and Vanadzor guaranteed supplies benefited more than 200,000 consumers. During the design phase for these works, an engineering survey and needs assessment was conducted by Bank-appointed consultants. This showed that most of the municipal water supply systems were in a poor state of repair partly due to deferred maintenance, partly due to earthquake damage. Much of the sewerage systems had been severely damaged in the earthquake. Clearly, the amount of investment required greatly exceeded that available under the ERP.

38. In consequence, the project was able to only ameliorate water supply problems, and not significantly improve system efficiency and performance. Broken water distribution pipes were replaced (many to better design standards) or rerouted and connections to completed housing installed. Even so, at project completion, more than 50 percent of piped water was lost as a result of accumulated poor maintenance. Only 27 percent of those surveyed had continuous piped water; and 44 percent had water for fewer than 2 hours a day. At project completion it was expected that more detailed feasibility studies and planning would be embraced under the Bank’s Municipal Services Project scheduled for appraisal by 1998. The key concern was to make service provision financially sustainable. When the US\$35 million MSP was approved in mid-1998 for a US\$30 million credit, its water supply and sanitation focus was on Yerevan with only a small component (US\$3.5 million) directed at preparation of other water sector projects throughout Armenia. As a result, to date there has been little progress on improving service delivery and efficiency.

Objective 2: Reconstruct infrastructure supporting employment creation

39. **The factory shell component was a failure and few long-term jobs were created.** This component was to construct seven factories that would account for almost a quarter of project costs and collectively create an additional 2,500 permanent jobs. The objective was to support several factories that had managed to resume limited operations after the earthquake but were believed to be constrained by either damaged or incomplete buildings. Each enterprise assisted was supposed to repay the incremental construction costs under fairly liberal conditions.¹⁷ The factory shells were to be the property of the enterprises, but in the event of default on loan repayment the government had the right to take over these facilities. Initially four enterprises were appraised and these indicated that economic rates of return (ERR) were between 12 and 70 percent.

40. By completion of the project 10 enterprises had been assisted at a cost of US\$6.9 million and about 200 to 300 jobs created. None of the loans has been repaid. However, as far as this evaluation could determine, only two of these enterprises are in operation, one in Spitak, the other in Gumri. The remainder became bankrupt and non-functional primarily because the products they manufactured were strongly linked to an expectation that the commercial links with the former Soviet Union would remain intact and that goods could be readily exported once the economy recovered. In the event, this was not the case. Another difficulty was that much of the manufacturing capability was built to outdated Soviet standards for which there was no demand. There was also no funding or expertise available to update production technology. However, the American University of Armenia was contracted by the PIU to assist factory management in modernizing accounting and management techniques.

41. While the PIU was aware of these shortcomings, there was very strong government and local municipal pressure to continue with this component. For example, in Spitak three enterprises were assisted at a cost of US\$1.5 million and only the Spitak Sewing Factory continues to operate. This factory was privatized in 1995 and employs 186 staff, 180 of whom are women, and makes military uniforms and similar clothing for export. The factory complex has an area of about 1 hectare but less than half is used. The Director complained to the OED mission that heating costs are high because poor insulation was not rectified during renovation, and that as a result, he cannot afford to properly maintain the building – from the outside it looks like an abandoned building.

Objective 3: Develop a longer-term sustainable program for rehabilitation

42. **Reforming procurement and construction supervision was successful.** The project introduced local competitive bidding and transparent financial management of contracts. These have now become the norm in Armenia. Two building contractors interviewed by OED explained that the transparent procedures introduced under the project enabled them to compete successfully for contracts, and how enforcement of contract penalty clauses improved the quality of completed work.

17. The loans were denominated in US\$, carried a 15-year maturity including a three-year grace period, and a variable interest rate 0.5% above the World Bank lending rate.

43. **Housing policy reforms were only slowly implemented.** Government gave this a much lower priority than civil works and construction activities, as did the Bank. Other development partners, especially USAID, were quite keen to take up the challenge and did. Even so, the government approved in 1995 the Laws on Collateral and Real Property, building on the 1993 Housing Privatization Law and the 1991 Land Privatization Law and Land Code. A draft Housing Policy Action Plan was produced at mid-term review as scheduled, and initiated setting up of condominium associations.

44. **Condominium associations.** Voluntary conversion of a building to a condominium and registration under the 1991 Law of Condominiums was slow. Nationally, 37,967 units were registered between November 1995 and March 1997 under condominium associations, and less than one percent were in the project area. In Gumri, only three buildings with 54 apartment units were registered, in Vanadzor four buildings with 216 apartment units. Conversely, in Yerevan 536 buildings with 31,351 units were registered.

45. The 1997 Bank sample survey found that lack of experience and financial resources constrained effective condominium management in the earthquake zone. Initially it was possible for one condominium association to cover more than one building, but the law was changed in June 1996 to include a provision that each building is to be registered as an independent condominium association. Condominiums find it difficult to be financially self-sufficient because homeowners pay only a small amount for maintenance, far below real costs. And higher fees are precluded by municipalities' social concerns, low levels of income and high levels of poverty. Thus, condominium associations either rely on external resources or cannot undertake maintenance.

46. Beneficiaries' feedback indicated that insufficient knowledge about homeowners' and condominiums' responsibilities had been disseminated through the project. For example, more than half (57 percent) of those surveyed did not even know what a condominium was. Only 17 percent who are members of a condominium association thought that condominiums are necessary and useful. More than a third said that condominiums are not useful, and half had no opinion. Around a tenth of households said that people do not have money so there is no point in condominiums. Another 10 percent thought that the state should take care of such things.

47. Although the concept of home ownership is ingrained, most households were unaware of their new responsibilities regarding communal property. None interviewed was aware that homeowners collectively owned the building. More than a third had no idea about the ownership of the building. A quarter thought that their building was owned by the municipality. In consequence, more than half of those interviewed stated that nobody was responsible for maintenance and cleaning of common spaces. Only a quarter suggested either they or the condominium as responsible. Despite this, almost all interviewed said that either they or another family member owned the individual unit.

48. The Earthquake Engineering Center was established and is working effectively in building regional partnerships and sponsoring technical symposia. In Spitak, the Earthquake Information Center, established in the basement of the base-isolated building (para. 36), was fairly busy with visiting school parties during the OED mission's visit.

4. Ratings

Outcomes

49. The outcome of the project is rated as moderately satisfactory compared with the ICR's rating of satisfactory. Table 3 shows how OED derived this rating from the performance under each objective (for more details see Annex B). Excellent performance on the physical reconstruction of housing and facilities was offset by the problems created by the Bank's beneficiary cofinance conditions, inadequate attention to long-term planning, and the low efficacy and efficiency of the employment objective that accounted for almost a quarter of project costs. And it was these latter problems that caused the modest downgrading of the ICR's outcome rating.

Table 3: Ratings for Achievement of Major Project Objectives

Objectives	Relative Importance	Relevance	Efficacy	Efficiency	OUTCOME
1. Provide improved housing and living conditions to residents of the Earthquake Zone (EZ)	High	High	Substantial	Modest	Satisfactory
2. Develop a longer-term sustainable program for rehabilitation in the EZ	High	High	Substantial	Substantial	Moderately Satisfactory
3. Reconstruct infrastructure supporting employment creation:	Substantial	High	Negligible	Negligible	Highly Unsatisfactory
OVERALL RATING OF PROJECT		Substantial	Substantial	Modest	Moderately Satisfactory

Relevance

50. Relevance is rated high. Armenia is highly urbanized (70 percent live in cities). Meeting basic housing needs in the earthquake zone, reforming housing policy and generating employment were high priorities for government. Given the dire state of economy, high unemployment and underemployment, lack of private capital, and no market-based housing finance system willing to assist rehousing of the *domik* population, the government had to rely on external sources of finance including the Bank, Germany, the All Armenia Fund, and UNHCR. Although financing for more than half of houses built after 1995 came from the private sector, this targeted the higher-income segment of society.¹⁸ In

18. Private investment (accounting for 48 percent of all new housing 1994-97) was mainly financed at the individual level for small-scale construction. Housing prices to average annual household income for a 55 square meter apartment ranged from 7 to 17 – in Russia, similar apartments cost 5-13 times annual household income while in Turkey the range was 5-6 (Petersen. 1997. Informal Draft Sector Note: The Armenia Housing Sector and Earthquake Zone Housing Issues. The World Bank).

consequence, the project was pro-poor and was highly relevant to the Bank's poverty alleviation objectives.

51. The project predated the first Country Assistance Strategy (CAS) for Armenia (1995) but was highly relevant to the major problems identified in the 1993 Country Economic Memorandum. The 1997 CAS reaffirmed relevance through three of its four objectives (poverty alleviation and support for better social protection, infrastructure rehabilitation; and reforms to complete the transition to a market economy and promote private sector development).

Efficacy

52. Overall efficacy is rated as substantial. More than the planned housing stock was reconstructed and it was an improvement over existing *domik* accommodation. A viable and transparent private-sector construction industry was successfully facilitated through the project, and communities received improved facilities, water supply, and community bathing facilities. The efficacy of the two components dealing with private housing and factory shells was negligible. First because the institutional framework and incentives for private housing was poorly understood and misaligned with financial realities of Armenia in the early to mid-1990s. Second, the factory shell component was not the most efficient way of providing employment given the adverse macroeconomic situation, the collapse of regional markets and trade in the post-Soviet era, factory management's lack of commercial experience, and outdated products.

Efficiency

53. Overall efficiency is rated modest. The efficiency of the first objective is rated modest. The Bank chose the most cost-efficient means to provide housing, focusing on completion and strengthening apartments and reducing the high cost of new building when it was clear there was no real market for this product (Table 4). Even so, the actual costs were 62 percent greater than appraisal estimate for apartment completion and 111 percent greater for strengthening apartments in blocks. The cost increase was due primarily to building material expenses that were higher than expected and to the fact that once the apartments requiring the least work were completed, costs for the remaining apartments became increasingly expensive. While the efficiency of the strengthening component is rated substantial, the completion component is only rated modest. This is because the Bank's policies for beneficiary contribution and quality of finish were out of line with alternatives produced by other agencies, delaying completion and occupation of completed units. In practice, local municipalities lent money to beneficiaries for completion and made no attempt to seek repayment. Thus the Bank's policy on beneficiary contribution proved to be ineffective and inefficient. The acceptance of demand-led redesign of the community and bathhouse facilities showed little sensitivity to cost-effectiveness and included non-essential items such as a sports stadium. Although efficiency of the second objective is rated substantial, this is effectively traded off by the negligible efficiency of the third objective to create employment. Thus, the overall rating is modest.

Table 4: The Bank mostly financed the most cost-effective housing sectors at higher cost

Investment Type	Resale	Completion	Strengthening	New Build
Unit Cost \$/m ²	\$45	\$58	\$92	\$192
Cost /apartment Planned	-	\$3,000	\$3,000	\$9,142
“ Actual	-	\$6,055 ^{a/}	\$6,341	\$16,959
Number of Units Planned	-	1,559	510	260
“ Actual	-	1,759	1,061	37

Sources: ICR, Table Annex 8 and The Urban Institute, 1998.

a/ the Bank’s cost was \$4,844 which covered 75 percent of total costs; beneficiaries were responsible for the balance.

Institutional Development

54. The overall institutional development of the project impact is rated modest. While the facilitation of private sector contracting and the Earthquake Engineering Center was very successful, government and project management’s focus on construction led to neglect of housing policy and reform. Thus, there was only modest information and outreach to beneficiaries on key policy initiatives, such as condominium associations and beneficiary contribution to housing costs (see paras. 28 and 44-47), and little attention to systemic sector reform issues. Neither outstanding housing loans or interest owed to municipalities for project housing were collected. By 2002, USAID had independently followed through on housing policy reform and had introduced Housing Purchase Certificates to facilitate a transition to a private housing market once property rights were registered. All rehabilitated property – except completions financed by the Bank – was quickly registered. Paradoxically, Bank-assisted apartment completions were encumbered with the loan debt that disqualified them from privatization. This roadblock was removed only when the municipalities, following a USAID request to government, finally forgave the outstanding debt in early 2002 despite the Bank’s disagreement (para 58). The government’s position was that it was better to move ahead with its housing sector policy on privatization (thus relieving a substantial public sector maintenance burden), than pursue a large number of old debts whose collection would not be cost-effective.¹⁹ Further justification was that the debts were inequitable (all other non-Bank apartments completions had been fully subsidized) and removal of legal covenants on property deeds would speed privatization.

Sustainability

55. Sustainability is rated likely for the housing and community components that accounted for the bulk of project investment. Ownership of housing units is currently being established with USAID assistance and in the 6 years since the Bank beneficiary survey (para. 27), government and project beneficiaries have become weaned from the idea that housing is a public good. Housing units inspected by the assessment team were adequately maintained. The only project component that has unlikely sustainability is the factory shell component.

19. There were about 1,500 loans spread over several municipalities, typical loans were about \$1,200.

Bank Performance

56. Bank performance is rated satisfactory but with qualifications. Project design met basic housing needs and initiated the start of a private sector building industry. Appraisal took place under very difficult economic and physical circumstances and the two-phase approach adopted helped to mitigate some of the risks. There were, however, a number of shortcomings not helped by four changes of task manager and changes of sector management in the region. This may explain why a number of low-efficiency activities – such as the factory shell and private housing components – continued long after it became clear these were either financially inappropriate and premature given the state of the economy. Similarly, cost-sharing was premature before sufficient development of awareness, rationale, and local institutions, and appeared insensitive to high (40%+) levels of local unemployment and incomes mostly at or below the poverty line. Fortunately, the Bank realized the gravity of these issues at project completion (1997) and took steps to redress them.

57. The Bank-initiated sector review of housing policy in the earthquake zone under the umbrella of its Municipal Development Project led to a new housing strategy in 1998 to meet the needs of 12,000 families that remained displaced. A key feature of the strategy is the ‘3R Program’: redistribution using housing vouchers, renovation using improvement grants to complete works, and reinforcement of damaged and empty buildings. This strategy was adopted by the government and is currently almost fully implemented, utilizing \$20 million from USAID, and grants from the Lincy Foundation, Huntsmann International, Catholic Relief Services, and other NGOs. Thus, many of the initial ideas floated by the Bank in 1994 finally came to fruition almost a decade later – but only after significant technical assistance by others to fully understand the issues and design solutions acceptable to all stakeholders.

58. The government’s cancellation (against the Bank’s objection) of householders’ debt incurred from loans used to complete apartments created a dilemma for the Bank that it did not handle very well. Even though the householder’s debt precluded privatization of their apartments, the Bank objected as a matter of principle in 2002 saying that it would create a bad precedent for future cost recovery efforts. If the Bank had satisfactorily addressed this issue at project closure in 1997 and governments concerns (para 54) it could have avoided such a contradictory and short-sighted decision later.

Borrower Performance

59. Borrower performance is rated satisfactory although there were some shortcomings. The government strongly supported formation of an effective PIU that was independent of the state bureaucracy, facilitated the first round of competitive bidding by the private sector in Armenia, and encouraged formation of a private-sector construction industry. Although there were initial problems with prequalification and a number of contracts failed, the PIU was effective in mainstreaming international contract law, including penalties for delay and liquidated damages for voided contracts. Despite the difficult macroeconomic situation, government provided timely and adequate counterpart funding. Government at the central and local levels performed less well on the reform agenda, putting short-term political expediency (for example, factory shells to create employment) before a pragmatic acceptance of

permanently realigned market links with FSU. As a result, longer-term reform of housing policy was sidelined.

5. Conclusions and Lessons

60. Partnerships between government and the donor community correctly targeted existing housing stock that could be made safe and habitable at least direct cost. As a result, building efforts focused on partially completed apartments in peri-urban new districts created after 1988. It was only in the most severely damaged areas, such as Spitak, that new housing was built, and that at twice the cost of rehabilitation. While the policy to focus on unfinished buildings appears marginally cheaper in financial terms (Table 4), the economic cost is much higher than focusing on the strengthening of older buildings in town centers. Apartments in peri-urban areas require considerable additional municipal investment (such as markets, schools, medical facilities, heating, and public transport) to create viable communities. Most importantly, most *domik* dwellers would prefer to return to their old city homes in locations that are already fully serviced.

61. Despite the success of the donors' assistance for housing, it has only partially solved the housing problem. After closure of the Bank's assistance it was estimated that there was an unmet need for almost 27,000 housing units estimated to cost US\$183 million – far beyond locally available resources. In addition, surveys found that – contrary to expectations – more than 70 percent of relocated families retained their *domiks*, sometimes letting them, or using them for storage and plots for vegetable production (details in Annex B, page 31). Not only does this inhibit reclamation of inner-city parks and gardens and civic regeneration, it also indicates problems with the regulatory environment.

62. Since the project, a small private market for housing has developed, catalyzed by the USAID housing voucher program that has helped more than 13,000 people move to permanent homes. Even so, a major problem is that demand is low and the market value of strengthened or completed apartments is less than the cost of rehabilitation – \$100 per square meter to rehabilitate an apartment worth only \$80 per square meter in the market. Consequently, municipalities would prefer to sell and transfer the liability to the private sector even though there are no state-sponsored earthquake zone financial incentives, such as preferential pricing, interest rates or tax breaks. Another problem is that most apartment buildings are only partially occupied – almost 40 percent of households live in buildings with occupancy rates of 60 percent or less – and this further drives up average costs per apartment. In the meantime, abandoned buildings continue to deteriorate, raising rehabilitation costs further. Currently, in Vanadzor for example, only 32 of 128 apartment blocks have been rescued, the remainder, capable of housing 15,000 people, remain empty. The only building strengthening activity in 2002 was by the NGO Lincy Foundation and covered 214 apartments in four buildings. More recently, the Ministry of Urban Development and USAID have initiated a Housing Improvement Grant Program to assist condominium associations in urban areas and community associations in villages in co-financing critical repairs and upgrades to damaged buildings.

63. The effects of uneven attention to the reconstruction of different communities need urgent attention. To minimize costs, most financial assistance was directed at urban areas that were adequately serviced with water and electricity. In Soviet times, more than half the rural housing was privately owned and after the earthquake the state gave victims a small one-time cash grant to rebuild. Few, however, actually rebuilt given the scarcity and price of materials and either used the grants for consumption or savings, the latter disappearing with rampant inflation. In consequence, there remains a considerable stock of unserviced, damaged, and sub-standard housing in rural areas where unemployment is reportedly as high as 70 percent and more than half the population is below the poverty line.

There are three lessons from this experience:

- A phased approach to reconstruction programs after natural disasters provides flexibility and avoids locking into inappropriate activities. A first phase needs to carefully identify and prioritize immediate, short- and long-term needs while simultaneously building local capacity and information, tasks that generally require well-targeted technical assistance. Important considerations include factoring in macroeconomic realities, determining incentives frameworks, balancing direct and indirect costs, and fostering innovation.
- Disaster recovery projects, with their immediate physical objectives, may not be suitable vehicles for achieving longer-term policy reforms.
- Reconstruction efforts should be designed to preserve communities, enhance supporting services, and take great care that self-help features are cognizant of cultural norms and realistically reflect household's ability to pay. In turn, this requires that the Bank give more attention to social and poverty assessments in disaster reconstruction activities.

Annex A. Basic Data Sheet

ARMENIA: EARTHQUAKE RECONSTRUCTION PROJECT (EQRP) (CREDIT 2562-AM)

Key Project Data (amounts in US\$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	28.6	29.7	104
Loan amount	20.1	20.1	100
Cofinancing	--	--	--
Cancellation	--	--	--

Cumulative Estimated and Actual Disbursements

	FY94	FY95	FY96	FY97
Appraisal estimate (US\$M)	5.10	13.4	20.1	20.1
Actual (US\$M)	2.11	8.3	16.4	20.1
Actual as % of appraisal	41	62	82	100
Date of final disbursement:	October 19, 1997			

Project Dates

	Original	Actual
Identification	--	December 1992
Appraisal	--	April 1993
Negotiations	--	July 1993
Board approval	--	February 1994
Signing	--	February 1994
Effectiveness	--	April 1994
Project completion	--	June 30, 1997
Closing date	--	June 30, 1997

Staff Inputs (staff weeks)

	Staff Week	Salary US\$000	Total
Preappraisal	68.2	141.2	209.4
Appraisal	21.5	57.4	78.9
Negotiations	18.1	41.9	60.0
Supervision	77.4	217.8	295.2
Other			
Total	185.2	458.3	643.5

Mission Data

	<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Staff days in field</i>	<i>Specializations represented</i>
Identification/ Preparation	Feb. 1993	8	12	2 FA, 3 UP PMS, 2 EN
Appraisal Supervision	Jun. 1994	6	15	HE, IS, EN 2 UP, E
	Jul. 1995	2	12	2 UP
	Dec. 1996	1	7	UP
	Apr. 1996	1	6	UP
Completion	Apr. 1997	2	18	UP, UE

FA=Financial Analyst EN=Engineer
 IS=Industrial Specialist UP=Urban Planner
 E=Economist UE=Urban Economist
 HRS=Housing Reform Specialist HE=Highway Engineer

Other Project Data

Borrower/Executing Agency:

FOLLOW-ON OPERATIONS

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
Power Maintenance	Cr. 2666	13.7	12/08/1994
Irrigation Rehabilitation	Cr. 2667	43.0	12/08/1994
Highway	Cr. 2776	36.9	9/14/1995
Social Investment	Cr. 2784	12.0	11/09/1995

Annex B. Supporting Data and Information

Table B1: OED Detailed rating of project objectives showing how they are derived from the performance of components

Objectives/Component	Relevance	Efficacy	Efficiency	OUTCOME
1. Provide improved housing and living conditions to residents of the Earthquake Zone (EZ):				
<input type="checkbox"/> Completion of unfinished apartments	High	Substantial	Modest	Satisfactory
<input type="checkbox"/> Repair/strengthening of damaged buildings	High	Substantial	Substantial	Highly Satisfactory
<input type="checkbox"/> Land development and construction of serviced plots and starter houses for single families and self-help expansion	Modest	Negligible	Negligible	Unsatisfactory
<input type="checkbox"/> Provision of bathhouses in temporary areas	Substantial	Substantial	Modest	Satisfactory
<input type="checkbox"/> Community facilities	Substantial	Substantial	Modest	Satisfactory
<input type="checkbox"/> Completion of selected water supply and sewerage in subprojects in Spitak, Vanadzor, Stepanovan	High	Substantial	Substantial	Satisfactory
Overall Rating of Objective 1	High	Substantial	Modest	Satisfactory
2. Develop a longer-term sustainable program for rehabilitation in the EZ:				
<input type="checkbox"/> Procurement and construction supervision	High	Substantial	Substantial	Satisfactory
<input type="checkbox"/> Housing reform & policy and regional development in EZ	High	Modest	Modest	Unsatisfactory
<input type="checkbox"/> The Earthquake Engineering Center	Modest	Substantial	Substantial	Satisfactory
Overall Rating of Objective 2	High	Substantial	Substantial	Moderately Satisfactory
3. Reconstruct infrastructure supporting employment creation:				
<input type="checkbox"/> Complete factory shells for existing profitable industries	High	Negligible	Negligible	Highly Unsatisfactory
Overall Rating of Objective 3	High	Negligible	Negligible	Highly Unsatisfactory
OVERALL RATING OF PROJECT	Substantial	Substantial	Modest	Moderately Satisfactory

Table B2: Post-earthquake Housing Production by Different Sources of Finance

	1995		1996		1997	
	Sqm	(%)	Sqm	(%)	Sqm	(%)
State Resources	98,100	(57.0)	35,300	(60.1)	62,400	(45.4)
State Budget	300	(0.1)			22,200	(16.1)
World Bank Loans	97,800	(56.8)	35,300	(60.1)	40,200	(29.2)
Grants	14,900	(8.6)	5,400	(9.1)	20,000	(14.5)
All-Armenian Fund	14,200	(8.2)	3,200	(5.4)	20,000	(14.5)
UNHCR	700	(0.4)	2,200	(3.7)		
Non-budget Funds	5,900	(3.4)			5,000	(3.6)
Enterprises	4,900	(2.8)			5,000	(3.6)
Local Authorities	1,000	(0.5)				
Private Finance	53,200	(30.9)	18,000	(30.6)	50,000	(36.3)
TOTAL	172,100	(100.0)	58,700	(100.0)	137,400	(100.0)

Source: Ministry of Economy of Republic of Armenia

Table B3: Key Indicators For Project Implementation

	Estimated	Actual
I. Key implementation indicators in SAR		
1. Civil Works		
Housing	Provision of 2,069 units	2,857 units provided
Bathhouses	Provision of up to 54 units	11 completed
Factories	Repair of 7 units	10 factories repaired, only 2 utilized
Infrastructure	Approx. 27 km water piping	41 km water piping provided
Community Facilities	Undefined quantity valued at \$600,000	Numerous structures built or repaired, valued at \$2.9 million
2. Institutional Development		
	Housing Policy Action Plan	Completed but with delay

Table B4: Studies Included in Project

Study	Purpose as defined at appraisal/redefined	Status	Impact of study
Regional Economic Study	Assess the comparative advantage of the EQZ regarding economic activities and recommend infrastructure repair and development needs.	Done	
Regional Infrastructure Study	Identify to what extent existing infrastructure deficiencies negatively affect economic development in EQZ.	9/95	Shaped long range investment planning for the EQZ
EQ Risk Management Strategy	Recommend rationalizing current Seismic institutional framework to clarify the division of labor between two active government entities with overlapping responsibilities.	10/95	
Armenia Housing Sector and EQZ Housing Issues	Presents sector issues to highlight main reconstruction issue, review settlement pattern and examine household expectations and options.	10/97	Provides overview of housing sector and will be used as background material for housing component for Municipal Development Project.

Table B5: Status of Legal Covenant

Agreement	Section	Covenant Type	Present Status	Original Fulfillment Date	Revised Fulfillment Date	Description of Covenant
Article IV	4.01	Financial	C	quarterly	-	Maintain records and accounts with sound accounting practices for operations, resources and expenditures.
Article IV	4.01	Financial	C	annually	-	Furnish independent audit of accounting
Schedule 4	1	Management	C		-	Maintain PIU
Schedule 4	2	Management	C		-	Execute Mid-Term Review agreements
Schedule 4	3	Sectoral	C	06/15/94	-	Submit Housing Policy Action Plan
Schedule 4	4	Financial	NC		-	Cost recovery from housing and factories as agreed – eventually written off in 2002
Schedule 4	5	Implementation	C		-	Allocation of housing units as agreed
Schedule 4	6	Financial	C	06/30/95	-	Submit plan for bathhouse operations – but few plans (2 of 11) put into effect
Schedule 4	7	Implementation	C	06/30/95	-	Provide priority access to electricity, for factories. But 8 of 10 factories abandoned.

Covenant types

- 1. = Accounts/audits
- 2. = Financial performance/revenue generation from beneficiaries
- 3. = Flow and utilization of project funds
- 4. = Counterpart funding
- 5. = Management aspects of the project or executing agency
- 6. = Environmental covenants
- 7. = Involuntary resettlement

- 8. = Indigenous people
- 9. = Monitoring, review, and reporting
- 10. = Project implementation not covered by categories 1-9
- 11. = Sectoral or cross-sectoral budgetary or other resource allocation
- 12. = Sectoral or cross-sectoral policy/regulatory/institutional action
- 13. = Other

Present Status:

- C = covenant complied with
- CD = complied with after delay
- CP = complied with partially
- NC = not complied with

Summary Results of ICR 1997/98 Survey

1. Households' Evaluation of the Unit

1.1 Living conditions of beneficiaries before and after the earthquake (until moving into their current units)

Conditions	Percent of households Before the EQ	Percent of households After the EQ
Location		
Same city/village	99	96
Other city/village	1	4
Type of housing		
Domilk	0.3	83
Apartment	87.6	4
Single family house	8	4
Dormitory	2	0.7
Other	2	8.4
Sharing the unit with others		
Yes	13	15
No	87	85
Average household size	4.5	4.5

1.2 Current forms of utilization of *domilk*

Responses	Percent of households
Given back to local authority	20
Sold	10
Given to a friend or a relative	8
Used as a workshop	12
A part of the family lives	2
Kept empty	15
Used as construction material	10
Demolished	6
Given back to the original owner	2
Other	0

1.3 Comparison of current units with the ones occupied before the earthquake

	Much better (percent)	Better (percent)	About the same (percent)	Worse (percent)	Much worse (percent)
Construction quality	10	25	15	33	17
Size of the unit	11	28	36	20	5
Internal fixture	4	7	29	40	20

1.4 Comparison of current units with the ones occupied after the earthquake

	Much better (percent)	Better (percent)	About the same (percent)	Worse (percent)	Much worse (percent)
Construction quality	61	29	4	5	1
Size of the unit	62	29	4	4	1
Internal fixture	54	18	12	12	4

1.5 Satisfaction with the current unit

Responses	Percent of households
Satisfied	40
Not entirely (but acceptable)	21
Dissatisfied	39

1.6 Reasons for dissatisfaction

Responses	Percent of households (who are dissatisfied)
Poor environmental quality	38
Inconvenient location	32
Units are unfinished	86
Bad construction quality	74
Small size of units	12
Lack of proper infrastructure (mainly central heating, and water)	69

2. Households' Evaluation of the Market Price of Unit and Payment Terms

Absence of official documents	34	25
Lack of control/monitoring	22	15
Lack of money	22	39
Dissatisfaction with the unit	1	2
Lack of knowledge that he/she was supposed to pay	15	8
Moved recently	1	5
Bought/exchanged	5	2
Paid off (finished)	-	4

2.1 Evaluation of the price that they have to pay to get the ownership of the Apartment

Responses	Percent of households
Fair	60
Unfair	24
Not sure	16

2.2 Reasons for evaluating the price as unfair

Responses	Percent of households (those who think that the price is unfair/see above)
It should have been free	13
Paid for the previous apt (demolished in the EQ)	2
Planned to be free initially (when construction started)	11
Unemployed and lack of income	34
Dissatisfaction with the apt.	11
Unfinished (finishing work was left to the beneficiaries)	29

4. Sense of Ownership and attitudes Towards New Responsibilities as Owner-Occupiers

4.1 Beneficiaries' ideas about the ownership of the building

Responses	Percent of households
No idea	33
Zshek	5
Condominium association	14
Municipality	27
Government	3
The Mayor	1
World Bank	12
All Armenian Fund	4

4.2 Beneficiaries' ideas about the ownership of the flat that they were assigned

Responses	Percent of households
A member of the family	98
Other (relative)	2

4.3 Beneficiaries' consideration of selling their units

Responses	Percent of households
Yes	35
No	57
Not sure	8

4.4 Reasons for not considering selling the unit

Responses	Percent of households (those who do not consider selling their units)
I cannot buy another one again	70
A real estate is better than money	10
I want to leave it for my kids	5
It is a good apartment	12
I do not want to sell it anyway	3

4.5 Beneficiaries' observations about the occupancy rate in their buildings

Responses	Percent of households
Almost all the flats are occupied	20
More than half of the flats are occupied	13
Half of the flats are occupied	14
Less than half of the flats are occupied	24
Very few of the flats are occupied	20
Missing (I do not know)	9

5. Moving Into Current Units

5.1 Beneficiaries' evaluations about the procedure of getting a unit

Was it difficult to get on to the waiting list and to follow-up the formal procedure to get the unit	Percent of households
Yes	17
No	78
No idea (I am not sure)	5

5.2 Difficulties encountered in getting a unit

Responses	Percent of households (those who encountered difficulties)
Too much bureaucracy	48
We had to pay extra money	13
We received a unit smaller than we should have	22
Long waiting list	17

5.3 Expenditures encountered in relation to moving and finishing the new units

Expenditures	Fees+down payment	Finishing work	Transportation	Other*	Total
Median of expenditures (in Drams)	16,000	120,000	16,000	60,000	82,000

* 20,000 Drams was asked officially for registration, and 120,000 Drams was paid to exchange the apartments with another beneficiary.

5.4 Other expenditures

Out of 296 interviewees only 11 indicated that they had expenditures other than fees, down payment, finishing work and transportation of their furniture. Breakdown of other expenditures are given in the table below.

Other expenditures	Number of people	Average amount paid (in Drams)
Payment for registration	2	70,000
For finishing the roof and basement of the building	3	30,000
Unofficial money	2	90,000
Unexplained	4	-

5.5 Attitudes towards receiving unfinished units

Responses	Percent of households
It was a fair decision to leave the finishing work to the beneficiaries	11
It was an unfair decision to leave the finishing work to the beneficiaries	85
Indecisive (I do not know)	4

5.6 Advantages of getting an unfinished apartment

Responses	Percent of households
No advantages, but at least I have an apartment	90
I can finish it according to my taste	6
I do not know	4

5.7 Willingness to pay a higher price to receive a finished unit

Responses	Percent of households
Yes	70
No	22
I do not know	8

Annex C. Borrower Comments

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