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SEMINAR

HOUSING REFORM IN THE UKRAINE: MOVING FROM A SOCIALIST SYSTEM TO A MARKET SYSTEM

**State Committee on Housing and Communal Services
Kiev, 24 February 1994**

Prepared for

**United States Agency for International Development
Bureau for Private Enterprise
Office of Housing and Urban Programs**

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ABSTRACT

By adopting the Law on Privatization and the Decree on Rents and Communal Services, the Ukrainian government has moved boldly toward the creation of a market system for the production and distribution of housing and communal services. Much remains to be done and many problems must be resolved before that goal is reached.

Mr. Lowry will discuss the unresolved problems and will suggest how some of them can be resolved. Some of the questions he will address:

- Why has privatization been so slow? How can it be speeded up?
- What is the full cost of housing and communal services?
- What proportion of Ukrainian families can afford to pay full cost?
- If those who can afford to do so pay full cost, how much would the state save in subsidy payments for their housing?
- How much subsidy would be needed by those who cannot afford full cost?
- How can that subsidy best be delivered to those who need it?
- Will this program lead to a market system for providing housing and communal services?

HOUSING REFORM IN UKRAINE: MOVING FROM A SOCIALIST SYSTEM TO A MARKET SYSTEM

As most of you know, I was invited by the Chairman of the State Committee to review the housing reform program that has been submitted to the Cabinet of Ministers and offer my recommendations for improving it. I am honored by the opportunity to address this audience for that purpose, and should explain that the ideas I present today, perhaps expanded and improved, will be provided to you in Ukrainian within a few weeks.¹

On this occasion, I am able to spend only two weeks in Kiev, but I have learned much from the members of the republican, regional (oblast), city, and district (rayon) governments whom I have interviewed. They have very patiently explained the complexities of the Ukrainian administrative structure and budgetary processes as they relate to the management of state-owned housing. If from my remarks today you conclude that I still do not have all the details correct, please tell me.

I also hope that you will feel free to interrupt my presentation in order to clarify what I have said. It is difficult sometimes to translate ideas from one language to another, and I will not at all mind trying other words to express my thoughts.

1 The Program of Housing Reform

The program of housing reform that Mr. Dron has submitted to the Cabinet of Ministers is a bold document. With respect to the production and consumption of housing, it proposes to transfer powers formerly held exclusively by the socialist state to local governments and to the citizens themselves, on the theory that those most directly affected by housing decisions should be empowered to make those decisions; and if they are so empowered, that their decisions will be better for them and for Ukraine than decisions made on their behalf by the state. As I understand the program, its main proposals are as follows:²

¹ The text and charts that follow were revised after the briefing on 24 February to reflect comments and new data from the staff of the State Committee. The most important change, reflected in the discussion on pp. 6-9, was a radical decrease in the estimate of the production cost of natural gas, hence in the subsidy to household users. The new cost estimates reflect the price of natural gas purchased from the Russian Federation in December 1993.

Also, the number of "typical cases" used for estimating subsidy amounts was increased from four to seven. Finally, the effects of the reforms promulgated in Decree No. 93 were recalculated by applying proposed cost recovery rates to each item individually rather than to the sum of all items. These changes had very little effect on outcomes.

² I am working from a draft presented by Mr. Dron to PADCO on 3 December 1993. I am aware that there have since been revisions, so some details may have changed.

- **Voluntarily privatizing most state-owned housing.** Tenants of dwellings owned by municipal or district councils and by state enterprises and collectives have been given the right to become owners of these dwellings; as owners, they would be able to sell, lease, bequeath, and mortgage their property on terms of their own choosing. As owners of apartments in multiple dwellings, they would form condominium associations (housing partnerships) to manage their buildings.
- **Gradual shifting to full-cost pricing of housing and communal services.** For those who remain rental tenants of state-owned housing, rents and charges for communal services will be gradually raised until the tenant is paying the full cost of his housing. Homeowners, whether in privatized apartments, cooperatives, or single-family houses, will also pay more for communal services.
- **Introducing a system for protecting the poor from housing costs they cannot afford.** Until now, everyone, poor and prosperous alike, has benefited from housing subsidies. In the future, subsidies will be given only to the poor, by a mechanism not yet determined.
- **Enabling both citizens and investors to build dwellings for personal occupancy or for rent or sale to others.** Laws governing the ownership of land and dwellings will be adjusted to make it easier for private persons and private enterprises to acquire land and build new dwellings or to purchase and renovate existing dwellings, not just for their own use but for rent and sale to others.
- **Encouraging competition in the construction, renovation, and maintenance of the housing stock.** Existing state-owned enterprises would be privatized and new privately owned firms would be encouraged to enter the market.
- **Encouraging the development of intermediary institutions to facilitate housing development and the purchase and sale of existing housing.** These institutions include investment partnerships and joint stock companies for housing development, real estate brokerages to match prospective buyers and sellers, and insurance companies to protect owners from losses due to property damage.
- **Regulating the use and maintenance of privately owned housing.** Local governments will be responsible for regulating housing use and maintenance to prevent health and safety hazards to the occupants and offenses to the neighbors.

I have seen no other housing reform program from any republic of the former Soviet Union or Eastern Europe that is so comprehensive in scope and integrated in its intentions. However, the next requirement is to detail procedures for accomplishing all these steps in proper order. That is more difficult than stating the general principles. I will discuss only some of the procedural issues, because I have not had the time to study all of them. Today, I will address the issues raised by the Law on Privatization and the related decrees of the Cabinet of Ministers; and the issues raised by the Decree on Payments for Rent and Communal Services that was approved by the Cabinet on 15 February.

2 The Law on Privatization

The Law on Privatization approved by the Ukrainian parliament on 9 June 1992 allows occupants of apartments in buildings owned by state enterprises, collective enterprises, and municipal or district (rayon) councils to become owners of those apartments, either without charge or by paying for excess space; those who privatize apartments smaller than the social norm for the occupying household are actually entitled to compensation for the space deficit. In addition, persons who are on waiting lists for communal housing are entitled to privatize apartments in newly completed buildings, on terms not yet decided. Those who do not wish to privatize their apartments can continue indefinitely as tenants of the owner of the building.

Decree No. 572 of the Council of Ministers details the rights and obligations of owners of privatized apartments, including the right to form associations to manage the building or to conclude individual agreements with the owner of the building for its management and allocation of expenses.

I was surprised to learn that 18 months after the passage of this law only 13 percent of the dwellings eligible for privatization have been privatized. I came to Kiev from Albania, where in a period of 9 months, 93 percent of all state-owned dwellings were voluntarily privatized, even though the occupants had to pay about two months' wages for the privilege. Why have Ukrainians been slow to seize this opportunity to acquire ownership of a valuable asset without payment or with only a small payment? I have talked to a number of Ukrainians about this issue, and I conclude that five reasons are important:

- Some building owners have been reluctant to permit privatization. They were reprimanded in Decree No. 572 in October 1992 and again in a Cabinet memorandum on 28 July 1993. In a recent newspaper interview, Chairman Dron indicated that this problem persists.
- For the present, changing from renting to ownership brings no change in the tenant's financial obligations. Under the rules approved by the Committee and the Cabinet of Ministers, the tenant pays a fee to the majority owner of the building equal to the rent he formerly paid, and his fees for communal services are unchanged.
- For the present, there is also no change in the quality of building services and repair work, which continues to be carried out by the same maintenance units and repair contractors under the supervision of the majority owner of the building. The privatizing tenant has no voice in these matters until enough tenants have privatized to form a politically powerful association within the building.
- In the future, owners may have greater financial obligations than renters. According to Decree No. 572, apartment owners must contribute to an account that will pay for major repairs to the building in which they live, whereas the state will continue to pay for such repairs on behalf of renters in the same building. However, this rule will not take effect until the wage system is reformed.
- The right to privatize does not have a time limit, and there is no penalty for waiting. I am told that the elderly who wish to bequeath their apartments to someone not registered as a resident are the most eager to privatize now—because they perceive that God has imposed a time limit.

In my judgment, the committee should try to expedite privatization, because the fundamental purpose is to change the way that housing is managed and financed. I do not think the public yet grasps the possible benefit of themselves taking charge of the maintenance and services of their buildings. I think it is important to raise the percentage of privatized apartments in each building to the level at which the owners' association are the majority and can contract for services with any enterprises, private or public, that they choose; and to make it clear to these associations that it is up to them to improve their buildings if they want better housing.

There are indications in the documents I have read that some members of the State Committee favor the reservation of a certain number of buildings owned by municipalities as housing for the poor, to be occupied by low-income renters who pay little or nothing for rent and communal services. I would like to warn you of the American experience with that method of housing the very poor.

We have found that very poor people, unless they are elderly or disabled, are usually poor because of their behavior—they cannot keep a job, they prefer not to work, they are drunkards or drug-users, they are single mothers with small children so cannot work. In some public (communal) housing projects in the United States, 90 percent of the tenants are single mothers with children. There are no fathers to help support the family or provide an example to the children; the mothers draw public assistance to support themselves and their children and get almost-free housing. The housing projects are social disasters, with much drug abuse, juvenile crime, vandalism and destructive carelessness. In one famous case, the problems were so great that the local authorities decided to vacate the project and destroy buildings that had won architectural awards when they were completed ten years earlier.

Our conclusion is that if you take a lot of small problems and put them in one place, the result is a big problem; but if you distribute the problem families among a much larger number of well-behaved families, they remain a problem, but a small problem.

If the State Committee would like to increase the rate of privatization, I can suggest several helpful measures:

- Be sure that tenants of state-owned housing—enterprise, collective, or communal—are informed of their right to privatize and have a friendly place to complain if they believe that the building owner is not following the law. Also, be sure that complaints are investigated and appropriate actions are taken.
- Equalize the financial burdens of owners and renters by requiring tenants as well as owners to contribute to the account for major repairs.
- Select a few buildings in different parts of Ukraine as demonstration projects where every effort is made to persuade the tenants to privatize their apartments and they are assisted to form an association of owners and to take over management of the building. Help them learn to conduct the business of the association and contract for the level of building services that the majority of the members prefer. Publicize these demonstrations in the press and on TV.

- Announce that the right to privatize will be withdrawn at the end of 1994. I think that this would be the most effective action, and would cause many tenants to reconsider the advantages of owning their homes. Some Ukrainians have told me that if this were done, 80 to 90 percent of all tenants would privatize before the deadline.

3 The Decree on Rents and Prices of Communal Services

Decree No. 93 on rents and prices of communal services was approved by the Cabinet of Ministers on 15 February. It proposes to raise these payments from their current levels in three steps to 60 percent of the cost of providing these services in 1996. The increase in rent payments applies to the tenants of state-owned housing, whether or not they have privatized their apartments; and the increase in payments for communal services applies to every household that consumes such services.

The decree proposes to substitute direct cash transfers to individuals whose incomes are below the official poverty line, to help them pay the higher prices. The amounts of these transfers will vary inversely with total family income.

I think that this is among the most important actions of economic reform that the government has taken. The existing subsidies for housing and communal services are not targeted to those in need of assistance; the housing subsidy benefits the occupants of state-owned housing in proportion to the size of their dwelling and its quality; the subsidies for communal services benefit all households in proportion to how much of the service they consume. In general, the largest subsidies go to the more prosperous families.

Building on work begun by the staff of the State Committee (see Table 6), my colleagues and I have estimated the amounts of these subsidies for typical households. The estimates are crude because the available data are crude. But the story they tell is both clear and important.

Chart 1 shows the elements of subsidy for housing and communal services in December 1993. It describes seven typical cases, ranging from a single person living in a one-room apartment to six persons living in four rooms. The unit of account is the Ukrainian karbovanits (krb).³

For persons living in state-owned housing, we compare the rent of 70 krb/m² of floorspace to the estimated cost maintaining the building (863 krb/m²)—a figure we obtained from the State Committee; and the cost of major repairs—different items of which are scheduled in 8-year or 25-year cycles. The repair cost shown here is 6,000 krb/m², our

³ The karbovanits was adopted by the Ukrainian government in January 1992 to replace the ruble of the Russian Federation. At that time, the exchange rates were 110 krb = 110 rub = 1 US\$. Since then, the Ukrainian currency has undergone hyperinflation. In January 1993 the exchange rate was 787 krb = 1 US\$, rising to about 36,000 krb = 1 US\$ in January 1994. The actual medium of exchange is a temporary currency, the "kupon."

estimate of the amount that must be set aside monthly to pay for major repairs when they are scheduled.⁴ Currently tenants do not pay anything toward the repair cost, which is about 7 times the cost of current maintenance. Altogether, we estimate that the tenants pay only 1 percent of the true costs of operating and repairing the buildings they occupy. That may be why some families try to keep apartments that they don't really need.

For all households, we consider the tariffs and costs of communal services: space-heating, hot water, cooking fuel, electricity, and water and sewer service. As the Committee staff can tell you, we have worked very hard to try and understand the consumption norms and tariffs for these services and to obtain estimates of the costs of production of each service, which is a very complicated matter. It is possible that we still misunderstand some of the issues, and we have no way of verifying the estimates of actual consumption and production cost. These are simply the best estimates we could obtain; I hope that the State Committee will find the results of our calculations important enough to warrant their verification and improvement of our estimates.⁵

According to estimates prepared by the State Committee, tenants pay about 12 percent of the cost of heat and hot water, neither of which is metered. They are charged for heat at the monthly rate of 417 krb/m² of floorspace; the production cost of heat is estimated to be 3,600 krb/m²/month. They are charged for hot water at the monthly rate of 3,000 krb/person, whereas the production cost is estimated at 25,800 krb/person/month.

About 90 percent of all urban households cook with natural gas that is piped into the dwelling; others use electricity or bottled gas. Natural gas is not metered; each family is charged for 6.8 m³/person/month. The tariff for natural gas is 90 krb/m³, or 612 krb/person/month; in December 1993 the cost was about 2,700 krb/m³, or 18,360 krb/person/month.⁶ It is unlikely that household gas consumption increases linearly with household size, so the rate structure is biased against large households; but in any case, typical consumption greatly exceeds the norm.

⁴ This figure is the midpoint of a range (3,000 to 9,000 krb/m²) indicated by the staff of the State Committee. It is also consistent with the official norms for structural depreciation, which vary with structure type and materials; the average rate is about 1.15 percent of the declining balance of indexed construction cost per annum.

⁵ The Committee did indeed correct a serious overestimate of the production cost of natural gas, which includes the cost of purchasing the gas from the Russian Federation and the cost of distributing it to households.

⁶ The gas is purchased from Russia; in December 1993, the price was \$50/1000 m³, or about 1,800 krb/m³. The 1993 budget of the City of Kiev indicates that they expected to distribute 418.5 million m³ of natural gas through the household distribution system, but expected to "realize" only 288.5 million m³, or 68.9 percent of the input amount. Assuming zero technical losses, those figures imply that households consume about 145 percent of the normative amount, or 9.9 m³/person/month (see Table 7 for details). The cost per billed m³ is therefore (1,800 / .689 = 2,612) krb/m³. We added 93 krb/m³ of distribution cost and rounded to 2,700 krb/m³.

Electricity is the only communal service that is metered to individual households and the only one for which they currently pay a substantial share of the full cost. According to the Minister of Energy, the production cost is 280 krb/kWh. The tariff is 90 krb/kWh for the first 75 kWh and 180 krb/kWh for larger amounts. Because of that rate structure, cost recovery is higher for larger dwellings and large families. Our estimates of actual consumption by dwelling size come from the staff of the State Committee.

The charge for water and sewer service is 1,800 krb/person; this is based on a consumption norm of 9 m³ (264 gallons) per person and a tariff of 200 krb per m³. Water is not metered, and we have no information about the actual consumption of water. The State Committee has estimated production costs for these two services at 12,200 krb/person.

Because socialist accounting has historically ignored or undervalued the capital costs of current production, I suspect that some of these services actually cost more than is indicated here, but the lesson is clear enough: Overall, tenants of state-owned housing, including those who have privatized their apartments, pay about 13 percent of the cost of the services they consume.

Families who live in private single-family dwellings do not usually consume all of these services. Some get their water from a private or communal well, some heat their homes independently of the communal heating service, and they may cook with bottled gas or, in the countryside, with wood or kerosene. We did not investigate the subsidies on all these alternatives, but I think they are typically less than the subsidies on communal services provided to apartment dwellers. However, we have used the same assumptions to estimate communal service subsidies for apartment dwellers and occupants of urban single-family dwellings. Because single-family dwellings usually have more floorspace per room, tariffs and costs that vary with floorspace are probably underestimated for that kind of housing.

We did not attempt to estimate the cost of communal services for Ukraine's 6 million rural single-family houses. From limited information, we infer that such dwellings seldom receive much in the way of communal services, but depend on other sources of fuel and water and other means of waste disposal.

Chart 2 shows an estimate of the total cost of these subsidies for state-owned and public housing that is maintained by the Zheks.⁷ For these apartment dwellers, the total subsidy ranges from about 378,400 krb/month for a one-room apartment with one occupant, up to 1.2 million krb for a four-room apartment with six occupants. Summed over the entire stock

⁷ Zheks are state enterprises that provide management and maintenance services for the communal housing stock (residential buildings owned by municipal or district councils). State enterprises and housing cooperatives usually organize their own management and maintenance units, but some contract with a local Zhek for services.

of state-owned housing⁸ (whether or not recently privatized), the total subsidy is about 56 trillion krb per year, based on tariffs and production costs for December 1993.

For the occupants of cooperative apartments and privately owned single-family houses [Chart 3], only communal services are subsidized. The total subsidy amounts to about 165,100 krb/month for a one-room, one-person dwelling to 600,100 krb/month for a four-room, 6-person dwelling. Summed over the entire stock of cooperative and private housing, the aggregate subsidy is about 21 trillion krb per year, based on tariffs and production costs for December 1993.

Thus the total annual subsidy for housing and communal services in Ukraine is about 77 trillion krb, or nearly as much as the Gross Domestic Product reported for all of calendar 1993 (81.2 trillion krb). How can subsidies be as large as total product? The reason is that the subsidy estimate is based on prices current in December 1993, while the GDP estimates are based on prices current at the time of each transaction during the year. If all transactions were recalculated at the year-end prices, GDP would be several times larger. But I am confident that Ukrainian subsidies for housing and communal services amount to at least a fifth of GDP.⁹

About three fifths of the subsidy to tenants of state housing and one-sixth of the subsidy to those in cooperative and private housing is paid directly from the budgets of local governments. The local governments use money allocated from tax receipts—enterprise taxes, value-added taxes, excise taxes, and income taxes. The rest of the subsidy is mostly paid by state enterprises; unlike households, these enterprises are charged above-cost rates for heat, electricity, and water. Of course, these enterprises in turn set the prices of their outputs so as to recover their own costs, so the consumers of their products end up paying the subsidy. In fact, whether the subsidy is directly from local budgets or indirectly from overcharging enterprises, the public ends up paying to subsidize themselves.

One difficulty with this arrangement is that it is impossible to tell how each family's subsidies and taxes balance out. The housing and communal service subsidies seem clearly biased in favor of large families and prosperous families, but also are biased in favor of families who live in state-owned rather than privately owned dwellings. Most taxes relate to either income or consumption spending, so are biased against those with higher incomes. This subsidy-and-tax system may or may not provide net benefits to the poor. If it is meant

⁸ The estimates of numbers of dwellings by number of rooms and number of occupants are based on Appendix Tables 1 to 3; we were unable to find any cross-tabulation of number of rooms by number of occupants, so had to create our own. Also, we found no detail on either number of rooms or number of occupants by type of ownership.

⁹ If we assume an exponential increase in prices during 1993, GDP in December 1993 prices would amount to 355 trillion krb. The annual subsidy for housing and communal services given in the text would be 21 percent of this figure.

as a system of social protection, it is very inefficient as a device for redistributing income, because the targets are not clearly defined.

Another difficulty with the arrangement is that artificially low prices on specific goods and services encourages overconsumption—even if the consumer eventually pays through the tax system for every benefit he and others receive. Families whose state-owned apartments are larger than the social norm have no incentive to exchange them for smaller apartments, because the extra space is virtually free. Because gas and water and heat cost the consumer fixed amounts per month regardless of how much they actually use, they will be carelessly wasteful, and society must pay for this waste.

A third difficulty is that when nearly everyone is heavily subsidized, the prospect of earning income by hard work at low wages is not very appealing. If wages were increased and subsidies were commensurately decreased, the standard of living would rise rather than fall, because people would have an incentive to work harder and to produce more; their higher wages would enable them to pay higher prices for consumer goods, including housing and communal services, and more goods of all kinds would be available for them to buy.

Chart 4 shows how much would be saved if the program described in Decree No. 93 were extended to all housing and communal service components consumed by occupants of state-owned apartments. Production cost figures and annual savings are in prices current in December 1993. In the first year, the total saving would be about 8.3 trillion krb; in the second year, about 20.0 trillion krb; and in the third year, about 32.1 trillion krb.

The companion Chart 5 does the same for the occupants of cooperative apartments and single-family houses. For this category, only communal services are subsidized. The savings would rise from 2.1 trillion krb in the first year to 6.6 trillion krb in the second year to 11.4 trillion in the third year.

Combining the two sources of savings, we estimate that more than 10 trillion krb could be saved by insisting that everyone pay at least 20 percent of full cost for the services he received. If that sum were divided among the poorest third of the population, each person in that group would receive nearly 600,000 krb, or 50,000 krb per month. Would that be enough to enable the poor to pay the higher prices that must be charged for housing and communal services?

Chart 6 shows the answers for the poor who live in state-owned apartments. A single person living alone now pays about 27,500 krb per month; after the price increases, he would have to pay 83,800 krb/month, but would receive a monthly cash transfer of 50,000 krb/month; his net additional payment for shelter and communal services would be 6,300 krb/month. For three people in two rooms, the current monthly payment of 50,000 krb would increase to 142,000 krb, but the incremental payment would be more than offset by a cash transfer of 150,000 krb. For six persons living in four rooms, the current monthly payment of 93,000 krb would increase to 266,700 krb, but the incremental cost would be

more than offset by a cash transfer of 300,000 krb. We do not need to study the companion Chart 7 for cooperative apartments and single-family houses, because few poor people have such accommodations.

The same computation applied to subsequent price increases (to 40 and 60 percent of full cost) yields the same pattern of results: higher prices for everyone, but the cash transfer needed to offset the price increases for the poorest third of the population can be obtained from the savings in subsidy payments. In other words, it is clearly possible to protect the poorest third of the population from hardship while raising prices for everybody—without increasing the demands on the budgets of local governments. Of course, there are many ways that such a program could be organized and many ways in which the principle could be modified. But I judge that such a program is fiscally feasible and very desirable.

4 On the Road to a Market System

Privatization of the housing stock permits the development of a market system in the maintenance and repair of residential buildings and in the purchase and rental of dwellings.

The ownership associations, if they are ever formed, can take over management of their buildings; they can hire employees to sweep the halls and staircases, make minor repairs, keep the books, and other such chores. They can select outside contractors for whatever services they do not provide for themselves. They may but need not contract with the Zheks and the Zheks are likely to become private rather than state enterprises.

Moreover, the owners of privatized apartments are now free to rent them to other people or to sell them on any mutually agreeable terms. I am told that there are already a number of apartment brokers who advertise in Kiev newspapers that, for a fee, they can bring together potential buyers and sellers, or potential landlords and tenants.

The reform of rents and the prices of communal services under Decree No. 93 does not create a market system, because the rents and prices we have discussed will still be administered by the state. However, this reform will make it easier for markets in other fields to develop, because administered prices will be more nearly aligned with market prices, which (under competitive conditions) usually hover around the cost of production.

An important next step is reform of the national wage system. If prices are raised to full cost, wages should be raised to permit people to earn, by hard work, the money they will need to buy things that will improve their lives. I hope that the government does not try to offset price increases by cash transfers except for those who cannot work because of age, illness, or disability.

These ideas are all in the program of the State Committee on Housing and Communal Services, just recently submitted to the Cabinet of Ministers. I wish you great success in carrying out this ambitious program.

APPENDIX A

Charts

1. Typical subsidies for housing and communal services: Ukraine, December 1993.
2. Total subsidy for housing and communal services benefiting occupants of state-owned housing in December 1993.
3. Total subsidy for communal services benefiting occupants of cooperative and private housing in December 1993.
4. Annual saving from reducing housing and communal services subsidies for occupants of state-owned housing.
5. Annual savings from reducing communal services subsidies for occupants of cooperative and private housing.
6. Typical tenant payments after subsidies are reduced: Occupants of state-owned housing.
7. Typical tenant payments after subsidies are reduced: Occupants of cooperative and private housing.

CHART 1
TYPICAL SUBSIDIES FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----			Percent of Costs Recovered
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy	
One room, 31.4 m2 total space, one person				
Housing				
Building maintenance and operation	2.2	27.1	(24.9)	8.1
Allowance for major repairs	0.0	188.4	(188.4)	0.0
Total for shelter	2.2	215.5	(213.3)	1.0
Communal Services				
Central heating	13.1	113.0	(99.9)	11.6
Central hot water	3.0	25.8	(22.8)	11.6
Cooking fuel (a)	0.6	18.4	(17.7)	3.3
Electricity	6.8	21.0	(14.3)	32.1
Water and sewer service	1.8	12.2	(10.4)	14.8
Total for services	25.3	190.4	(165.1)	13.3
Total, all items	27.5	405.9	(378.4)	6.8
One room, 31.4 m2 total space, two persons				
Housing				
Building maintenance and operation	2.2	27.1	(24.9)	8.1
Allowance for major repairs	0.0	188.4	(188.4)	0.0
Total for shelter	2.2	215.5	(213.3)	1.0
Communal Services				
Central heating	13.1	113.0	(99.9)	11.6
Central hot water	6.0	51.6	(45.6)	11.6
Cooking fuel (a)	1.2	36.7	(35.5)	3.3
Electricity	6.8	21.0	(14.3)	32.1
Water and sewer service	3.6	24.4	(20.8)	14.8
Total for services	30.7	246.8	(216.1)	12.4
Total, all items	32.9	462.3	(429.4)	7.1
Two rooms, 46.3 m2 total space, two persons				
Housing				
Building maintenance and operation	3.2	40.0	(36.7)	8.1
Allowance for major repairs	0.0	277.8	(277.8)	0.0
Total for shelter	3.2	317.8	(314.5)	1.0
Communal Services				
Central heating	19.3	166.7	(147.4)	11.6
Central hot water	6.0	51.6	(45.6)	11.6
Cooking fuel (a)	1.2	36.7	(35.5)	3.3
Electricity	11.3	28.0	(16.8)	40.2
Water and sewer service	3.6	24.4	(20.8)	14.8
Total for services	41.4	307.4	(266.0)	13.5
Total, all items	44.6	625.2	(580.5)	7.1

(CONTINUED)

CHART 1
TYPICAL SUBSIDIES FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----			Percent of Costs Recovered
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy	
Two rooms, 46.3 m2 total space, three persons				
Housing				
Building maintenance and operation	3.2	40.0	(36.7)	8.1
Allowance for major repairs	0.0	277.8	(277.8)	0.0
Total for shelter	3.2	317.8	(314.5)	1.0
Communal Services				
Central heating	19.3	166.7	(147.4)	11.6
Central hot water	9.0	77.4	(68.4)	11.6
Cooking fuel (a)	1.8	55.1	(53.2)	3.3
Electricity	11.3	28.0	(16.8)	40.2
Water and sewer service	5.4	36.6	(31.2)	14.8
Total for services	46.8	363.8	(317.0)	12.9
Total, all items	50.0	681.5	(631.5)	7.3
Three rooms, 66.3 m3 total space, three persons				
Housing				
Building maintenance and operation	4.6	57.2	(52.6)	8.1
Allowance for major repairs	0.0	397.8	(397.8)	0.0
Total for shelter	4.6	455.0	(450.4)	1.0
Communal Services				
Central heating	27.6	238.7	(211.0)	11.6
Central hot water	9	77.4	(68.4)	11.6
Cooking fuel (a)	1.8	55.1	(53.2)	3.3
Electricity	14.9	33.6	(18.8)	44.2
Water and sewer service	5.4	36.6	(31.2)	14.8
Total for services	58.7	441.4	(382.6)	13.3
Total, all items	63.4	896.4	(833.0)	7.1
Three rooms, 66.3 m2 total space, four persons				
Housing				
Building maintenance and operation	4.6	57.2	(52.6)	8.1
Allowance for major repairs	0.0	397.8	(397.8)	0.0
Total for shelter	4.6	455.0	(450.4)	1.0
Communal Services				
Central heating	27.6	238.7	(211.0)	11.6
Central hot water	12	103.2	(91.2)	11.6
Cooking fuel (a)	2.4	73.4	(71.0)	3.3
Electricity	14.9	33.6	(18.8)	44.2
Water and sewer service	7.2	48.8	(41.6)	14.8
Total for services	64.1	497.7	(433.6)	12.9
Total, all items	68.8	952.7	(884.0)	7.2

(CONTINUED)

CHART 1
 TYPICAL SUBSIDIES FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----			Percent of Costs Recovered
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy	
Four rooms, 86.3 m2 total space, 6 persons				
Housing				
Building maintenance and operation	6.0	74.5	(68.4)	8.1
Allowance for major repairs	0.0	517.8	(517.8)	0.0
Total for shelter	6.0	592.3	(586.2)	1.0
Communal Services				
Central heating	36.0	310.7	(274.7)	11.6
Central hot water	18	154.8	(136.8)	11.6
Cooking fuel (a)	3.7	110.2	(106.5)	3.3
Electricity	18.5	39.2	(20.8)	47.1
Water and sewer service	10.8	73.2	(62.4)	14.8
Total for services	86.9	688.0	(601.1)	12.6
Total, all items	93.0	1,280.3	(1,187.4)	7.3

SOURCE: Consumption norms and tariffs provided by the State Committee on Housing and Communal Services; production costs from various unreliable sources.

(a) About 90 percent of urban dwellings use natural gas for cooking and about 10 percent use electricity. Those using electricity pay a lower metered rate. In rural areas, a variety of fuels are used. The payments and costs shown here assume that all dwellings use natural gas for cooking.

CHART 2
TOTAL SUBSIDY FOR HOUSING AND COMMUNAL SERVICES BENEFITING
OCCUPANTS OF STATE-OWNED HOUSING IN DECEMBER 1993

Dwelling Size and Occupancy	Subsidy per Case (krb/month)	Thousands of Cases	-----Total Subsidy-----	
			Per Month (billion krb)	Per Year (billion krb)
1 room, 1 person	378,400	1,234.2	467.0	5,604.3
1 room, 2 persons	429,400	509.5	218.8	2,625.4
2 rooms, 2 persons	580,500	1,427.9	828.9	9,946.8
2 rooms, 3 persons	631,500	1,614.5	1,019.6	12,234.7
3 rooms, 3 persons	833,000	143.5	119.5	1,434.4
3 rooms, 4 persons	884,000	2,023.5	1,788.8	21,465.3
4 rooms, 6 persons	1,187,400	222.4	264.1	3,168.9
Total	655,932	7,175.5	4,706.6	56,479.7

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

CHART 3
TOTAL SUBSIDY FOR HOUSING AND COMMUNAL SERVICES BENEFITING
OCCUPANTS OF COOPERATIVE AND PRIVATE HOUSING IN DECEMBER 1993

Dwelling Size and Occupancy	Subsidy per Case (krb/month)	Thousands of Cases	-----Total Subsidy-----	
			Per Month (billion krb)	Per Year (billion krb)
1 room, 1 person	165,100	338.8	55.9	671.3
1 room, 2 persons	216,100	139.9	30.2	362.7
2 rooms, 2 persons	266,000	898.7	239.0	2,868.6
2 rooms, 3 persons	317,000	1,016.1	322.1	3,865.3
3 rooms, 3 persons	382,600	126.8	48.5	582.2
3 rooms, 4 persons	433,600	1,788.0	775.3	9,303.3
4 rooms, 6 persons	601,100	478.7	287.7	3,453.0
Total	367,424	4,787.0	1,758.9	21,106.4

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

**CHART 4
ANNUAL SAVING FROM REDUCING HOUSING AND COMMUNAL SERVICE
SUBSIDIES FOR OCCUPANTS OF STATE-OWNED HOUSING**

Dwelling Size and Occupancy	Annual Cost of Production (billion krb)	-----Annual Saving (bill. krb) if Payments Are-----		
		20 Percent of Full Cost	40 Percent of Full Cost	60 Percent of Full Cost
1 room, 1 person	6,011.5	833.0	1,997.9	3,199.0
1 room, 2 persons	2,826.5	380.3	929.3	1,494.9
2 rooms, 2 persons	10,712.7	1,475.3	3,522.9	5,663.1
2 rooms, 3 persons	13,203.4	1,782.4	4,314.6	6,953.3
3 rooms, 3 persons	1,543.6	213.7	510.7	816.9
3 rooms, 4 persons	23,133.5	3,154.2	7,619.7	12,209.0
4 rooms, 6 persons	3,416.9	463.6	1,126.0	1,802.0
Total	60,848.0	8,303.3	20,021.2	32,138.2

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

NOTE: Savings are the difference between proposed tenant payments and current tenant payments. Estimated annual savings are calculated from monthly payments reported in Chart 6 and numbers of cases reported in Chart 2.

**CHART 5
ANNUAL SAVING FROM REDUCING COMMUNAL SERVICE SUBSIDIES
FOR OCCUPANTS OF COOPERATIVE AND PRIVATE HOUSING**

Dwelling Size and Occupancy	Annual Cost of Production (billion krb)	-----Annual Saving (bill. krb) If Payments Are-----		
		20 Percent of Full Cost	40 Percent of Full Cost	60 Percent of Full Cost
1 room, 1 person	774.1	62.6	206.9	361.4
1 room, 2 persons	414.3	35.8	114.2	197.1
2 rooms, 2 persons	3,315.1	278.2	881.1	1,542.2
2 rooms, 3 persons	4,435.9	386.5	1,204.7	2,091.1
3 rooms, 3 persons	671.6	57.5	181.5	313.6
3 rooms, 4 persons	10,678.7	935.5	2,926.6	5,031.4
4 rooms, 6 persons	3,952.1	352.7	1,097.8	1,872.1
Total	24,241.9	2,108.8	6,612.8	11,409.0

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

NOTE: Savings are the difference between proposed tenant payments and current tenant payments. Estimated annual savings are calculated from monthly payments reported in Chart 7 and numbers of cases reported in Chart 3.

CHART 6
TYPICAL TENANT PAYMENTS AFTER SUBSIDIES ARE REDUCED:
OCCUPANTS OF STATE-OWNED HOUSING

Dwelling Size and Occupancy	Tenant Payment	-----Tenant Payment (krb/month) at-----		
	December 1993 (krb/month)	20 Percent of Full Cost	40 Percent of Full Cost	60 Percent of Full Cost
1 room, 1 person	27,500	83,800	162,400	243,500
1 room, 2 persons	32,900	95,100	184,900	277,400
2 rooms, 2 persons	44,600	130,700	250,200	375,100
2 rooms, 3 persons	50,000	142,000	272,700	408,900
3 rooms, 3 persons	63,400	187,500	360,000	537,800
3 rooms, 4 persons	68,900	198,700	382,600	571,600
4 rooms, 6 persons	93,000	266,700	514,900	768,200
Average	50,744	147,175	283,261	423,983

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

NOTE: Tenant payments for electricity in December 1993 typically exceeded 20 percent of production cost for one-room apartments and exceeded 40 percent for larger apartments. Entries above assume that current payments are not reduced to conform to program standards. See Table A-9 for details.

CHART 7
TYPICAL TENANT PAYMENTS AFTER SUBSIDIES ARE REDUCED:
OCCUPANTS OF COOPERATIVE AND PRIVATE HOUSING

Dwelling Size and Occupancy	Tenant Payment	-----Tenant Payment (krb/month) at-----		
	December 1993 (krb/month)	20 Percent of Full Cost	40 Percent of Full Cost	60 Percent of Full Cost
1 room, 1 person	25,300	40,700	76,200	114,200
1 room, 2 persons	30,700	52,000	98,700	148,100
2 rooms, 2 persons	41,400	67,200	123,100	184,400
2 rooms, 3 persons	46,800	78,500	145,600	218,300
3 rooms, 3 persons	58,700	96,500	178,000	264,800
3 rooms, 4 persons	64,100	107,700	200,500	298,600
4 rooms, 6 persons	86,900	148,300	278,000	412,800
Average	54,581	91,292	169,697	253,191

SOURCE: Calculated by PADCO from data on typical subsidies and characteristics of the housing stock.

NOTE: Tenant payments for electricity in December 1993 typically exceeded 20 percent of production costs for one-room apartments and exceeded 40 percent for larger dwellings. Entries above assume that current payments are not reduced to conform to program standards. See Table A-9 for details.

APPENDIX B

Tables

1. Number of dwellings by type of owner and type of dwelling: Urban and rural regions of Ukraine, 1993.
2. Distribution of families by number of persons and dwellings by number of rooms: Selected housing sectors: Ukraine, 1993.
3. Distribution of state-owned apartments and privately owned urban dwellings by number of rooms and occupancy: Ukraine, 1993.
4. Distribution of inhabitants by monthly income per capita: Ukraine, 1990-92.
5. Indices of prices and tariffs for selected consumer commodities and services: Ukraine, 1991 and 1992.
6. Comparison of tenant payments for housing and communal services with estimated supply costs: Ukraine, 1993-1996.
7. Estimated costs, revenues, and proposed subsidies for natural gas service: City of Kiev, Calendar 1993.
8. Formulas and parameters used in calculating typical subsidies for housing and communal services: Ukraine, December 1993.
9. Typical tenant payments for housing and communal services under alternative cost recovery rates: Ukraine, December 1993.

Table A-1
**NUMBER OF DWELLINGS BY TYPE OF OWNER AND TYPE OF DWELLING:
 URBAN AND RURAL REGIONS OF UKRAINE, 1993**

Owner (Before Privatization)	-----Thousands of Dwellings-----				Total
	One-Family Apartment	Communal Apartment	Dormitory or Hostel	One-Family House	
Urban Areas					
Municipality	4,194.5	76.9	0.1	--	4,271.5
State enterprise, nonfarm	2,197.1	36.6	4.3	--	2,238.0
State farming enterprise	63.2	0.2	0.2	--	63.6
Budgetary organization	45.8	0.7	2.1	--	48.6
Cooperative enterprise	45.2	--	0.5	--	45.7
Citizens' housing coop	737.5	0.5	--	--	738.0
Private persons	--	--	--	4,048.5	4,048.5
Total	7,283.3	114.9	7.2	4,048.5	11,453.9
Rural Areas					
Municipality	22.4	--	0.2	--	22.6
State enterprise, nonfarm	115.7	0.3	0.6	--	116.6
State farming enterprise	235.5	0.2	0.7	--	236.4
Budgetary organization	16.3	--	0.4	--	16.7
Cooperative enterprise	125.4	--	0.8	--	126.2
Citizens' housing coop	0.4	--	--	--	0.4
Private persons	--	--	--	6,000.0	6,000.0
Total	515.7	0.5	2.7	6,000.0	6,518.9
Total, All Areas					
Municipality	4,216.9	76.9	0.3	-	4,294.1
State enterprise, nonfarm	2,312.8	36.9	4.9	-	2,354.6
State farming enterprise	298.7	0.4	0.9	-	300.0
Budgetary organization	62.1	0.7	2.5	-	65.3
Cooperative enterprise	170.6	--	1.3	-	171.9
Citizens' housing coop	737.9	0.5	--	-	738.4
Private persons	--	--	--	10,048.5	10,048.5
Total	7,799.0	115.4	9.9	10,048.5	17,972.8

SOURCE: Special tabulation prepared by the State Committee for Housing and Communal Services, February 1944.

NOTE: Internal evidence indicates that the preparer of this tabulation had no 1993 data on single-family houses, so simply copied the 1992 totals, omitting distributions by type of owner.

Table A-2

**DISTRIBUTION OF FAMILIES BY NUMBER OF PERSONS AND DWELLINGS
BY NUMBER OF ROOMS: SELECTED HOUSING SECTORS: UKRAINE, 1993**

Number of Persons	Percent of All		Number of Rooms	Percent of All	
	Households	Thousands of Households		Dwellings	Thousands of Dwellings
State-Owned and Cooperative Apartments					
1 person	17.2%	1,355.1	1 room	24.3%	1,914.5
2 persons	27.0%	2,127.2	2 rooms	42.4%	3,340.5
3 persons	24.5%	1,930.2	3 rooms	30.2%	2,379.3
4+ persons	31.3%	2,466.0	4+ rooms	3.1%	244.2
Total	100.0%	7,878.5	Total	100.0%	7,878.5
State-Owned Apartments Only (a)					
1 person	17.2%	1,234.2	1 room	24.3%	1,743.6
2 persons	27.0%	1,937.4	2 rooms	42.4%	3,042.4
3 persons	24.5%	1,758.0	3 rooms	30.2%	2,167.0
4+ persons	31.3%	2,245.9	4+ rooms	3.1%	222.4
Total	100.0%	7,175.4	Total	100.0%	7,175.4
Cooperative Apartments and Urban Single-Family Houses (b)					
1 person	17.2%	823.4	1 room	10.0%	478.7
2 persons	27.0%	1,292.5	2 rooms	40.0%	1,914.8
3 persons	24.5%	1,172.8	3 rooms	40.0%	1,914.8
4+ persons	31.3%	1,498.3	4+ rooms	10.0%	478.7
Total	100.0%	4,787.0	Total	100.0%	4,787.0

SOURCE: Ukrainian Ministry of Statistics, *The Housing Stock of Ukraine and Its Development*, Kiev, 1993, p. 67; and special tabulations prepared by the State Committee on Housing and Communal Services.

NOTE: The Ukrainian Ministry of Statistics gathers scant information on numbers of households or their characteristics. The source table for the household data contained only percentage distributions, which have been applied here to estimates of the housing stock in 1993. Because no allowance is made for vacant dwellings, the number of households is overestimated here. We failed to locate any information about the number of rooms or number of occupants of privately owned single family houses.

(a) The estimates below assume that cooperative apartments and their occupants had the same distributional characteristics as state-owned apartments and their occupants.

(b) The estimates below assume that families living in cooperative apartments and urban single-family houses had the same distributional characteristics as those living in state-owned apartments, but the dwellings were distributed as shown. In 1993, there were 738,400 cooperative apartments and 4,048,500 urban single-family houses.

Table A-3
**DISTRIBUTION OF STATE-OWNED APARTMENTS AND PRIVATELY OWNED
 URBAN DWELLINGS BY NUMBER OF ROOMS AND OCCUPANCY: UKRAINE, 1993**

Dwelling Size and Occupancy	State-Owned Apartments		Private Urban Dwellings	
	Thousands of Cases	Percent of Total	Thousands of Cases	Percent of Total
1 room, 1 person	1,234.2	17.2	338.8	7.1
1 room, 2 persons	509.5	7.1	139.9	2.9
2 rooms, 2 persons	1,427.9	19.9	898.7	18.8
2 rooms, 3 persons	1,614.5	22.5	1,016.1	21.2
3 rooms, 3 persons	143.5	2.0	126.8	2.6
3 rooms, 4 persons	2,023.5	28.2	1,788.0	37.4
4 rooms, 5+ persons	222.4	3.1	478.7	10.0
Total	7,175.5	100.0	4,787.0	100.0

SOURCE: Estimated by PADCO from data in Tables A-1 and A-2.

NOTE: State-owned apartments include those owned by municipalities, state enterprises (farm and nonfarm), budgetary organizations, and cooperative enterprises. Private urban dwellings include citizens' housing cooperatives and privately owned single-family houses. This account omits 6,000,000 rural single-family houses, few of which benefit from communal services.

Occupancy was estimated on the principle of filling the smallest available units with the smallest available families. The results of this exercise are not very reliable, but no better method could be used with available data.

Table A-4
 DISTRIBUTION OF INHABITANTS BY MONTHLY INCOME PER CAPITA: UKRAINE, 1990-92

Monthly Income (krb/person)	Thousands of Persons			Percent of Total		
	1990	1991	1992	1990	1991	1992
Under 100	5.8	0.1	---	11.2	0.2	---
101.1 - 150	7.5	0.3	---	14.5	0.6	---
125.1 - 150	8.6	0.9	---	16.7	1.7	---
150.1 - 175	8.0	1.8	---	15.5	3.5	---
175.1 - 200	6.4	2.9	---	12.4	5.6	---
201.1 - 250	8.4	8.3	---	16.3	16.0	---
251.1 - 300	4.1	9.5	---	7.9	18.3	---
300.1 - 350	1.8	8.6	---	3.5	16.5	---
351.1 - 400	0.8	6.6	---	1.6	12.7	---
Over 400	0.2	---	---	0.4	---	---
400.1 - 450	---	4.7	---	---	9.0	---
451.1 - 500	---	3.1	---	---	6.0	---
500.1 - 600	---	3.3	---	---	6.3	---
600.1 - 700	---	1.2	---	---	2.3	---
700.1 - 800	---	0.5	---	---	1.0	---
Over 800	---	0.2	---	---	0.4	---
Under 1,000	---	---	0.1	---	---	0.2
1,001 - 1,500	---	---	1.2	---	---	2.3
1,501 - 2,000	---	---	3.4	---	---	6.5
2,001 - 2,300	---	---	3.3	---	---	6.3
2,301 - 3,000	---	---	9.6	---	---	18.4
3,001 - 4,000	---	---	12.8	---	---	24.6
4,001 - 5,000	---	---	9.3	---	---	17.9
5,001 - 7,000	---	---	8.7	---	---	16.7
7,001 - 9,000	---	---	2.6	---	---	5.0
9,001 - 11,000	---	---	0.8	---	---	1.5
Over 11,000	---	---	0.3	---	---	0.6
Total persons	51.6	52.0	52.1	100.0	100.0	100.0

SOURCE: Ukraine National Almanac, 1991, p.116; 1992, p.47.

NOTE: The source does not document the method by which per capita income data are collected, but does indicate that it includes wages, pensions, family or personal allowances, and "other income." Probably at least a third of all personal income is unreported, but its distributional characteristics cannot be estimated.

The rapid shift of the distribution toward higher income levels reflects hyperinflation, not increased prosperity.

Table A-5
**INDICES OF PRICES AND TARIFFS FOR SELECTED CONSUMER COMMODITIES
 AND SERVICES: UKRAINE, 1991 AND 1992**

Item	Index for 1991 (1990=100)	Index for 1992 (1991=100)
All consumer commodities	187.0	1300
Foodstuffs	183.0	1400
Products of nourishment (a)	204.0	1500
Nonfoodstuffs	191.0	1300
All commodities except alcoholic drinks	196.0	1400
Alcoholic drinks	124.0	1200
Prepared foodstuffs (public catering)	187.0	1500
Domestic services	197.9	1300
Passenger transportation	174.6	780
Communications services	120.2	990
Housing and Communal Services	106.3	820
Rent	100.5	210
Payment for services in coops	122.2	610
Hotels	201.1	2280
Dormitories and hostels	117.2	860
Power supply	100.5	960
Water Supply	101.5	840
Sewage service	101.5	850
Gas supply	100.5	510
Central heating	100.5	610
Hot water supply	100.3	740
Garbage collection	110.6	2130

SOURCE: Ukranian Ministry of Statistics, The Housing Stock and Its Development, Kiev, 1993.

(a) I have not obtained a satisfactory explanation of this item.

Table A-6

COMPARISON OF TENANT PAYMENTS FOR HOUSING AND COMMUNAL SERVICES
WITH ESTIMATED SUPPLY COSTS: UKRAINE, 1993-1996

Item	Current Amounts ---(1,000 krb/month)---			Proposed Schedule of Tenant Payments ------(1,000 krb/month)-----		
	Typical Tenant Payment	Estimated Supply Cost	Percent of Costs Recovered	In 1994: 20 Percent Recovery	In 1995: 40 Percent Recovery	In 1996: 60 Percent Recovery
One room, total space = 31.4 m ² (338 f ²), one tenant						
Shelter rent	2.2	27.1	8.1	5.4	10.8	16.3
Water + sewer service	1.8	12.2	14.8	2.4	4.9	7.3
Central heating	13.1	113.0	11.6	22.6	45.2	67.8
Central hot water	3.0	25.8	11.6	5.2	10.3	15.5
Total payment	20.1	178.1	11.3	35.6	71.2	106.9
Two rooms, total space = 46.3 m ² (498 f ²), three tenants						
Shelter rent	3.2	40.0	8.0	8.0	16.0	24.0
Water + sewer service	5.4	36.5	14.8	7.3	14.6	21.9
Central heating	19.3	166.7	11.6	33.3	66.7	100.0
Central hot water	9.0	77.4	11.6	15.5	31.0	46.4
Total payment	36.9	320.6	11.5	64.1	128.2	192.4
Three rooms, total space = 66.2 m ² (712 f ²), four tenants						
Shelter rent	4.6	57.2	8.0	11.4	22.9	34.3
Water + sewer service	7.2	48.7	14.8	9.7	19.5	29.2
Central heating	27.6	238.3	11.6	47.7	95.3	143.0
Central hot water	11.9	103.2	11.5	20.6	41.3	61.9
Total payment	51.3	447.4	11.5	89.5	179.0	268.4

SOURCE: Adapted from a table prepared by State Committee on Housing and Communal Services.

Table A-7
ESTIMATED COSTS, REVENUES, AND PROPOSED SUBSIDIES FOR NATURAL GAS SERVICE:
CITY OF KIEV, CALENDAR 1993

Item	Unit of Measurement	-----Amount-----		
		Total	Households	Other Consumers
Quantity of Gas				
1. Amount of gas purchased	million m3	5,396.2	418.5	4,977.7
2. Amount billed to customers (a)	million m3	5,266.2	288.5	4,977.7
3. Billing and distribution losses	million m3	130.0	130.0	0.0
Percent of amt purchased		2.4%	31.1%	0.0%
Costs excluding VAT				
4. Wholesale cost of gas	1,000 krb	136,385,700	10,465,100	125,920,600
		100.0%	7.7%	92.3%
5. Maintenance expense (b)	1,000 krb	3,805,000	869,500	2,935,500
		100.0%	22.9%	77.1%
6. Total	1,000 krb	140,190,700	11,334,600	128,856,100
		100.0%	8.1%	91.9%
Revenues excluding VAT				
7. Total revenue	1,000 krb	131,198,000	379,300	130,818,700
		100.0%	0.3%	99.7%
Subsidy Proposal				
8. Revenue less Costs	1,000 krb	(8,992,700)	(10,955,300)	1,962,600
9. Cross-subsidy	1,000 krb	---	250,300	(250,300)
10. Subsidy from Municipal Budget	1,000 krb	10,705,000	10,705,000	---
11. Retained earnings (deficit)	1,000 krb	1,712,300	---	1,712,300
Pct of maintenance cost (c)		45.0%	---	---

SOURCE: City of Kiev, Budget for 1993, "Calculation of the need for a budget subsidy to SCE 'Kijivgaz' in 1993." Translation by PADCO, pp. 78-79.

NOTE: Stub items have been reorganized for clarity. Costs and prices are based on values current for the first quarter of 1993. By December 1993, the general price level had increased by a factor of 30, so the useful information in this budget consists of ratios, not absolute values.

(a) Household customers are billed at a flat monthly rate per person, based on a consumption norm of 6.8 m3 and a tariff of 90 krb/m3. The entry of 288.5 million m3 is presumed to be the amount billed on this basis. If so, above-norm consumption plus technical losses in the distribution network account for 31.1 percent of the amount purchased; equivalently, the realization factor is 0.689.

(b) The translated table has two apparent transcription errors in this row, which I have corrected. The basis for allocating maintenance costs between households and other customers is not explained.

(c) State enterprises use "cost-plus" accounting to set prices. Kijivgas is entitled to retain earnings equal to 45 percent of maintenance expense; the subsidy from the Municipal Budget is set accordingly.

1 Table A-8
 2 FORMULAS AND PARAMETERS USED IN CALCULATING TYPICAL SUBSIDIES
 3 FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

	-----1,000 krb/month-----		
	---Column D---	---Column E---	---Column F---
	Typical	Estimated	Estimated
Item	Tariff Payment	Production Cost	Subsidy
One room, 31.4 m2 total space, one person			
Housing			
Building maintenance and operation	31.4*70/1000	31.4*863/1000	+D13-E13
Allowance for major repairs	0	31.4*6000/1000	+D14-E14
Total for shelter	+D13+D14	+E13+E14	+F13+F14
Communal Services			
Central heating	31.4*417/1000	31.4*3600/1000	+D18-E18
Central hot water	1*3000/1000	1*25800/1000	+D19-E19
Cooking fuel (a)	1*6.8*90/1000	1*6.8*2700/1000	+D20-E20
Electricity	75*90/1000	75*280/1000	+D21-E21
Water and sewer service	1*1800/1000	1*12200/1000	+D22-E22
Total for services	@SUM(D18..D22)	@SUM(E18..E22)	@SUM(F18..F22)
Total, all items	+D15+D23	+E15+E23	+F15+F23
One room, 31.4 m2 total space, two persons			
Housing			
Building maintenance and operation	31.4*70/1000	31.4*863/1000	+D30-E30
Allowance for major repairs	0	31.4*6000/1000	+D31-E31
Total for shelter	+D30+D31	+E30+E31	+F30+F31
Communal Services			
Central heating	31.4*417/1000	31.4*3600/1000	+D35-E35
Central hot water	2*3000/1000	2*25800/1000	+D36-E36
Cooking fuel (a)	2*6.8*90/1000	2*6.8*2700/1000	+D37-E37
Electricity	75*90/1000	75*280/1000	+D38-E38
Water and sewer service	2*1800/1000	2*12200/1000	+D39-E39
Total for services	@SUM(D35..D39)	@SUM(E35..E39)	@SUM(F35..F39)
Total, all items	+D32+D40	+E32+E40	+F32+F40
Two rooms, 46.3 m2 total space, two persons			
Housing			
Building maintenance and operation	46.3*70/1000	46.3*863/1000	+D47-E47
Allowance for major repairs	0	46.3*6000/1000	+D48-E48
Total for shelter	+D47+D48	+E47+E48	+F47+F48
Communal Services			
Central heating	46.3*417/1000	46.3*3600/1000	+D52-E52
Central hot water	2*3000/1000	2*25800/1000	+D53-E53
Cooking fuel (a)	2*6.8*90/1000	2*6.8*2700/1000	+D54-E54
Electricity	(75*90+25*180)/1000	100*280/1000	+D55-E55
Water and sewer service	2*1800/1000	2*12200/1000	+D56-E56
Total for services	@SUM(D52..D56)	@SUM(E52..E56)	@SUM(F52..F56)
Total, all items	+D49+D57	+E49+E57	+F49+F57

61 (CONTINUED)

1 Table A-8
 2 FORMULAS AND PARAMETERS USED IN CALCULATING TYPICAL SUBSIDIES
 3 FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

-----1,000 krb/month-----			
	---Column D---	---Column E---	---Column F---
Item	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy
Two rooms, 46.3 m2 total space, three persons			
Housing			
Building maintenance and operation	46.3*70/1000	46.3*863/1000	+D65-E65
Allowance for major repairs	0	46.3*6000/1000	+D66-E66
Total for shelter	+D65+D66	+E65+E66	+F65+F66
Communal Services			
Central heating	46.3*417/1000	46.3*3600/1000	+D70-E70
Central hot water	3*3000/1000	3*25800/1000	+D71-E71
Cooking fuel (a)	3*6.8*90/1000	3*6.8*2700/1000	+D72-E72
Electricity	(75*90+25*180)/1000	100*280/1000	+D73-E73
Water and sewer service	3*1800/1000	3*12200/1000	+D74-E74
Total for services	@SUM(D70..D74)	@SUM(E70..E74)	@SUM(F70..F74)
Total, all items	+D67+D75	+E67+E75	+F67+F75
Three rooms, 66.3 m3 total space, three persons			
Housing			
Building maintenance and operation	66.3*70/1000	66.3*863/1000	+D82-E82
Allowance for major repairs	0	66.3*6000/1000	+D83-E83
Total for shelter	+D82+D83	+E82+E83	+F82+F83
Communal Services			
Central heating	66.3*417/1000	66.3*3600/1000	+D87-E87
Central hot water	3*3000/1000	3*25800/1000	+D88-E88
Cooking fuel (a)	3*6.8*90/1000	3*6.8*2700/1000	+D89-E89
Electricity	(75*90+45*180)/1000	120*280/1000	+D90-E90
Water and sewer service	3*1800/1000	3*12200/1000	+D91-E91
Total for services	@SUM(D87..D91)	@SUM(E87..E91)	@SUM(F87..F91)
Total, all items	+D84+D92	+E84+E92	+F84+F92
Three rooms, 66.3 m2 total space, four persons			
Housing			
Building maintenance and operation	66.3*70/1000	66.3*863/1000	+D99-E99
Allowance for major repairs	0	66.3*6000/1000	+D100-E100
Total for shelter	+D99+D100	+E99+E100	+F99+F100
Communal Services			
Central heating	66.3*417/1000	66.3*3600/1000	+D104-E104
Central hot water	4*3000/1000	4*25800/1000	+D105-E105
Cooking fuel (a)	4*6.8*90/1000	4*6.8*2700/1000	+D106-E106
Electricity	(75*90+45*180)/1000	120*280/1000	+D107-E107
Water and sewer service	4*1800/1000	4*12200/1000	+D108-E108
Total for services	@SUM(D104..D108)	@SUM(E104..E108)	@SUM(F104..F108)
Total, all items	+D101+D109	+E101+E109	+F101+F109

(CONTINUED)

1 Table A-8
 2 FORMULAS AND PARAMETERS USED IN CALCULATING TYPICAL SUBSIDIES
 3 FOR HOUSING AND COMMUNAL SERVICES: UKRAINE, DECEMBER 1993

	-----1,000 krb/month-----		
	---Column D---	---Column E---	---Column F---
Item	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy
114	Four rooms, 86.3 m ² total space, 6 persons		
116	Housing		
117	Building maintenance and operation $86.3 \cdot 70/1000$	$86.3 \cdot 863/1000$	+D117-E117
118	Allowance for major repairs 0	$86.3 \cdot 6000/1000$	+D118-E118
119	Total for shelter +D117+D118	+E117+E118	+F117+F118
121	Communal Services		
122	Central heating $86.3 \cdot 417/1000$	$86.3 \cdot 3600/1000$	+D122-E122
123	Central hot water $6 \cdot 3000/1000$	$6 \cdot 25800/1000$	+D123-E123
124	Cooking fuel (a) $6 \cdot 6.8 \cdot 90/1000$	$6 \cdot 6.8 \cdot 2700/1000$	+D124-E124
125	Electricity $(75 \cdot 90 + 65 \cdot 180)/1000$	$140 \cdot 230/1000$	+D125-E125
126	Water and sewer service $6 \cdot 1800/1000$	$6 \cdot 12200/1000$	+D126-E126
127	Total for services @SUM(D122..D126)	@SUM(E122..E126)	@SUM(F122..F126)
129	Total, all items +D119+D127	+E119+E127	+F119+F127

131 SOURCE: Consumption norms and tariffs provided by the State Committee on Housing and Communal
 132 Services; production costs from various unreliable sources.

133 (a) About 90 percent of all urban dwellings use natural gas for cooking and about 10 percent use
 134 electricity. Those using electricity pay a lower metered rate. The payments and costs shown here
 135 assume that all dwellings use natural gas for cooking.

Table A-9

TYPICAL TENANT PAYMENTS FOR HOUSING AND COMMUNAL SERVICES
 UNDER ALTERNATIVE COST RECOVERY RATES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----			Percent of Costs Recovered	Typical Tenant Payment at Alternative Cost Recovery Rates		
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy		20%	40%	60%
One room, 31.4 m ² total space, one person							
Housing							
Building maintenance and operation	2.2	27.1	(24.9)	8.1	5.4	10.8	16.3
Allowance for major repairs	0.0	188.4	(188.4)	0.0	37.7	75.4	113.0
Total for shelter	2.2	215.5	(213.3)	1.0	43.1	86.2	129.3
Communal Services							
Central heating	13.1	113.0	(99.9)	11.6	22.6	45.2	67.8
Central hot water	3.0	25.8	(22.8)	11.6	5.2	10.3	15.5
Cooking fuel (a)	0.6	18.4	(17.7)	3.3	3.7	7.3	11.0
Electricity	6.8	21.0	(14.3)	32.1	6.8 (b)	8.4	12.6
Water and sewer service	1.8	12.2	(10.4)	14.8	2.4	4.9	7.3
Total for services	25.3	190.4	(165.1)	13.3	40.7	76.2	114.2
Total, all items	27.5	405.9	(378.4)	6.8	83.8	162.4	243.5
One room, 31.4 m ² total space, two persons							
Housing							
Building maintenance and operation	2.2	27.1	(24.9)	8.1	5.4	10.8	16.3
Allowance for major repairs	0.0	188.4	(188.4)	0.0	37.7	75.4	113.0
Total for shelter	2.2	215.5	(213.3)	1.0	43.1	86.2	129.3
Communal Services							
Central heating	13.1	113.0	(99.9)	11.6	22.6	45.2	67.8
Central hot water	6.0	51.6	(45.6)	11.6	10.3	20.6	31.0
Cooking fuel (a)	1.2	36.7	(35.5)	3.3	7.3	14.7	22.0
Electricity	6.8	21.0	(14.3)	32.1	6.8 (b)	8.4	12.6
Water and sewer service	3.6	24.4	(20.8)	14.8	4.9	9.8	14.6
Total for services	30.7	246.8	(216.1)	12.4	52.0	98.7	148.1
Total, all items	32.9	462.3	(429.4)	7.1	95.1	184.9	277.4
Two rooms, 46.3 m ² total space, two persons							
Housing							
Building maintenance and operation	3.2	40.0	(36.7)	8.1	8.0	16.0	24.0
Allowance for major repairs	0.0	277.8	(277.8)	0.0	55.6	111.1	166.7
Total for shelter	3.2	317.8	(314.5)	1.0	63.6	127.1	190.7
Communal Services							
Central heating	19.3	166.7	(147.4)	11.6	33.3	66.7	100.0
Central hot water	6.0	51.6	(45.6)	11.6	10.3	20.6	31.0
Cooking fuel (a)	1.2	36.7	(35.5)	3.3	7.3	14.7	22.0
Electricity	11.3	28.0	(16.8)	40.2	11.3 (b)	11.3 (b)	16.8
Water and sewer service	3.6	24.4	(20.8)	14.8	4.9	9.8	14.6
Total for services	41.4	307.4	(266.0)	13.5	67.2	123.1	184.4
Total, all items	44.6	625.2	(580.5)	7.1	130.7	250.2	375.1

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Table A-9
 TYPICAL TENANT PAYMENTS FOR HOUSING AND COMMUNAL SERVICES
 UNDER ALTERNATIVE COST RECOVERY RATES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----				Typical Tenant Payment at Alternative Cost Recovery Rates		
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy	Percent of Costs Recovered	20%	40%	60%
Two rooms, 46.3 m2 total space, three persons							
Housing							
Building maintenance and operation	3.2	40.0	(36.7)	8.1	8.0	16.0	24.0
Allowance for major repairs	0.0	277.8	(277.8)	0.0	55.6	111.1	166.7
Total for shelter	3.2	317.8	(314.5)	1.0	63.6	127.1	190.7
Communal Services							
Central heating	19.3	166.7	(147.4)	11.6	33.3	66.7	100.0
Central hot water	9.0	77.4	(68.4)	11.6	15.5	31.0	46.4
Cooking fuel (a)	1.8	55.1	(53.2)	3.3	11.0	22.0	33.0
Electricity	11.3	28.0	(16.8)	40.2	11.3 (b)	11.3 (b)	16.8
Water and sewer service	5.4	36.6	(31.2)	14.8	7.3	14.6	22.0
Total for services	43.8	363.8	(317.0)	12.9	78.5	145.6	218.3
Total, all items	50.0	681.5	(631.5)	7.3	142.0	272.7	408.9
Three rooms, 66.3 m3 total space, three persons							
Housing							
Building maintenance and operation	4.6	57.2	(52.6)	8.1	11.4	22.9	34.3
Allowance for major repairs	0.0	397.8	(397.8)	0.0	79.6	159.1	238.7
Total for shelter	4.6	455.0	(450.4)	1.0	91.0	182.0	273.0
Communal Services							
Central heating	27.6	238.7	(211.0)	11.6	47.7	95.5	143.2
Central hot water	9	77.4	(68.4)	11.6	15.5	31.0	46.4
Cooking fuel (a)	1.8	55.1	(53.2)	3.3	11.0	22.0	33.0
Electricity	14.9	33.6	(18.8)	44.2	14.9 (b)	14.9 (b)	20.2
Water and sewer service	5.4	36.6	(31.2)	14.8	7.3	14.6	22.0
Total for services	58.7	441.4	(382.6)	13.3	96.5	178.0	264.8
Total, all items	63.4	896.4	(833.0)	7.1	187.5	360.0	537.8
Three rooms, 66.3 m2 total space, four persons							
Housing							
Building maintenance and operation	4.6	57.2	(52.6)	8.1	11.4	22.9	34.3
Allowance for major repairs	0.0	397.8	(397.8)	0.0	79.6	159.1	238.7
Total for shelter	4.6	455.0	(450.4)	1.0	91.0	182.0	273.0
Communal Services							
Central heating	27.5	238.7	(211.0)	11.6	47.7	95.5	143.2
Central hot water	12	103.2	(91.2)	11.6	20.6	41.3	61.9
Cooking fuel (a)	2.4	73.4	(71.0)	3.3	14.7	29.4	44.1
Electricity	14.9	33.6	(18.8)	44.2	14.9 (b)	14.9 (b)	20.2
Water and sewer service	7.2	48.8	(41.6)	14.8	9.8	19.5	29.3
Total for services	64.1	497.7	(433.6)	12.9	107.7	200.5	298.6
Total, all items	68.8	952.7	(884.0)	7.2	198.7	382.6	571.6

(CONTINUED)

Table A-9
 TYPICAL TENANT PAYMENTS FOR HOUSING AND COMMUNAL SERVICES
 UNDER ALTERNATIVE COST RECOVERY RATES: UKRAINE, DECEMBER 1993

Item	-----1,000 krb/month-----				Typical Tenant Payment at Alternative Cost Recovery Rates		
	Typical Tenant Payment	Estimated Production Cost	Estimated Subsidy	Percent of Costs Recovered	20%	40%	60%
Four rooms, 86.3 m2 total space, 6 persons							
Housing							
Building maintenance and operation	6.0	74.5	(68.4)	8.1	14.9	29.8	44.7
Allowance for major repairs	0.0	517.8	(517.8)	0.0	103.6	207.1	310.7
Total for shelter	6.0	592.3	(586.2)	1.0	118.5	236.9	355.4
Communal Services							
Central heating	36.0	310.7	(274.7)	11.6	62.1	124.3	186.4
Central hot water	18	154.8	(136.8)	11.6	31.0	61.9	92.9
Cooking fuel (a)	3.7	110.2	(106.5)	3.3	22.0	44.1	66.1
Electricity	18.5	39.2	(20.8)	47.1	18.5 (b)	18.5 (b)	23.5
Water and sewer service	10.8	73.2	(62.4)	14.8	14.6	29.3	43.9
Total for services	86.9	688.0	(601.1)	12.6	148.3	278.0	412.8
Total, all items	93.0	1,280.3	(1,187.4)	7.3	266.7	514.9	768.2

SOURCE: Consumption norms and tariffs provided by the State Committee on Housing and Communal Services; production costs from various unreliable sources.

(a) About 90 percent of all urban dwellings use natural gas for cooking and about 10 percent use electricity. Those using electricity pay a lower metered rate. The payments and costs shown here assume that all dwellings use natural gas for cooking.

(b) Current tenant payment, which is higher than scheduled recovery rate.