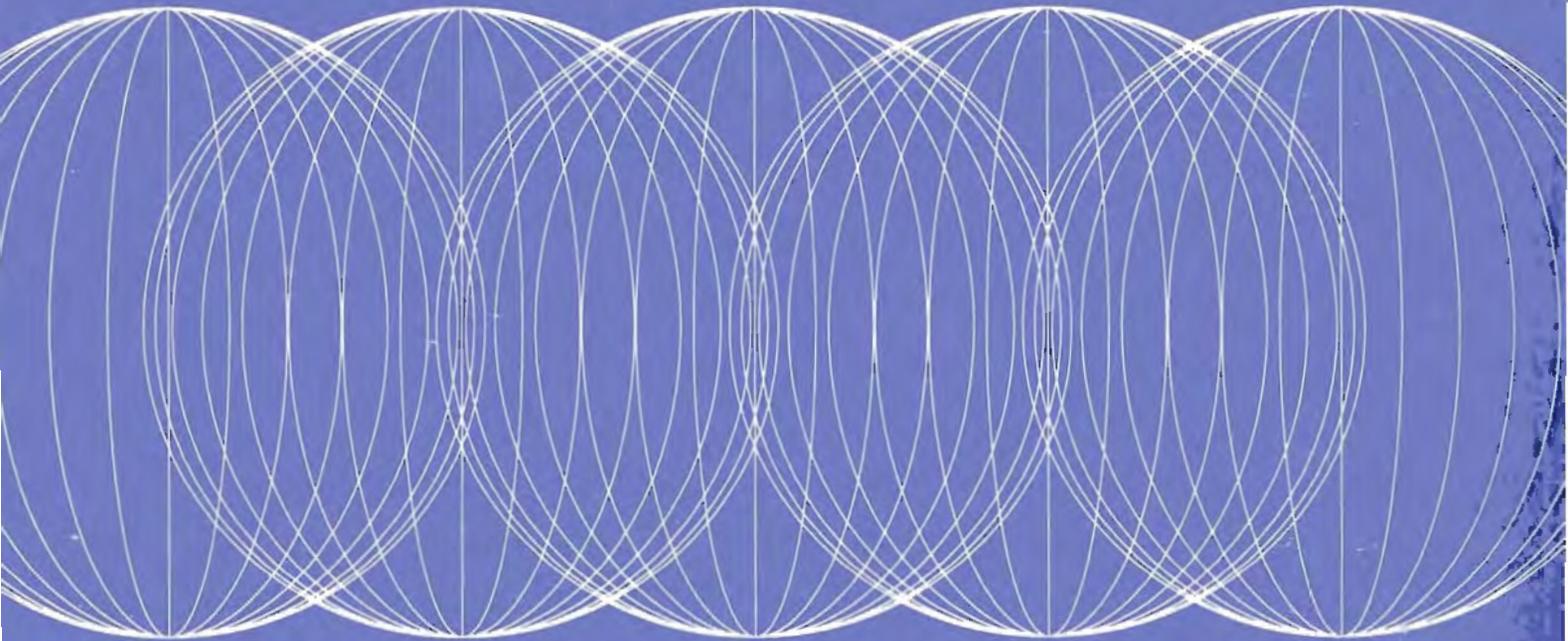


**INFRASTRUCTURE EXACTIONS ON  
DEVELOPMENT OF REAL ESTATE:  
IMPLICATIONS OF INTERNATIONAL  
EXPERIENCE FOR RUSSIAN MARKETS**

Prepared by

Stephen B. Butler



**THE URBAN INSTITUTE**

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Stephen B. Butler

The Urban Institute  
2100 M Street, NW  
Washington, DC 20037

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## TABLE OF CONTENTS

I. INTRODUCTION .....	1
II. BACKGROUND .....	2
A. Definition .....	2
B. Economic Theory of Infrastructure Exactions .....	5
III. TYPES OF INFRASTRUCTURE EXACTIONS .....	8
A. In-kind Contributions .....	8
B. Cash Payments .....	10
C. Negotiated contributions and fixed fee schedules .....	12
V. ECONOMIC EFFECTS OF EXACTIONS .....	16
A. Who actually pays? .....	16
B. Who should pay? .....	20
VI. LEGAL ASPECTS OF INFRASTRUCTURE EXACTIONS .....	23
A. Taxes and Exactions .....	24
B. Relationship to Land Use and Planning Laws .....	25
C. Control of Exactions by Independent Utility Companies .....	28
VII. INFRASTRUCTURE EXACTIONS IN DEVELOPED MARKET ECONOMIES .....	29
VIII. INFRASTRUCTURE EXACTIONS IN RUSSIAN CITIES .....	39
IX. CONCLUSIONS AND RECOMMENDATIONS .....	44
A. General Conclusions On the Russian Context .....	44
B. Suggested Policies .....	46
C. Additional Legislation .....	49
SELECTED BIBLIOGRAPHY .....	57
APPENDIX A: EXAMPLES OF LEGISLATION PERTAINING TO INFRASTRUCTURE EXACTIONS —UNITED STATES .....	59
APPENDIX B: CALCULATION OF INFRASTRUCTURE FEES .....	78



# **INFRASTRUCTURE EXACTIONS ON DEVELOPMENT OF REAL ESTATE: IMPLICATIONS OF INTERNATIONAL EXPERIENCE FOR RUSSIAN MARKETS**

## **I. INTRODUCTION**

To address a situation of deteriorating municipal infrastructure and lack of resources to finance new infrastructure investment, due partly to inability to increase tax revenues, many Russian cities are imposing fees and charges ("infrastructure exactions") on the activity of development or rehabilitation of land and structures by the private sector. The same process began in some developed market economies thirty years ago for essentially the same reasons, though with an emphasis on the problems of municipal growth rather than on repair of existing facilities. Over the years experience regarding the economic and legal implications of infrastructure exactions has been accumulated which may be useful to Russian municipal authorities. On the basis of this experience there appears to be a consensus that infrastructure exactions can be structured in a way that promotes private investment and achieves a rough balance of interests among various segments of society, or they can be structured in a way that discourages private investment and distributes the financial burden of urban infrastructure inequitably.

This paper seeks to provide an overview of how infrastructure exactions are structured—generally, in several developed market economies, and in the Russian Federation—and a discussion of some of the economic and legal implications of infrastructure exactions. Appendices to the paper include examples of relevant legislation from the United States and western Europe. The approach taken to infrastructure exactions in various nations is frequently an outgrowth of the nation's fundamental political, legal and economic structure, including, for example, perceptions of private property rights and the relative roles of government and the private sector in urban development. However, there emerges from the experience of other nations certain common approaches and themes that may be applicable in Russia today.

A main objective of this paper is to identify the key principles to be taken into account in drafting national or local legislation concerning infrastructure exactions and how these principles may be specifically addressed in the Russian context. Included in the conclusions of the paper are recommendations and outlines for specific legislative initiatives that might be taken at this time.

## II. BACKGROUND

### A. Definition

The definition of infrastructure exaction used in this paper is -

- (1) any non-recurring cash or in-kind contribution required from developers of land or structures,
- (2) which is intended to reimburse the city for some portion of the costs of constructing or expanding municipal infrastructure which does not exclusively serve the project charged.

The type of infrastructure is not defined and may include streets and roads, water and sewer, parks and green space, education, recreation, police and fire facilities. The definition is intended to exclude improvements in the nature of infrastructure which serve exclusively the project charged with the exaction, as it is the assumption that it is the practice everywhere that project developers bear the costs of such improvements.

Municipalities in most nations impose various fees and charges on the activity of developing urban land and structures by private investors. It is a premise of municipal finance today, which is undoubtedly true to some extent, that development of new structures—whether for residential, commercial or industrial use—imposes certain costs on cities in the form of increased demand for municipal facilities and services. The costs can be direct and immediate, such as utility networks which must necessarily be constructed before a new development project can proceed. They may also be indirect costs such as increased traffic congestion or overcrowding in schools, payment of which is not necessary as an absolute condition of development but which nevertheless are borne by citizens in the form of degradation of the quality of municipal services.

At the simplest and most direct level, municipal charges may consist of fees for processing applications for issuance of land use or construction permits, which are designed simply to recoup the city's actual administrative costs. At the other end of the spectrum are charges that are intended to recoup for the city all costs—direct and indirect, present and future—which are incurred by the city and its citizens as a result of new development of land and structures. Such charges are imposed directly on the owner or developer of the real property (though, as discussed further below, who actually pays the charges will depend upon many factors) and are usually intended to provide the city with funds to construct or expand the physical infrastructure necessary to support the new development.

Fine distinctions are frequently made between infrastructure exactions and other forms of fees and charges imposed on development of land and structures. These distinctions frequently have an academic tone, and also may grow out of the unique legal characteristics of some national systems. In fact, many different approaches to infrastructure exactions, while dissimilar on the surface, may have the same effects in terms of creating incentives and disincentives to private investment in real estate.



## **Taxes**

Infrastructure exactions are not usually characterized as taxes, but are more closely identified with charges for use or consumption of municipal services and resources. The distinction frequently made between infrastructure exactions and taxes is that taxes are imposed on the general population on a recurring basis and are not tied directly to the use or consumption of community resources and services. Exactions, on the other hand, are generally imposed—at least theoretically—on the developers and users of real estate on the basis of some estimated burden they put on municipal services and resources. In addition, frequently the proceeds of infrastructure exactions are dedicated to the specific purposes of infrastructure construction and expansion, while taxes are applied toward general community needs.

The most closely related tax is perhaps the tax on ownership of real estate, which is an important element of local taxes in most developed economies. That tax, however, which is a recurring tax paid on an annual or more frequent basis by the owner of the real estate, is usually a means of raising general revenues for all community needs, and not of repairing, replacing or extending the community's infrastructure. In most places where infrastructure exactions are paid they are in addition to the real estate tax.

In some instances an infrastructure fee can resemble a tax. For example, if the fee is set without regard to actual costs imposed on the city by a project, or if the proceeds of the fee are included in the general fund of the city to be used for any public purposes. Whether an exaction is in fact a charge for consumption of municipal resources or a tax has raised several important legal issues in other countries which may or may not arise in Russia.

## **Utility rates and charges**

Recurring charges for utility services also are not usually defined as infrastructure exactions, though they can play the same role depending upon how they are structured. In most developed economies utility rates are divided into two components. The first component is a charge for actual resources—hot water, electricity, telephone—consumed. The second component is to support capital investment by the utility provider, either amortization of facilities already constructed or capital maintenance, repair and expansion. Where utility charges do include a substantial component to support capital investment, most municipalities will try to avoid duplicating these charges but may impose infrastructure exactions to provide those types of community facilities and services which are not funded by utility charges, such as, for example streets and roads, schools and police and fire facilities.

Charges to developers to connect their projects to existing utility networks also are not usually considered infrastructure exactions, but depending upon how such charges are structured this distinction is often difficult to maintain. In some places utility connection charges include a substantial component toward amortization of the costs of existing facilities as well as contributions toward improvement and expansion of existing infrastructure facilities, and may be the only infrastructure exactions actually imposed against new development. This may be true in many Russian municipalities today.



### ***Other distinctions***

Infrastructure exactions are generally not considered to include on-site improvements which a developer may be required to make to protect the public against adverse impacts of his project—for example, providing adequate parking spaces for occupants, or shielding surrounding properties from excessive noise or light. These types of obligations are rooted in the building and land use codes and are related to the specific project at hand. Infrastructure exactions, on the other hand, are generally intended to deal with the wider costs of municipal infrastructure services. Frequently, however, as a condition of approval of a project, municipal authorities may require that certain facilities be provided on site—for example, a public seating area or objects of art—which have no necessary connection with the impacts of the specific project, and these requirements closely resemble infrastructure exactions.

A further defining characteristic of infrastructure exactions is that they are frequently imposed only on new construction or rehabilitation activity in connection with issuance of land use and construction permits. They may therefore be distinguished from another widespread approach to constructing and upgrading infrastructure, which is the special infrastructure or urban development district in which the costs of infrastructure are borne not just by new development activity, but by all other owners of real estate in the district who receive the benefits of the city improvements.

Finally, where infrastructure exactions are imposed, they are usually used to finance new construction and expansion of infrastructure, and not to finance regular maintenance and capital repairs to existing infrastructure. This distinction arises not only because in most places utility rate charges provide for capital maintenance and repair, but also the basic economic theory of infrastructure exactions. That theory, discussed further below, states essentially that infrastructure exactions are necessary so that the costs of new real estate projects are borne by its developers and users, and not indirectly subsidized by all citizens. The converse of this proposition is that the developers and users of new projects should not have to subsidize all other citizens, which is the result of using infrastructure exactions for maintenance and repair of existing facilities.

### ***Infrastructure exactions and land use controls***

Historically, infrastructure exactions have arisen partly out of the authority of government to regulate land uses to protect the public against the adverse consequences of land development. Initially, in many places, the adverse consequences the public were to be protected against pertained to health and safety. Over time, however, the concept came to include protection against decline in the quality of urban services and against excessive taxation. Inevitably then, the process of land use control came to include consideration of the affects of new development on both municipal infrastructure and municipal finances.

Infrastructure exactions have long been associated with subdivision of land. Subdivision of large parcels of land into smaller building lots is typical in cases of residential home development, but is also found in large industrial and office “parks” for which there is planned a concentration of industrial or office facilities. The laws of most developed economies closely



regulate the subdivision of land for development, and require as a condition of land subdivision that the owner of the land provide all essential facilities—primarily streets, water and sewer and green space—to service the new plots. The developer is generally required to construct these facilities at his own expense and in accordance with plans which meet municipal technical standards. In many cases the facilities provided by the developer, in particular streets and roads, are upon completion turned over to the municipality to become a part of the municipal network.

Similarly, certain types of developments—for example, developments exceeding a certain size—may be deemed by the municipality to require special planning consideration because of potentially extraordinary burdens they place on the environment or the community's resources. Land use regulations in many places allow planning authorities in such cases to impose requirements specifically designed to address the burdens created by the project, and which are frequently a matter of negotiation between the developer and the planning authorities. Frequently these exaction requirements will go beyond the basic requirements of the land subdivision process and may in fact be unrelated to a land subdivision, but include such things as special architectural design intended to contain light and noise or other engineering requirements to prevent adverse impacts on community resources or the quality of urban life.

Frequently this type of exaction is imposed in the process of issuing a waiver or variance from an existing land use regulation. In effect, the "price" of the variance or waiver is to provide assurances that adverse impacts unique to the project will be ameliorated through appropriate expenditures by the developer. The range of infrastructure exactions that may be imposed in these circumstances is usually more discretionary than under the typical land subdivision process, but is not unlimited. Typically the land use law will describe the types of adverse impacts which the planning authorities may seek to ameliorate, and by law there needs to be a reasonable relationship between the exaction and prevention of the undesirable impact. However, the planning authorities frequently may have considerable discretion to tailor requirements on a case by case basis. This type of exaction begins to stray from the more fixed requirements of land subdivision conditions, and as such tends to engender more controversy. There is no doubt that in some instances local planning authorities have used their discretion to grant special permits, waivers or variances from land use requirements to extract significant concessions from land developers.

While infrastructure exactions still arise to a significant extent out of the authority to regulate land uses in the public interest, it is as common today for them to arise out of simple financial expediency and a recognition that in the past new development did not necessarily pay its own costs. Consequently, modern approaches to infrastructure exactions frequently are revenue measures intended to recoup for the city the costs of public benefits provided to new development, and they are frequently imposed by formula in the same way as taxes.

## **B. Economic Theory of Infrastructure Exactions**

A main premise of infrastructure exactions is that new development projects should pay their own costs and not impose additional, or "marginal," costs on the city and its citizens. While this is a simple concept on the surface, it is frequently difficult to determine who actually is responsible for costs, and therefore how costs should be allocated among various members of the



community. The closely related second premise of infrastructure exactions is that they will encourage more efficient use of land and infrastructure.

### ***Payment of Costs***

A premise of infrastructure exactions is that developers and users of new real estate projects should impose no additional costs on other citizens; that is, the other citizens of the city should be protected against either direct costs or a deterioration in the quality of urban services and facilities. For example, development of a large residential building may require immediate expansion of utility networks, development that may not be feasible under existing building standards without such expansion. However, new residences may frequently also mean additional traffic on local roads, possibly leading to congestion, delays and greater strain on physical resources. While expansion of road capacity may not be a necessary condition for development of the new project as a technical matter, failure to expand may lead to a degradation of services for all citizens in the district. Developers and users of the new project may prevent further degradation by contributing to upgrading of nearby roads and streets.

Viewed from this perspective, the objective of infrastructure exactions is simply to have the developers and users of a new real estate projects pay the actual costs which they impose on the community. In most places these costs are the additional or "marginal" costs caused by the new project, and not payment for existing infrastructure facilities. Payment for existing infrastructure is generally accomplished through utility rates or other general taxes. In many places imposition of infrastructure exactions to pay for existing infrastructure facilities would amount to double payment by new projects, which would pay once in the form of non-recurring infrastructure exactions and thereafter in the form of the same taxes and charges imposed on all other users of municipal services. This result would go beyond simply protecting citizens against additional costs caused by new development, and likely entail an actual subsidy from the developers and users of new projects to all other citizens.

This view of infrastructure exactions assumes that it is possible to identify and place a value on those aspects of city infrastructure—schools, utility networks, street and roads, etc.—that will be affected by the new project, and how those facilities need to be constructed, improved or expanded in order to maintain at least the level of service in existence prior to the new development. In fact, identifying and valuing the impacts of specific projects and limiting charges to just those costs is a difficult and frequently imprecise calculation.

A distinct view of infrastructure exactions argues that the owners of land and structures derive economic benefits from the existence of a well-developed system of physical and social infrastructure. For example, if housing is being developed, the value of the housing, and thus the profits to the developer, will be enhanced by the existence of good local schools and transportation networks. Accordingly, the argument runs that a portion of the profits of the development—or of the value of the real estate itself—rightfully belongs to the community and should be recaptured in the form of taxes or other charges on the development of land and structures. This concept of infrastructure exactions is far broader than the simple concept of reimbursing the community for the additional or marginal costs of new development. In effect, this view justifies the imposition of



infrastructure exactions even in those cases in which new development cannot be shown to have a significant adverse impact on the community, or even where the net benefit to the community from development is positive.

The broader view of infrastructure exactions is an attempt to capture for the community a part of the profit of land ownership or development. Unlike the more limited view, it is unrelated to either the additional or marginal costs imposed by new development, or to the actual benefits—for example, new roads and streets or new parks—actually conferred on the new project in return for payment of infrastructure exactions. In effect, an infrastructure fee based upon this principle is a tax. Since it is limited only by the community's perception of fairness, such a tax may go far beyond the intentions of most regimes of infrastructure exactions and actually subsidize citizens and owners of existing properties, not merely protect them from additional costs. There are indications that this broader view of infrastructure exactions may be prevalent in Russia today, where because of the limitation on the real property tax and other sources of municipal revenues a disproportionate burden falls on new projects not only to finance their own costs, but also to pay for a wide range of other municipal needs, including repair and improvement of the existing utility networks which serve all other citizens.

#### ***Efficient use of land and infrastructure***

The second economic premise is that infrastructure exactions have a fundamental role in encouraging efficient use of land and infrastructure resources. The economic theory of markets states that if the actual costs imposed on the community by an activity are paid directly by the activity, the activity will have to produce enough profit to pay those costs as well as a competitive rate of return to investment. Accordingly, the existence of sufficient profit is an indication that society values the activity and is willing to pay its costs in the form of higher prices. On the other hand, if the activity is not able to pay its actual costs and provide a competitive return to investment, it is an indication that society prefers other investments.

This principle might be seen at work in the choice of land for development. If all projects are required to pay the actual costs for infrastructure that are imposed on the city, land which requires lower improvement costs will be preferred over land which requires higher improvement costs. This might be reflected, for example, in a preference for smaller sites located nearer to existing infrastructure rather than for sites which would require costly expansion of infrastructure to presently undeveloped areas. Similarly, if the costs of much needed new housing are too high because of the high costs of new infrastructure development, increased attention may be paid to improvement and more efficient use of existing systems.

The other side of this coin is that if the actual costs imposed on the community by new development are overstated—which is always a possibility in a system which imposes infrastructure exactions—there will be little new development because the costs have been artificially established at a level which does not allow the investor to pay costs and still achieve a competitive rate of return on his investment.



### III. TYPES OF INFRASTRUCTURE EXACTIONS

Types of infrastructure exactions are somewhat uniform throughout the developed world and fall into two broad categories—"in-kind" payments, which generally consist of contributions of land or infrastructure facilities, and cash payments. Another basic distinction relates to the way in which infrastructure exactions are imposed, and this distinction can for convenience be made between infrastructure exactions imposed by fixed schedule and those which are negotiated on a case by case basis.

The types of infrastructure for which infrastructure exactions are imposed may vary from place to place, and may depend upon several factors. One variable is the sources of financing the city has available to it for infrastructure. In many developed economies basic networks such as water, sewer and electric are essentially private enterprises, and recapturing of the costs of those systems, including new investment, is a matter between the developer and the enterprise, subject to public regulation. In many places utility rates cover capital investment and repair of existing facilities, and it is not required for the city to raise additional funds through infrastructure exactions. Most developed economies also have highly developed and efficient systems of local taxation.

Another variable may be the prevailing views of society regarding which aspects of infrastructure are basic obligations of society, to be financed from general tax revenues and not based on actual consumption of services or resources. In some places payment for certain municipal services is not at all related to consumption of the services, as to do so might impose unfair burdens on the poorer members of society who are unable to pay the actual costs of an adequate level of services. Educational or public health and safety facilities are good examples. In effect, payment for these facilities usually involves a subsidy from higher to lower income taxpayers because they are funded through general tax revenues and not fees for services or infrastructure exactions. Having made the decision not to base distribution of such municipal benefits on ability to pay, financing is left to general tax revenues.

It is nevertheless true that throughout the market economies infrastructure exactions are imposed for a wide range of municipal infrastructure, including roads, streets and other surface transportation infrastructure such as bridges; acquisition and development of green areas, open spaces and recreation facilities; educational facilities; water, sewer and other utility networks; surface water control; police and fire stations; and, to a more limited extent, new social housing.

Several of the types of exactions described below—how they are calculated and paid—are reflected in the examples of legislation which are attached to this paper as Appendix A.

#### A. In-kind Contributions

In-kind infrastructure exactions were among the first types of infrastructure exactions used in market economies and arose primarily in the context of land subdivisions or other types of building project reviews and approvals by public authorities.



### ***(1) Construction of infrastructure facilities***

In most instances the requirements for infrastructure construction imposed during the land subdivision process are limited to those facilities which serve exclusively the project under development. Permissible land subdivision infrastructure exactions are usually clearly defined in subdivision regulations and limited by the regulations. They are usually based on the municipality's technical building and engineering requirements—for example, the width and materials of new roads—and very little is left to the discretion of the planning authorities.

In other cases, it is commonplace for developers to be expected to improve infrastructure facilities—particularly streets, roads, sidewalks and green spaces—in areas immediately adjacent to their sites. It also has become acceptable in some places for local authorities to request that developers undertake not only improvements directly connected to their own sites, but also to improve local communications networks in the surrounding area. For example, where traffic to be generated by a new development would result in adverse impacts on a traffic intersection at some distance from the development site, the developer might be required to improve service at the intersection even though it is at some distance from and does not exclusively serve his own development.

Typically requirements for improving off-site infrastructure will be calculated on the basis of maintaining the present level of service of the infrastructure affected in terms of a generally accepted parameter, for example vehicle waiting time at stop lights; water pressure; or students per classroom. However, rarely is it an exact calculation, and frequently actual improvements in level of service are achieved at the expense of the new project. However, in some cases, where the developer has little leverage over local authorities, off-site infrastructure improvements are unrelated to burdens imposed by the immediate project and rather transparently related to improving the level of service for all users.

Off-site infrastructure requirements are controversial infrastructure exactions for other reasons as well, most clearly because of the difficulty of identifying the share of responsibility for degradation of service that may fairly be attributed to the new project. For example, it is clear in the example of improvement of the traffic intersection given above that the increase in traffic congestion accumulated over a period of time and can be attributed as much to all presently existing uses as to the new development, yet the cost of improving the intersection falls on the new development. Off-site infrastructure exactions may again frequently result in placing a disproportionate burden for infrastructure improvement costs on the most recent project or projects.

### ***(2) Donation of land or public easements***

Instead of construction of facilities, in many cases public authorities require donation of land to the municipality to be used, for example, for parks and recreation spaces, drainage and surface water control, or building sites for schools, libraries, police and fire stations. Land donations are particularly associated with subdivision of large land parcels. Donation of land may entail transfer of ownership, or may consist of granting of a servitude in favor of the public for access across land to enjoy open spaces or other recreational facilities. Typically, if the land donation is tied to



construction of a public facility such as roads or drainage, the size of the donation will be calculated on the basis of the needs of the facility. In other cases, where there are no apparent technical limitations—for example, if donations of land for parks and open space are permitted—the amount of land to be donated may be subject to a legal formula that specifies a certain amount of recreational space per inhabitant. Donations of land or public easements are generally subject to the same limitations—or lack of limitations—as other forms of exactions.

It has become commonplace now that land contribution requirements go beyond the needs of the particular project and include donations of land for facilities which serve the population at large. This is typical, for example, in the case of donation of land for green and recreational areas which are accessible to the public, or donation of land for construction of schools or other public facilities.

### ***(3) Social infrastructure***

To a limited extent, some jurisdictions, particularly in the United States, have required developers of new office facilities in urban areas to construct new housing for persons of low and moderate income. The theory in such cases is that office development creates new jobs, which creates demand for housing that will result in increased housing prices for all citizens unless additional housing is provided to accommodate the demand which results from the new business activity. In the case of donations of affordable housing, a typical calculation would determine the proportion of the labor force working at the new facility which is likely to live in the locality, and the amount of new housing which would be required to keep the vacant housing stock at current levels. The theory is largely unproved as a factual matter and is implemented in only a few jurisdictions.

## **B. Cash Payments**

In some jurisdictions local authorities will accept an equivalent cash payment in place of donations of land or construction of infrastructure facilities. Cash payments may be more likely in those instances where the city itself provides most infrastructure work and then must obtain reimbursement from the landowners who benefit from the improvements. Typical calculations of payments due involve some formula for spreading the actual costs of the work over all, or some set of, land owners who benefit from the improvements.

### ***(1) Payments in lieu of in-kind contributions***

Cash payments may be calculated on the basis of the equivalent cost of specific in-kind donations which the developer would have been required to make under the regulations. For example, such payments typically may be calculated in terms of the market value of the land which a developer would have been required to contribute for open space or recreational space. Such payments might be deposited into a land acquisition fund maintained by the city for the same purposes. Cash contributions may provide the city with more planning flexibility than in-kind contributions, for example, allowing it to acquire land to expand an existing park facility in the



district rather than accept donation of a smaller and more isolated piece of land on the developer's site.

### ***(2) "Impact" fees***

Cash exactions are also imposed on the basis of more generalized fee schedules created on the basis of the estimated costs imposed by new development. Such cash contributions are sometimes referred to as "impact fees." Typically, such fees are imposed on the basis of formulas which provide rules for calculation of costs as well as for allocation of costs among projects or landowners. Frequently the fee schedules distinguish among locations as well as among residential, commercial and industrial uses, and almost always distinguish on the basis of the intensity of development. The calculation of impact fees is often a complex undertaking which takes into account projected long term development scenarios for the locality, as well as the costs and benefits of development alternatives. An outline of factors considered in calculating development impact fees is attached as Appendix B of this paper.

### ***(3) Network connection charges***

Utility network connection charges can be a form of infrastructure exaction, depending upon the uses to which the charges are put. If the connection charges are used to finance new or expanded utility networks or to pay for the initial investment in existing networks, as they are in many places, they serve essentially the same purpose as other types of required contributions to infrastructure. Like other forms of infrastructure exactions, appropriately structured connection charges can perhaps be a useful tool in assuring rational land use and development. This would be so if the fees accurately reflected the cost of providing utility services to particular locations or structures, for example, by establishing discriminatory pricing policies based on location.

### ***(4) Special infrastructure districts***

A widely used form of cash exaction is the special infrastructure district. A special district is a geographic portion of the city having specific boundaries in which a concentrated program of infrastructure improvement is undertaken by the city. To pay for the infrastructure improvement the city generally imposes charges on all landowners within the district, and not only on new developments. Creation of special districts is usually regulated by law and requires substantial public involvement—sometimes a referendum—and financial justification. Typically a special infrastructure district is established in connection with the opening of new development areas on the margins of cities or with comprehensive renewal of older sections of a city.

The charges imposed in a special district may be imposed immediately in the form of a single assessment against each landowner, or may be imposed as a recurring charge over a number of years. If recurring charges are used, they are usually used to repay long term municipal financing used to construct the infrastructure. As a general rule, the actual charge is based on a strict formula involving a measurable aspect of the land—for example gross size or frontage on a newly constructed street—and is intended solely to repay the actual costs of the constructed improvements and not to contribute to other systems or city-wide infrastructure needs. Frequently



the total assessment will be strictly based on the budget for the public works, and individual assessments against landowners must be based on reasonable projections of the final number and value of land uses in the serviced area after the area is built up in accordance with present city plans, thereby assuring that present and early land users do not bear a disproportionate share of the costs.

#### ***(5) Taxes on increases in land value***

In some places use is made of a technique which allows the city to tax the landowners in a designated infrastructure improvement district for the difference between the market value of their land before the infrastructure improvements and the market value after completion of the infrastructure improvement. While this is an alternative means of financing infrastructure improvement and is tied to the financing of improved infrastructure, it allows the city to go beyond the recapture of actual costs of the improvements to possibly capture also a portion of the increase in value of the land attributable to municipal facilities and services. Typically, the tax will be calculated on the basis of market appraisal, and the tax itself may range from a small portion of the increase in value to complete recapture of the entire increase.

#### ***(6) Infrastructure taxes***

Some jurisdictions simply impose a flat tax on the cost of all new development. By definition, such taxes are not specifically related to the burdens imposed by any particular project, but may be related to some concept of average costs imposed by new development.

### **C. Negotiated contributions and fixed fee schedules**

Another distinction can be made regarding how infrastructure exactions are determined. The distinction is between negotiated contributions or contributions imposed in accordance with a fixed schedule of fees.

#### ***(1) Negotiated exactions***

The negotiated contribution is essentially an outgrowth of the city's power to approve or deny land use and construction applications, and the use of negotiation is generally closely tied to the amount of discretion held by planning authorities. If the discretion is great, the developer may be inclined to offer significant contributions to infrastructure as a means of assuring and accelerating the approval process. If the discretion is narrow, the developer may be better off by simply following the written rules and regulations. However, the modern tendency is that even under transparent, written planning regulations, planning authorities can generally find some legally sufficient reason to deny a land use application, so under most circumstances developers are inclined to negotiate.

Negotiated infrastructure exactions are also widely used in cases where land is owned by the city and transferred to a private developer. In such cases the city enjoys strong discretion and



control over the developer, as the developer will not get access to the land unless certain agreements regarding contributions to infrastructure are reached.

In many cases the negotiated infrastructure exaction is reflected in a "development agreement" or in a "land disposition agreement" which sets out the mutual obligations of the city and the developer regarding development of the project and contributions to infrastructure. These agreements are generally in the form of civil contracts enforceable by either party in court. Alternatively, negotiated exactions may be set out in the terms of a land use or construction permit.

Negotiated infrastructure exactions have certain benefits and drawbacks. As to the benefits, they allow a city to tailor exactions to the impacts of specific projects on a case by case basis. For example, the city could take into account the specific costs associated with the project's location. On the other hand, laws which allow negotiated exactions may fail to provide predictability or certainty to developers regarding development costs, and frequently encourage municipalities to be unrealistic in their demands—to try to use infrastructure exactions as a form of tax on the profits of real estate development rather than as a means of recouping actual costs imposed by new development projects.

### ***(2) Fixed fee schedules***

Contrasted to negotiated exactions are those which are based upon strict legal formulas or processes. Such exactions will typically rely on certain attributes of the proposed project to calculate estimated impacts and allocate costs. Possibilities include:

- *Amount of capital investment.* In these cases the total amount of the charge depends upon the aggregate cost of the improvements made to the property. The fees charged therefore will vary not only in response to the size of the project, but also in response to the quality of the construction. At best, costs of construction are a rough estimate of the actual impacts of a project on city services and infrastructure. For example, a large residential project of inexpensive construction can cost the same as a small office project of first class quality, yet the two projects may have very different actual burdens on city infrastructure. Nor does this method reflect the actual differences in costs which may be imposed by projects because of location or technical characteristics.

It may be argued that exactions imposed on the basis of construction costs is in effect a tax on investment which may discourage or distort investment decisions, and create the incentive to produce smaller or more poorly designed projects than would have been the case in the absence of the tax.

- *Size of construction.* The size of a project may be expressed in terms of floor area of construction or, and less prevalent, the size of a land plot. This approach also does not account for the different burdens which may be imposed by different uses, and needs to be adjusted specifically to reflect those different burdens.



- *Per unit costs.* Charges are frequently made against residential projects on the basis of number of individual dwelling units. This is a reasonable approach in terms of burdens imposed on city infrastructure, but thought by some to raise other issues of fairness because it makes no distinction between housing for low income persons and luxury housing, for example. Put another way, the occupant of low income housing would be charged as much as the higher income resident. This may be correct as a matter of actual use of infrastructure facilities, but results in a regressive burden whereby lower income persons pay a larger share of their income for the utility services than do higher income persons. This particular issue is often dealt with by excepting socially desirable projects such as housing for low income persons from infrastructure payments or by creating special rates.
- *Type of use.* In some cases charges are based on calculations of the actual burdens imposed by certain types of uses. This is a prevalent approach where infrastructure exactions are imposed by formula or schedule. This approach takes into account the different burdens that may be imposed by different types of uses, but cannot account for the intensity of use; it must be combined with another factor which is based on the size or intensity of use.
- *Actual costs.* The simplest approach is to attempt to calculate the actual costs of the project at hand on a case by case basis, which would mean taking into account all of the foregoing factors—use, intensity, location, technical characteristics—and calculating relatively precise burdens on the infrastructure. While some of this can be done by formula, it may also need case by case analysis, and may be an exercise more suitable for negotiation between developer and the municipality than for application of inflexible fee schedules.

In fact, many jurisdictions apply all of these approaches to allocating charges, with the combination of use and intensity of development being the most common approach in systems which use fixed schedules for assessing charges.



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**Table 1**  
**Types of Infrastructure Exactions**

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**In-Kind**

- Construction of Infrastructure Facilities
- Donation of Land or Public Easements
- Social Infrastructure

**Cash**

- Payment in Lieu of In-kind Contributions
- "Impact" Fees
- Network Connection Charges
- Special Infrastructure Districts
- Taxes on Increases in Land Value
- Infrastructure Taxes

**Negotiated Contributions and Fixed Fee Schedules**

- Negotiated Exactions
- Fixed Fee Schedules

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## V. ECONOMIC EFFECTS OF EXACTIONS

### A. Who actually pays?

#### *Developer, purchaser, renter, landowner*

While there is very little data on which to base conclusions in Russia, general economic principles and some research done in other places suggests that in most cases the project developer pays only a small portion, if any, of the costs of infrastructure exactions. In fact, the costs are largely “shifted” to others, including the purchasers or renters of the real estate and in some cases to the owners of land. This conclusion is based on several fundamental economic principles:

- In competitive private markets, the return to investment in all forms of entrepreneurial activity will be roughly equal. If returns to some forms of activity are considerably lower than others, capital and entrepreneurial talent will migrate to business activities in which there is a greater return. Accordingly, infrastructure exactions which act as taxes on the profits from development of land and structures, and which are not imposed on other types of business activities, may tend to draw capital away from real estate development if they result in lower returns on real estate investment than are available to other business activities.
- Markets are competitive on a geographic as well as a product basis. To the extent that infrastructure exactions are not uniform among adjoining jurisdictions, there will be tendency for capital to flow from the areas of high exactions to areas of low exactions. This dynamic may place certain jurisdictions at a competitive disadvantage in attracting domestic and foreign investment capital. For example, if the suburbs surrounding a city decide to compete with the city for employment, investment and tax revenues by not imposing impact fees, all other things being equal it is likely that investment will flow from the city to the outlying areas.

It seems likely, therefore, that given the opportunity, the developer will strive to shift costs to others in the form of higher prices or rents or lower land prices. However, developer's of land and real estate do not have an unlimited ability to shift the costs of infrastructure exactions to others. Several factors may affect the ability of investors to shift exaction costs.

#### *Some factors affecting cost shifting*

Several factors may affect the ability of a developer to shift costs either forward to purchasers and renters, or backward to the land owner. These factors may include:

**Markets.** Developers are always limited by market forces as to what they may charge to purchasers and renters. Consequently, if shifting the costs of infrastructure exactions forward results in higher prices the developer's ability to sell or rent his project will be diminished, particularly if there are many substitute products available at lower prices. For example, people are



unwilling to purchase newly constructed housing at a price that greatly exceeds the price of comparable existing housing.

Even in the absence of competition from substitute products, the incomes of potential purchasers and renters will limit what the developer can charge. For example, entrepreneurs are unwilling or unable to use land or structures if the purchase price or rental, after payment of all other costs of doing business, make business operations economically impossible.

Put another way, if prices are already at their highest possible levels given the level of market competition and the purchasing power of the potential market, the developer will not be able to shift costs forward to purchasers, who are simply unable to pay more. In the first instance, inability to shift costs forward to purchasers will likely induce developers to shift backwards and decrease the amount they are willing to pay for land. If paying less for land is not possible—for example, if cities, which are presently land monopolists, demand unrealistic prices—the developer may cease development rather than accept a lower rate of return on investment.

**Short term mobility.** Assuming that the developer is limited in what he can charge purchasers or renters because of market forces, he may accept lower returns than the industry at large because in the short term he is unable to either withdraw his capital from the development business to pursue other opportunities or to relocate his activities to an area of lower charges. Rather than simply cease operations, some developers may choose to continue and to accept a lower rate of return. Over the longer run this result may be unlikely.

**Uncertainty.** In some situations developers will speculate on a project, or fail to anticipate potential future costs or exactions. Once land has been acquired, it is too late to shift additional costs backward, and if the market will not allow them to be shifted forward the developer will again be forced to accept a lower rate of return in order to liquidate his investment. Accordingly, the arbitrary imposition of development fees at late stages of development projects will be a considerable disincentive to development as it may prevent the developer from being able to protect his position by cost shifting.

Another situation in which the ability to shift costs forward may not matter is when profits from development activity are much higher than for comparable investments, and therefore by definition higher than necessary to maintain investment in the activity. In such cases high infrastructure exactions will simply serve as a tax on the “excess” profits of development, and will be gladly paid by developers up to a point. This case may arise when supply of the product—land and structures—is insufficient because of extraordinary demand or because of artificial constraints on production of the product. Generally, these situations are short lived, as very high profits will induce greater competition and lower prices. Artificial restrictions on production, however, are another matter as they can prevent indefinitely an increase in production to meet demand.

It may be noted that both cases of very high demand and artificial restrictions on the supply of real estate products have existed in Russia in recent times, where there was considerable unmet demand resulting from years of housing shortages and dramatically increased incomes for certain segments of society, as well as considerable difficulty in undertaking new construction of housing

and other structures because of unavailability of land and high transaction costs. In fact, it is likely that under the circumstances, by imposing high exaction fees on a somewhat arbitrary basis, Russian municipal officials were intuitively taking reasonable steps to recapture a portion of the developers' excess profits. However, as the demand of the wealthier segment of society is satisfied, if municipal officials want to broaden the market and encourage long term, sustainable development, a more sophisticated approach to exactions will be necessary. Moreover, over the long term it is unlikely that preserving artificial constraints on the supply of real estate products as a means of supporting high exaction fees will be a very useful policy.

These are clearly a limited set of circumstances in which cost shifting may not be possible, which serves to emphasize that in most instances it is almost inevitable that someone other than the developer will pay the costs of infrastructure exactions. There is significant opinion that in most instances the user (purchaser or renter) of the real estate, and not the landowner, will bear the costs of exactions, except in cases where over the long term the market limits developers' ability to shift costs to purchasers and renters. In such cases it is likely to be land prices that are significantly affected by infrastructure exactions. Russia today appears to be such a case, where in most places there is a very thin market for new construction, and where construction does proceed it is frequently because of lower land prices.

### ***Landowners***

In private markets land is valued at what can be done with it—what profit it can produce for its owner through production or rent. The value placed on land is “residual,” that is, it is the value that remains after subtracting from the value of its product the costs of producing the product and the profit demanded by the owner. In the business of land or real estate development the “product” is the developed land or structure, the value of the product is its sale price or stream of rental income, and the cost of producing the product is the amount the developer must pay to acquire the land and improve it. Costs include not only the costs of construction such as labor and materials, but also the costs of any permits, fees, charges or taxes the developer must pay.

As noted, to the extent that in competitive markets the required return to investment will be roughly the same among all types of investments, and generally the same among geographic areas, in cases where a developer is unable to shift exaction costs to purchasers and renters the value of land may be reduced by the amounts of any fees, charges or in-kind contributions which a developer must pay. This may also be true in cases where the developer can move his activities to other nearby jurisdictions with lower infrastructure exactions; in such cases the land owners may be compelled to reduce prices in order to compete with the neighboring jurisdictions. In effect, the landowner pays the difference between the higher exactions of his locality and the lower exactions of the neighboring locality.

In places where most land is privately owned, it is the private landowners that may bear the burden of infrastructure exactions. In Russia, however, the irony is that the owner of the land and the collector of exactions is in fact the same—the municipality. Thus, there is some likelihood that cities which offer land for sale or rent receive a reduced benefit from the exactions as developers reduce the amount they will pay for land by the amount that they anticipate paying toward



infrastructure exactions. The effect of impositions in such case may be only to redirect the proceeds of exactions to one purpose or another, or to one municipal bureaucracy or another, depending upon whether the proceeds are considered to be from an infrastructure exaction or from the sale of land.

The general point to be made is that the price for land, as for other commodities, is set by the market, and when setting exaction fees, because of their direct impact on costs, a city could easily discourage private development by not taking market constraints adequately into account. The task of the city is yet further complicated because of the undeveloped condition of real estate markets in most Russian cities today.

It is clear that different products, or different qualities of the same product, should have different prices, and therefore the economic constraints on production of the product may be different. The corollary of this principle is that where information on products and prices is accurate and freely available, prices for equivalent products should be the same. In Russia today market information on products and pricing has not developed to this point, and therefore even equivalent products, including land and housing, may have a wide range of prices. Consequently, it is likely that under most circumstances, if a city focuses mainly on a few projects or transactions in setting standards for infrastructure exactions it could be discouraging many other projects. The likelihood of this happening is greater to the extent the city focuses primarily on the higher priced projects and transactions. The city is thus faced with the sometimes difficult choice of imposing exactions on the basis of averages—which inevitably benefits some and harms others—or considering each project on a case by case basis with specific attention to the market constraints of each project. The choice here is not unknown to Russian municipalities, and the City of St. Petersburg, for example, is actively exploring imposing infrastructure fees on the basis of an approach which will analyze the needs of each project through market appraisal techniques.

### ***Effects on Others***

One possible effect of increasing prices and rents of new or rehabilitated housing is that the value of all existing housing may be increased as well. This follows from the principle that under certain conditions new and existing housing are acceptable substitutes for each other in the eyes of prospective purchasers and renters. Where the costs of new or rehabilitated housing greatly exceeds the cost of existing housing, the existing housing becomes more attractive and demand for it will increase. As demand for existing housing increases, prices for it will rise, as by definition the amount of existing housing is limited at any given time.

In fact, it can be shown that with respect to reasonably equivalent types of real estate, newly constructed or substantially rehabilitated products generally will be priced within a relatively stable range of existing real estate products. By raising the costs, and therefore the prices and rents of newly constructed or substantially rehabilitated products, it allows the price of existing products to rise as well so long as the range is maintained. This result may tend indirectly to impose the costs of infrastructure exactions over all future purchasers and renters of real estate, and not just on the purchasers or renters of the projects which are directly charged with the



exaction. However, the payments made by the future purchasers and renters do not contribute to improvement of city infrastructure, but rather are paid directly to the sellers of the real estate.

Owners of existing real estate—or those who have the right to profit from its sale or rental—may experience a “windfall” as they are not subject to payment of the infrastructure exaction but see the price or rental level of their real estate increase. In private markets the beneficiaries of this windfall will be the many private owners of land and real estate, but in Russia the beneficiary will be whoever has the right to profit from sale or lease of real estate, which may in many cases be the municipality itself. Also benefiting from the general price increases of course would be the many persons who have privatized or hold the right to privatize their residential apartments and homes.

### **B. Who should pay?**

The question of who should pay for the costs imposed by new development usually does not cause great controversy—there seems to be a widespread consensus that the user of the infrastructure—that is, the user of the real estate—should pay a large portion of the costs. This is generally perceived as fair, and so it troubles few people to learn that except in a few instances, most of the costs of infrastructure exactions will be passed on to the eventual owners or users of the real estate in the form of higher purchase prices or rents. Assuming that the developer is limited by the market to what he can charge to purchasers or renters, the ability to pass costs on to the purchasers and renters generally will not constitute a windfall for the developer.

Imposing costs on users also serves a useful purpose by encouraging the most efficient use of land and existing infrastructure resources. If the actual costs of development are beyond the ability or willingness of consumers to pay, then lower cost options will be pursued. This may mean more efficient use of land which is already serviced by infrastructure, or more cost effective decisions on whether or how to improve infrastructure services.

The user of real estate may not be the only one who will pay the costs. Again, assuming that the developer is limited by the market in what he can charge to purchasers and renters, some portion of the exaction costs may be shifted backward to land values. That is, land values will decrease to the point necessary to maintain the minimal level of return on investment required by the developer. This is also considered by many to be a good outcome, as much of the value of land is created by intangible benefits provided by public goods such as infrastructure, and such value would otherwise accrue solely to the landowner in the absence of some means of recapturing a portion for the public. Of course, as noted, in the case of Russia the decrease in land values may directly affect the public treasury, as the state remains the largest land owner.

Once past the basic issues of user charges as an effective means of assuring proper allocation and conservation of resources, the factors that may enter into consideration of who should pay for exactions include several policy choices regarding allocation of costs and benefits among various segments of society. One objective may be to achieve fairness in the allocation of the costs of new development among the various segments of society who will benefit. For example, as has been pointed out, infrastructure exactions that rely solely on new development to



repair and upgrade utility services may provide a benefit to the owners of existing property, and a subsidy to all users of the infrastructure, without requiring from them a contribution to costs. Similarly, infrastructure exactions that raise the costs, and therefore the prices, of new construction may tend to raise the prices of existing property as well, providing a benefit to owners of existing property without requiring from them a contribution to costs.

Like all tax-related payments, it is also possible that infrastructure exactions may fall more heavily on persons of low and moderate income than on persons of higher income. For example, if exactions are imposed on the basis of a fixed schedule of charges that makes no allowances for the difference between luxury housing and a housing project for low income persons, the lower income persons will be paying a larger share of their income for municipal services than would be the higher income person.

Similarly, if some types of essential social services—for example, educational or health facilities—are to be supported by exactions alone, then it is possible that lower income segments of society may receive a lower grade of service than higher income segments who are willing and able to pay more toward infrastructure exactions. To assure a rough equality of essential services among the various economic strata then, it is almost necessary that there be a transfer of tax revenues from higher income to lower income areas. Most systems acknowledge this principle and do not relate the quality of essential municipal services to infrastructure exactions, but rather fund them through general taxation.

Dealing with issues such as these requires that the municipality clearly understand the direct and indirect costs and benefits of development, which segments of society are actually receiving the benefits, and which segments of society are actually paying the costs. Achieving this understanding requires an accurate analysis of the sources and uses of municipal revenue. For example, if utility rates already include some component for paying the initial investment costs of new infrastructure facilities, the imposition of infrastructure exactions to pay the same costs will result in new development paying twice and reducing the amount that would otherwise have to be paid by existing property owners and infrastructure users. Having identified this double payment, the issue would be whether it is justifiable.

### ***The Burden on New Development***

A widely accepted principle of infrastructure exactions is that payments should be roughly proportionate either to the costs imposed on the city by the new development project, or to the benefits received by the new project from new or upgraded public facilities. This principle is viewed not only as fair, but as having the least distorting effect on investment decisions. To assure this result it may be necessary to limit contributions to only those aspects of infrastructure that demonstrably serve the project charged with the exaction. Alternatively, if contributions are required for infrastructure serving wide areas and populations, that the contributions are fairly apportioned among all users.

It is often difficult to implement this principle, as it is difficult to apportion precisely costs or benefits to any particular project. This is particularly true in Russia today, where much of the



proceeds of infrastructure exactions is applied toward maintenance and repair of existing infrastructure. Deteriorated infrastructure facilities cannot be characterized solely as a cost imposed by new development, and it is almost certain that the resulting improvements to the deteriorating infrastructure will produce benefits to a much wider set of users than the new project which is charged with the exaction.

It is also often true that city officials may want to avoid incurring debt to finance infrastructure improvements, or, as in Russia, that there are no sources from which the city can borrow long term funds for improvements. Moreover, even if long term financing were available, there is no assurance that the pace of new development and collection of exactions or utility network connection charges would occur on a schedule that would allow timely repayment of debt. For all of these reasons, there is often a tendency for infrastructure exactions to fall disproportionately on projects that begin closest to the time that the decision to begin an infrastructure improvement project is made. As a matter of financial expediency, city authorities may be tempted to raise the largest possible contribution from the next investor that walks in the door. The result may be that new projects will pay a disproportionately large sum for the benefits they receive; other beneficiaries of the improvements, such as existing property owners, will pay little or nothing and in fact may receive a subsidy; fairness will not be achieved; and investment decisions may be distorted as otherwise useful projects will be made infeasible by the very high initial burden placed upon them.

The city may of course continue to impose infrastructure exactions on all future development projects after the costs of the infrastructure improvements have been paid, but the proceeds from these exactions are rarely if ever used to reimburse developers for the disproportionate burdens that they may have paid. If exactions are reduced after the costs of the particular infrastructure project are paid, future developers receive a windfall benefit. If exactions are not reduced, if the proceeds are not used to reimburse those who have already contributed more than their fair share the city is simply placing more excessive burdens on new development.

It is often argued that the benefits of infrastructure accrue over a very long period of time and that the costs should also be paid over an equivalent period of time. It is also argued that the costs of new infrastructure should be borne by all who benefit from it. In developed economies tools are available to address both of these objectives. In many places infrastructure development is financed over the long term and repaid by a combination of connection charges, user fees or infrastructure assessments that are collected over time and which are imposed on all property owners. However, as noted, the various sources and techniques of long term financing of infrastructure improvements, such as special infrastructure assessment districts, are not necessarily available in Russia at this time. Utility charges presently cover only a portion of system operating and maintenance costs, let alone costs of capital investment and repair. In the absence of long term financing, it is perhaps possible to accomplish the same objective by using general city resources to fund infrastructure improvements, but this also may also be unlikely in Russia today where municipal budgets are under considerable stress.

To avoid placing too heavy a burden on new development, the challenge in Russia will probably be to devise ways to finance infrastructure upgrading and improvement without placing



extraordinary demands on current investors—or, put another way, to spread the costs of development of infrastructure over time and a wider universe of users. This goal may require further development of alternative financing mechanisms for cities and utility companies as well as close consideration of the present system of collecting infrastructure charges. However, this is not to say that the marginal public costs associated with new development should not be paid by those who benefit.

### ***State and municipal property***

On a related issue, while the municipality and the state remain the largest landowners, the question arises whether the state should be expected to pay its share of the costs of infrastructure improvement which benefits the property which it continues to own, lease and sell. In the absence of cost sharing by the state, it is likely that private property will bear a disproportionate burden for infrastructure finance, the state will receive a windfall in an increase in the value of its property, and state decisions on use and sale of property may be distorted because the real costs of its use are not included in rents and sale prices. A likely result might be, for example, that government agencies will occupy more space in more valuable locations than would be appropriate if all costs were taken into account.

## **VI. LEGAL ASPECTS OF INFRASTRUCTURE EXACTIONS**

The legal basis for imposition of infrastructure exactions in Russia today appears to be found in three sources—the ability to set the prices for sale or lease of state-owned land and other real estate;<sup>1</sup> the power to regulate the uses made of land;<sup>2</sup> and the ability to impose charges for connection to municipal utility networks.<sup>3</sup>

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<sup>1</sup> The main laws regarding allocation of land for urban development projects include still the 1992 *Land Code of the RSFSR*, which has not been superseded at the time of this writing although a new land code of the Russian Federation has been adopted by the State Duma and awaits action of the Federation Council and President. Under that law the local Soviet, which was replaced by the local administration in the President's 1993 decree No. 2287 entitled *On Modifying the Land Laws of the Russian Federation to be in Compliance with the Constitution of the Russian Federation*, was permitted to negotiate and impose conditions on the allocation of land plots for non-agricultural purposes. (Article 29) These conditions often included construction or improvement of local infrastructure networks. More recent laws dealing with the sale of land plots, in particular the *Law On Principles of Local Government* (No. 154-F3, August 28, 1995), make it clear that local governments have the authority to set the terms for privatization or use of municipal land.

<sup>2</sup> The most significant law dealing with urban planning and development appears still to be the 1992 *Bases for Urban Development in the Russian Federation* (No. 3295-1, 14 July 1992). Under the terms of this law it is clear that the local agencies of urban development and architecture have the obligation to assure appropriate development, use and conservation of public facilities such as utility networks. (Article 10) Moreover, urban development activity, which is specifically defined to include development of utility infrastructure, may be undertaken at the expense of the private financial resources of investors and developers. (Article 12)

<sup>3</sup> The law establishes the development contract as the main document governing relations between subjects of urban development activity, which may presumably include a project development agreement between a city and a project developer. (Article 11) Also identified as fundamental legal documents are the decisions and agreements pertaining to allocation of land for development and issuance of construction permits. Where municipal utility companies are also municipal enterprises, the right to set and regulate charges for services is granted in the



Exactions are frequently imposed as part of the "price" for purchasing or renting land for development. In effect, contributions to infrastructure are in this case a form of "in-kind" purchase price. Contributions are also exacted in the process of issuing land use and construction permits under the municipality's general authority under urban planning laws to prevent the adverse consequences of new development. Typically such contributions would consist of requirements to bring infrastructure up to technical standards as a condition of proceeding with construction. Perhaps the most frequently seen form of infrastructure exaction in Russian cities today is the charge to connect new projects to utility networks, which is imposed under the general legal authority to set utility rates and charges.

Unlike many developed market economies, Russia presently lacks laws of urban or infrastructure development which specifically deal with the issue of imposition of taxes and charges for the construction of municipal infrastructure.

### **A. Taxes and Exactions**

In theory, infrastructure exactions are not taxes, though they often resemble taxes. The distinction often made is that taxes are not connected with payment for any particular service or reserved for any particular purpose, but rather are imposed generally on the basis of scheduled formulas. Infrastructure exactions on the other hand are tied, at least in theory, to reimbursing the city for infrastructure services provided to the development site, and are often imposed on a case by case basis depending upon the actual impacts of the proposed development projects.

In many nations the ability of municipalities to impose taxes is limited by the laws of higher jurisdictions to specified cases, and any local tax not specified in those laws is prohibited. It therefore becomes necessary to maintain the distinction between taxes and fees or user charges, and the laws of many nations strive to assure this distinction. This is frequently done, for example, by requiring that any infrastructure exaction be related directly to benefits provided to the project charged with the exaction, that the municipality seek only to recapture its actual costs, and that the charges be imposed only in accordance with an approved physical and financial plan of development of the city.

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Law On General Principles of Local Government. Where local municipal services companies are private enterprises, the right to set fees for products is inherent in the nature of the private enterprise, but in the case of charges for municipal services the right is subject to the limitation that such charges may be subject to regulation by various public authorities. See generally, *Regulation On State Regulation of Tariffs On Electricity and Heat*; *RF Government Decree On Transition to New System of Payment for Housing and Communal Services* (No. 935); *Law On State Regulation Of Tariffs On Electricity and Heat* (1995); *Presidential Decree On Measures for Regulation of Natural Monopolies in the Russian Federation* (No. 220); *Presidential Decree On Measures to Right State Regulation of Prices* (No. 221). It is also noteworthy that the 1995 Law On Principles of Local Government did not repeal the provisions of the 1991 Law On Local Self Administration in the Russian Federation which authorized local governments to assure their constituencies of fair prices, particularly with regard to communal services, regardless of whether or not a communal services enterprises was private or municipally owned.



This issue is not only prospective in Russia, but immediately relevant because the Russian tax system is also defined on the basis of federal law. The taxes which regions and localities are permitted to impose are described in the Russian Federation Law On Fundamentals of the Tax System, and by implication any local taxes that go beyond that law are not permitted. Localities in the Russian Federation are not permitted to impose taxes on the profits of land development activities, or for general support of city infrastructure. The law allows certain local taxes for maintenance of open spaces, educational infrastructure, and the housing and social facilities fund, but in each case these taxes are limited to a specified percentage of corporate income after federal profits taxes have been paid. That is, both the maximum amount and manner of imposing the tax is defined in the federal law.

As private development increases in Russian cities, local authorities seeking to structure a system of infrastructure exactions may find it necessary to avoid conflict with the tax legislation and give attention to those issues which serve to distinguish an infrastructure exaction from a general tax. Those issues might include:

- is the exaction related to actual costs or expenditures of the city which directly benefit the project charged?
- are the proceeds of the charge applied toward the intended and limited purpose of infrastructure, or used for general municipal purposes?

## **B. Relationship to Land Use and Planning Laws**

A system of infrastructure exactions can have a close relationship to the system of land use and development controls. One of the most important relationships is the requirement, existing in some countries, that infrastructure exactions be imposed only on the basis of a well conceived and publicized plan of city or area development. Rarely are infrastructure exactions imposed on a hypothetical basis, but instead are tied to actual plans for growth in the area in which the charged projects are located. A plan of development allows evaluation of exactions in terms of amount and fairness of allocation, as well as monitoring expenditures of the proceeds of the exactions. However, the aspect of the urban planning laws with perhaps the greatest impact on infrastructure exactions is the power to grant and withhold land use and construction permits.

### ***Power to Withhold Permits***

Where most urban land suitable for development is owned by the state or municipality the required contribution for community infrastructure can be negotiated in the process of land allocation and becomes a part of the price for acquiring the land rights. In those cases, the power to issue and withhold land use and construction permits do not come into play.

Where most land is privately owned the planning laws may specifically allow the municipality to exact contributions to infrastructure as part of the process of issuing land use and construction permits, sometimes setting standards by which exactions are to be assessed. This is typical, for example, in places which explicitly recognize use of the "development agreement." However, even

in the absence of specific statutory authority the power to grant or withhold land use is often used to pressure developers into making infrastructure contributions, as it is usually not too difficult for planning authorities to find some reason why a proposed project does not meet the required technical standards. In such cases the issue becomes one of whether the exactions demanded by the city exceed the authority granted to it under the law or are otherwise unreasonable under the circumstances. In the most extreme cases, a land owners may argue that the state has in fact confiscated his land without compensation by unlawfully denying him the right to develop it.

These legal issues have not yet arisen in Russia because most infrastructure exactions are still imposed in the process of allocating publicly owned land or structures to the private sector developer. It may be expected that so long as most urban land remains in the ownership of the municipality, use of development or land allocation agreements will continue in Russia unchallenged. However, the situation may eventually arise where most land and structures are privately owned and sold and the city's ability to induce contributions will be through the regulatory process, in which case the city would be extracting contributions from developers by withholding planning and construction permits.

The legal implications of this situation may become more unpredictable in Russia as the concept of private property rights becomes more developed, and if the discretion of local authorities to withhold permits becomes more limited by detailed planning laws which make it easier to determine when local planning departments are abusing their authority. It is conceivable that attempts to extract contributions to city infrastructure on the threat of withholding development permits, in the absence of some other legal basis, may become subject to legal challenge as a violation of authority, or even unlawful confiscation of private property rights without compensation.

### ***"Sale" of Permits***

The other side of this coin is the power to grant permits. An issue which sometimes arises is the scope of the planning authority's discretion to allow construction of projects which would not otherwise have been permitted under the land use laws, or to waive or grant exceptions to rules in return for generous contributions to the city's infrastructure. There is always the temptation to "sell" permits in return for timely and needed contributions to the city's infrastructure.

The question of the extent to which sound planning principles can be ignored in the process of negotiating infrastructure contributions is important not merely from the perspective of good planning, but also from the perspective of public perception of the city development process. The public may come to believe that the quality of urban life is for sale to those who are willing to make generous contributions to the city's budget, thereby undermining trust in the urban planning process. It is true also that the ability to waive or grant exceptions to rules may be subject to corruptive influences, documented in other countries, where certain "contributions" from developers do not find their way to the city's treasury.

At the same time, the ability to negotiate development agreements and developer contributions to infrastructure development on a case by case provides certain benefits. It allows the required contributions to be matched to the actual costs imposed by the project, rather than



calculated by a predetermined formula which may not take into account unique features like location, topographic conditions or impact on surrounding areas. Negotiated solutions may also allow the city greater flexibility in adjusting exactions to the conditions of the market—for example, by attempting to exact greater contributions in times of exceedingly high development profits caused by rapid growth and short term shortage of product. Moreover, as a general rule, where demands are kept reasonable and fair, cities and developer are comfortable with negotiation.

The answer to these apparent conflicts between the usefulness of negotiations and good public administration may be found in appropriate laws which clearly define the planning authority's scope of discretion—that is, the points beyond which they may not go in negotiating development agreements. This may be achieved by defining in the laws the instances in which waivers, modifications or exceptions to land use regulations may be granted, and the technical limitations on altering the existing rules. Secondly, one of the best approaches to protecting against ill considered sale of urban development privileges is to assure that land use proceedings and any results of negotiated development agreements are widely publicized and open to the public, so that the public can participate in the decision of whether the trade of permits for contributions is advisable.

### ***Transparency, Predictability and Uniformity***

One of the most important aspects of infrastructure exactions from the point of view of the investor is that the amount of the exactions be reasonably predictable before the project begins. With predictability the investor is able to determine whether under current conditions he can shift his costs to the purchasers or renters of the real estate which he develops. If charges arise after the land is acquired and the project planned, the developer may be put in the position of being unable to recapture his costs, which over the longer term may result in a decline in private investment. More important from the perspective of the city is that a likely result of unpredictability is that the shifting of costs will be to land prices—that is, given the uncertainty, the developer will assume the worst and reflect his assumptions in the one way he presently controls, which is to offer the lowest possible price for the land.

A related issue is that of uniformity, which is the expectation that similar projects will pay similar charges. Negotiated transactions may tend to result in widely disparate treatment of projects, based upon such factors as political connections, or even the negotiating ability of the parties to the transaction. This may tend to have adverse affects on achieving the most efficient use of land and resources, as some inefficient projects may proceed simply because through favorable treatment they avoid paying their fair share of costs. It should also be noted that discrimination among projects may decrease the ability of developers to shift costs forward to purchasers and renters of the real estate, as to do so may place the developer at a competitive disadvantage with other lower cost competitors who have received more favorable treatment in the exactions process. The result may be not only a less effective use of resources, but also an unfavorable perception of the process and declining interest in urban development as an investment.



Fixed schedules of exaction charges can perhaps address these issues by making charges transparent, predictable and applied solely on the basis of objective project criteria. Fixed schedules, on the other hand, frequently lack the ability to adjust charges to the specific costs and benefits of a given project or to the conditions of the current market. It is possible that fixed schedules can be refined to the extent that they take into account numerous project variables that may affect charges, and in fact this is frequently done in establishing exaction formulas. An alternative may be a combined approach which applies fixed formulas to certain charges which lend themselves to a fixed approach, but to define a certain set of exaction charges that may be subject to negotiation based upon specified project characteristics.

### **C. Control of Exactions by Independent Utility Companies**

It is clear that a substantial portion of network connection fees are shifted to the purchasers and renters of newly constructed real estate, and not by citizens living or operating businesses in existing properties. In effect, then, these fees become a charge for utility services imposed only on a small portion of the citizenry. Obvious questions arise such as whether such fees are fairly calculated and properly regulated, and for what purposes the proceeds of such fees are used.

Another basic issue is whether network connection fees serve or hinder the city's own planning and economic development policies. Are they in tune with the city's policy objective for growth, or do they discourage growth? Are investments made with the proceeds of connection fees applied toward the city's planned growth objectives in construction or expanding infrastructure? All of these questions take on more importance depending upon the independence of the organizations collecting the fees and the degree of their subordination to city policy on growth and expansion.

The utility network connection charge may be the most prevalent and perhaps burdensome form of infrastructure exaction in Russia today, and in many places the utility providers imposing the fees are now privatized firms largely independent of the city. As a legal matter, this situation concerns appropriate systems of regulation of utility providers, both the rates they charge and the uses to which their revenues are put. It is perhaps in the city's interests to assure that connection fees are fair, properly coordinated with other means of city finance of infrastructure improvement, and do not erect unfair and burdensome double charges on the development process, as well as to assure that the capital projects funded with the connection fees are coordinated with the city's growth objectives.



## **VII. INFRASTRUCTURE EXACTIONS IN DEVELOPED MARKET ECONOMIES**

Various approaches to financing infrastructure are taken in western Europe and the United States. Following are brief descriptions of some of the most prevalent approaches.

### ***Great Britain***

There are no mandatory infrastructure charges imposed on the activity of developing land and structures in Great Britain. The British approach to infrastructure exactions is essentially an outgrowth of that country's system of land use approval, in which there are very few urban development activities that may be undertaken by landowners without planning and construction approval from the local authorities. In addition, there are few significant constraints on local planning authorities when they are exercising their discretion to grant planning approval to proposed construction projects, thereby giving to the municipal authorities significant power to extract infrastructure contributions from land developers as the "price" of planning and construction approval. For example, local town plans are not legally binding on British municipal authorities, and each proposal for development may be considered by the planning authorities on an ad hoc basis on its own merits.

The system engendered by the British planning system is a "development agreement" system, in which the applicant/developer and the municipality agree by contract to certain undertakings regarding the proposed project, including the contributions the developer will make to the local infrastructure. A developer contribution under a development agreement can include contributions of land for open or recreational space or construction of public facilities, as well as cash contributions toward other public and social services.

There are no statutory provisions which either describe or require standardized rates and schedules for imposing infrastructure exactions. The development agreement approach was itself sanctioned in Section 106 of the Town and Country Planning Act, the basic town planning legislation of Great Britain, which provided simply that any local planning authority could enter into an agreement with a private landowner to restrict land uses; that such agreements could require financial contributions; and that they could be enforced by the municipality as if they were servitudes made to benefit an adjoining parcel of land. That law was superseded more recently by the Planning Compensation Act of 1991, which provides somewhat more detailed guidelines for development agreements, including explicit recognition of cash infrastructure exactions, but is nevertheless concerned primarily with the rights of municipalities and not the rights of private landowners.

The prerogatives of British local planning authorities are not totally unlimited, as Great Britain has a long legal tradition of protection of private property rights. It is conceivable that attempts by municipalities to extend their authority too far by demanding infrastructure exactions which are totally unrelated to the immediate project could be found invalid by the courts, but the line beyond which court intervention might occur is only vaguely drawn at this time.



The planning approval system of Great Britain is not without controversy, considered by some commentators as creating uncertainty in the development process which discourages investors from pursuing risky yet potentially useful projects; placing real property investment at a disadvantage in comparison with other forms of investment; and raising transaction costs. Necessarily, the "development agreement" approach to infrastructure exactions is subjected to the same criticisms—that it creates uncertainty in the investment process, places too much leverage in the hands of the municipal officials and encourages overreaching in their demands for contributions.

In many ways the system of Great Britain resembles the system of planning and construction approval presently in use in Russia, particularly in the absence of constraints on municipal discretion in the granting of land use and construction approvals, and it is therefore not surprising that the "development agreement" approach to exactions is frequently employed in Russia also.

Great Britain has made significant use also of various urban and economic development programs which have as their primary objective revitalization of declining cities and areas. Such programs are generally created under national legislation but operated by local or regional public development corporations with the powers to acquire land; perform urban planning; finance and install or upgrade infrastructure; and sell improved land for private development. Where powers of land acquisition and development are used by public development corporations a portion of infrastructure costs are paid by sale of the improved land, a portion by developer contributions, and a portion by public subsidy. The thrust of most of these programs has been to create economic activity and employment by attracting business and industry, as well as to upgrade housing opportunities for persons of low and moderate income, and projects sponsored by such urban development corporations frequently benefit from government subsidies rather than pay the full costs of infrastructure development.

### ***Germany***

There is no mandatory infrastructure charge on development of land or structures in Germany. Charges are imposed for public improvements provided by the municipality to serve a particular land parcel, and are limited to actual costs.

Assessments for infrastructure in areas of new development or city expansion are frequently tied to a process of land boundary rationalization, a complicated process whereby the municipality seeks to rationalize land boundaries in a designated redevelopment area to facilitate municipal planning objectives. This process frequently involves redrawing land plot boundaries to eliminate small and unusable lots as well as to provide better planning for streets, roads and other public spaces. In effect, the designated area is planned for renewal along more efficient lines of land use. This process might involve, but does not necessarily require, that the municipality acquire certain private land rights. Upon completion of the planning process the newly designed land plots are redistributed to their former owners on an equitable basis or plots owned by the municipality are sold to new owners. Land necessary for installation of streets, roads, open space and other infrastructure is retained by the municipality.



German law regulates the charges that can be made against land owners for infrastructure improvements. The maximum amount that may be charged to landowners is 90 percent of the municipality's actual costs, but the amount actually assessed against the landowners can be lowered by municipal ordinance. Fees are based on actual costs or on a standard schedule of charges and can be charged only for streets and roads, open space, playgrounds and other public facilities. Fees may be assessed on the basis of different factors, including the type and intensity of land use, the gross size of land plot, or the frontage of a land plot on public thoroughfares, and are collected either before or following completion of the public works, at the discretion of the municipality. Charges are imposed under a development agreement between the landowner and the municipality. Charges are based upon the maximum allowable development density under the municipal planning ordinance, and not on the actual intensity of development, giving landowners strong incentive to achieve the maximum allowable intensity of use.

If land rights are not acquired and redistributed by the municipality in connection with the land boundary rationalization process, the municipality has the right to require landowners to pay the difference between the value of their land plot prior to installation of new infrastructure and the value of the new, fully serviced land plot after the completion of the boundary adjustments and the new infrastructure. This right is also generally applicable in all designated urban renewal areas, in which landowners can be made to pay the difference between the value of their land before renewal and the value after renewal.

German municipalities are also now engaging more directly in the land development process through powers of acquiring large parcels of land, providing the necessary infrastructure and then selling the land to private developers for market prices that may cover the costs of acquisition and infrastructure improvements.

Some forms of utility infrastructure—including water, sewer, and energy—may be passed on to land owners only in certain circumstances, and in some cases the level of allowable charges against the land is limited to 50 percent of actual costs, not 90 percent. Costs imposed on land owners for infrastructure development are regulated by law and, as in most other places, the costs of maintaining and upgrading existing infrastructure in established areas are financed largely from utility connection and user charges.

### ***Sweden***

There are no mandatory infrastructure charges imposed on the act of developing land or structures in Sweden. However, to construct and improve infrastructure Sweden employs a wide range of tools, including assessments against all land owners in designated urban improvement areas; development agreements; and land allocation agreements. Municipalities generally are responsible for infrastructure development, either directly or through public corporations. Charges are imposed only in connection with actual improvements made to infrastructure for which the municipality is legally permitted to pass costs on to all land owners and developers.

In designated areas of new development or expansion Swedish municipalities make use of the special assessment against all land owners. Charges are levied on all land owners in a



designated improvement area after construction of infrastructure improvements is complete. The portion of costs actually recovered by the city will depend upon the city and how its program is structured. However, charges are limited by law to the actual costs of construction of the public improvements, and may be assessed only with respect to improvements which directly serve the land charged with the costs of the improvements. Under this approach, major infrastructure facilities (primary infrastructure) and certain aspects of social infrastructure, primarily educational facilities, may be financed only through general revenues and taxation, and not through special assessments against benefited landowners.

The special assessment against all landowners within a designated urban development district is generally applied to finance public improvements such as streets, roads, opens spaces, recreation and surface water management. Installation and upgrading of utility networks for services such as water, sewer, district heat, electric and telephone are generally financed by connection charges imposed in accordance with fixed fee schedules based upon project parameters such as number of connections, number of dwelling units and floor area, and user charges assessed against all users. When imposing connection charges the municipalities are limited to recouping the cost of construction of the local network which directly services the land charged. User charges, on the other hand, are used to pay for city-wide installations (primary infrastructure) a well as to fund current operating and maintenance costs of the entire system.

In expansion and new development areas Swedish municipalities also rely on the "development agreement" form of contract between the municipality and the land developer which defines the obligations of each of them with respect to a development project, including the type of project to be built and the sharing of infrastructure costs. Such agreements are sometimes demanded by municipalities as a condition of proceeding with land use applications and building permission, and will usually be signed before the final approvals and permits are granted. Contributions received by the municipality are either in-kind or in cash, and sometimes both, and can be applied to all forms of infrastructure. To prevent abuse of the substantial power over private property rights this gives to the city, the municipality is prohibited by law from demanding payments—either in kind or in cash—which it could not legitimately demand under the legislation which generally limits the city to reimbursement for its actual cost of facilities which serve the land charged.

In situations in which the municipality is itself the landowner, which may occur in areas of expansion or urban renewal, the city is free to impose conditions on the designated developer through a land allocation contract, which will contain requirements for infrastructure contributions similar to those found in a development agreement, but which are not subject to the same legal restrictions as the development agreement. In the land allocation agreement the city, as owner of the land, acts as would a private sector participant in the land market and its ability to extract contributions from the developer arises from the desirability of the land it offers to sell, not from its ability to refuse to issue development permits. In that respect, the city's ability to demand contributions for infrastructure is constrained by the market—if the city's demands are considered too harsh there will be no buyers for the land.



In Sweden there also exists under the Joint Land Development Law the possibility of land boundary adjustment and rationalization over large areas on a cooperative basis between the municipality and landowners. This process is similar in many respects to the land boundary rationalization process employed in Germany and described further above. The process is often undertaken by a joint legal entity created by the parties. In the process land is set aside for installation of desired infrastructure, and infrastructure is upgraded or installed, sometimes by the joint legal entity and sometimes by the municipality, depending upon the nature of the agreement.

### ***Netherlands***

There is no general infrastructure charge on the activity of developing land or structures in the Netherlands. Payments toward infrastructure development are made only in connection with the actual improvements provided by the city and are imposed through sale of improved land or through improvement assessments against all current land owners in an area receiving the benefit of city infrastructure improvements.

Dutch municipalities frequently take a leading role in making urban land available for development by constructing necessary infrastructure, and are in fact the leading provider by far of serviced land for development. Usually, the municipalities do not own large stocks of undeveloped land, but rather acquire land on a case by case basis to implement their planning and urban development objectives. The Dutch urban planning laws require that municipal land development plans be approved by higher levels of government, and that a condition of approval is that the municipality's plan be economically feasible. Feasibility is demonstrated by an analysis accompanying the plan which shows that the city's costs of acquiring and improving the land with infrastructure—a process which is generally financed by private bank loans to the city—can be recouped from sale of land to private developers, imposition of other taxes on existing landowners within the development area, or a combination of land sales and assessments against current land owners. The objective of the process is not to make profit, though profits are legally permitted and do occur, but primarily to implement the city's planning objectives and recoup its actual costs.

Having acquired the land and constructed the necessary infrastructure, the municipality is required to recoup its actual costs in the price of the land which it sells to private developers. If there are existing land owners in an area in which infrastructure facilities are constructed or improved by the city, the municipality is authorized to levy a tax on such owners—an improvement tax—which is sometimes repaid by the land owner over a period of up to 30 years. However, the improvement tax may not be charged to existing landowners if it is shown that the city is able to recoup all of its costs from sale of the land parcels which it owns.

Beyond these assessments in connection with actual improvements made by the municipality in designated areas of renewal, development or municipal expansion, the Dutch system relies on infrastructure connection and user charges as well as general revenues from property and other taxes to support the maintenance and operation of community infrastructure.



## **France**

In France there is a mandatory charge against new development to support infrastructure, appropriately called the infrastructure development tax. The infrastructure development tax is a local tax which raises a substantial amount of revenue for local governments. It equals a fixed percentage—about 1 percent—of construction costs and is assessed upon issuance of permits for construction and reconstruction of buildings. It is generally based on the value of the building, its floor area and the quality of construction. The amount of the tax is specified by schedule and paid upon issuance of the building permit. The proceeds of the tax are intended as a contribution to infrastructure costs on a city-wide basis, and have no necessary relationship to the actual costs imposed by the project charged or to the type of land use being taxed.

France also has available a wide range of other legal tools to impose infrastructure exactions, including special taxing areas; development agreements; and levies on new construction based upon floor area and intended to recapture some of the non-specific benefits to land owners from municipal infrastructure.

Special taxing areas in which all owners will be required to contribute to infrastructure development or improvement may be created by act of the local council. Creation of the special taxing district is closely regulated by law, and is subject to basic principles which include: (1) limiting the taxes collected to the actual costs of the infrastructure provided; (2) requiring that the assessments against owners be based upon a detailed plan of infrastructure development which identifies the products, their costs and the schedule of completion; and (3) allowing owners to demand a rebate if the promised infrastructure is not completed on schedule. The special assessments are generally based upon floor area, but may be apportioned differently among types of uses and buildings. The actual payment may be in cash or in kind.

Development agreements are the same as in other nations, and consist of contractual undertakings of the municipality and the developer regarding the project and contributions to infrastructure. Generally the development agreement, as in other places, is most often used in expanding and redevelopment areas in which the municipality is engaged directly in land clearance and development or otherwise has substantial control over planning and land uses which allow it to extract concessions from the prospective developers. For example, in France such an area would be a so-called zone of comprehensive development, in which development or redevelopment is undertaken in accordance with a comprehensive scheme, either by the municipality or by private entities under contractual obligations to the municipality.

France also uses a tax to capture the surplus benefits provided to landowners by land use controls and city infrastructure services, which can be called an "improvement tax." This tax is based upon the premise that public services provide certain value to private landowners that are not repaid to the city through the usual utility rates and other development taxes. Accordingly, the tax permits municipalities to establish a standard, or average, ratio of permitted floor area to land area (not less than 1.0) throughout the jurisdiction, and to impose taxes on any development which under the local plan is permitted a higher ratio. The tax is calculated in terms of the market value of the additional land that would have to be purchased by the developer to construct his project if



the average floor area ratio were to be applied to the project on an actual, and not a theoretical, basis.

### ***United States***

Land use and development decisions in the United States are governed almost entirely by the laws of the 50 states, which in turn delegate considerable authority for land use management to municipalities. Law and practice differs among the states, and consequently the United States presently employs perhaps the widest range of infrastructure exactions of any developed market economy, making use of mandatory on-site and off-site contributions; in-kind contributions of land and other facilities in connection with land subdivision proposals; payments in lieu of in-kind contributions; mandatory, scheduled impact or development fees; and development agreements between municipalities and private developers.

The land subdivision laws of practically all American states require provision of the usual on-site facilities such as roads and streets, surface water management areas, and required green spaces for recreation or conservation. Frequently, the land for these facilities is required to be donated to the ownership and management of the municipality. Moreover, depending upon the size of the proposed development, mandatory requirements may include land for social facilities such as schools, police and fire stations.

In some places, in lieu of donations of open space land to the community, land subdividers are permitted to make cash payments of equivalent value, which frequently are segregated by the community for necessary land acquisitions and utility improvements.

While the use of mandatory land donations in connection with subdivision of land has been in existence for many years, more recently, perhaps since the 1970s, American jurisdictions have also been imposing mandatory "impact" or development fees directly on the development process. The impact fee is imposed on all development—residential, industrial and commercial—and is not necessarily related to the subdivision of land. Such fees are generally structured as a scheduled fee for each unit of residential housing, or for each square meter of constructed factory, office or retail space. Where they exist, impact fees are supposedly based upon a close economic analysis of the actual costs imposed by the new development on the municipality, and the law of many places requires them to be related to actual costs. However, as determination of actual impacts is often extremely difficult, it is likely that in most circumstances the fees are at best based on intelligent estimates.

Perhaps 25 American states permit impact fees by law as a means of exercising the municipality's obligation to protect citizens against the adverse consequences and costs of new development. While the size of impact fees varies among jurisdictions, it is likely that in few instances does the size of the fee exceed 2 percent of the total cost of the construction project, and under most situations the actual size is under 1 percent of total cost.

Issuance of planning approvals and building permits in the United States is not in the complete discretion of public authorities. Because of its long history of respect for private property



rights, and a preference for allowing relatively unhindered use of private land, planning and building authorities have historically been held to somewhat strict legal standards when declining to issue a planning approval or building permit. A fundamental aspect of this approach has been that the standards for development have always been set out in considerable detail in local plans and regulations, which are legally binding upon the authorities as well as land owners. Nevertheless, systems of planning control are difficult to design without giving considerable discretion to local authorities, and the discretion of local planning authorities to approve or disapprove development projects appears to be increasing. Accordingly, it has been the long practice of American developers to "volunteer" to make cash or in-kind contributions to improvement of the community infrastructure even though there was no legal requirement to do so. It was found that such voluntary contributions could expedite and provide greater certainty to the planning approval process. Such voluntary contributions were then reflected in the planning conditions of the project and would become a legal obligation of the developer.

Actual negotiated agreements between developers and municipalities for cash and in-kind contributions to the community had in the past been prohibited under the laws of most American states as unlawful "sales" of planning and construction permits, which explains the use of the voluntary developer contribution, a transparent ruse under most circumstances. However, in recent years the use of actual negotiated development agreements has been sanctioned by law in some places, and may increase. The development agreement is an actual civil contract between the municipality and the developer which set out their mutual obligations with respect to development of the proposed project, most particularly the required cash and in-kind contributions for community infrastructure. Such development agreements are legally binding contractual relationships which are the basis for planning approval and issuance of building permits.

In a limited number of American localities the infrastructure exaction has been extended to the broadest form in which developers of non-residential facilities—primarily center city office space—are required to either build a given amount of housing for persons of low and moderate income, or to contribute to a housing fund an equivalent amount of cash. The theory in these cases is that new office development creates jobs, which in turn creates demand for nearby housing. In the absence of new housing construction the demand for more housing will simply increase the rents and prices of existing housing for all citizens, an impact that should be alleviated by the development by construction of new housing. As a matter of economic theory this is plausible, but there is only a limited amount of empirical evidence to support the hypothesis at this time, or to give any indication of the actual scope of the problem on which to calculate exaction demands against developers.

Despite the existence of these many forms of infrastructure exactions, the discretion of municipalities to demand contributions from developers is rather strictly limited by law. Where impact or development fees exist, the circumstances in which they be imposed, the uses to which they may be put and the methods by which they must be calculated are defined in law. Moreover, the imposition of fees on the development process have sometime been interpreted as taxes by the courts, and development taxes are generally not permitted to be levied by municipalities in the absence of state legislation; accordingly, great pains are taken to avoid characterization of development fees as taxes. In addition, the United States has a strong legal principle against



taking private property without just compensation, and the requirement for mandatory fees and in-kind contributions of land rights—particularly contribution of land and public easements on private land—is under scrutiny as an uncompensated confiscation of private property through the regulatory process.

The United States has an extensive and highly developed system of local infrastructure exactions. It is often argued that the real purpose of many local infrastructure exactions in the United States is the political objective of slowing or preventing municipal growth so that additional costs and taxes are not imposed on present residents, and there is perhaps a great deal of truth to this allegation. However, to many people slowing the rate of growth means simply that rational growth controls are imposed, and promoting rational growth is a legitimate function of a municipality. In many ways the entire issue of infrastructure exactions is under close legal scrutiny in the United States at this time and there may be significant development yet to come.

### ***Common Approaches***

How a country approaches the issue of paying for new municipal infrastructure will depend upon many factors, including the legal status of private property rights; local traditions in the approach to urban land development; growth pressures; and the types of financing mechanisms available to local governments. However, there are certain common threads running through the practices of many countries in the design of infrastructure exactions. These common threads can perhaps be summarized as follows:

- Collection of charges frequently arises out of the legal right of public authorities to regulate land uses to protect the public health and safety, and is an extension of well defined planning and land use control systems which are expressed in law. In most instances infrastructure exactions may only be imposed in connection with implementation of a well defined infrastructure plan which is created and approved in accordance with law.
- The approach to infrastructure exactions, and how much of the actual costs of infrastructure are allocated directly to private land development activity, may depend upon planning and economic objectives of the city. Cities concerned primarily with economic growth and inducing private investment may often choose policies which spread infrastructure costs over the population at large by relying on general taxes rather than infrastructure exactions, thereby providing a form of subsidy to land developers.
- Most of these countries use a combination of various means to support infrastructure development and improvement, including special assessments against all landowners in a designated district, scheduled "impact fees," development and land allocation agreements, and utility connection charges. While they do exist, there are few instances of a general tax being imposed on the activity of new development or rehabilitation of land and structures in support infrastructure development.
- Generally, the amount of charges that may be levied by public authorities are directly related to actual public costs incurred in a specific infrastructure project, and are limited by



those costs. Profit is permitted in several systems in which municipalities directly engage in land acquisition and development, but is generally not a key objective of the activity.

- In most systems the charges against a project are only for direct and immediate benefits to the project charged, and not for city-wide infrastructure. Major infrastructure projects tend to be undertaken with other finance mechanisms, most frequently general tax revenues and user charges. In addition, most systems identify some forms of infrastructure—in particular that related to social services such as education, health, and public safety—that will be financed through general taxes rather than exactions against new development.
- Most charges are imposed in connection with specific programs of public improvements, either in areas of municipal expansion or urban renewal and rehabilitation. Repair and upgrading of existing utility systems is usually dealt with through connection charges to the municipal utility networks and through user charges.
- A widespread method of paying for infrastructure improvements is the special assessment district, which spreads the costs of improvements over all land owners in the district, regardless of whether they are presently engaged in land or real estate development.
- In most systems there are legal limitations on the ability of the authorities to demand payments or contributions toward public infrastructure as a condition of issuance of a land use or construction permit.



## VIII. INFRASTRUCTURE EXACTIONS IN RUSSIAN CITIES

For this paper information on development exactions was sought from seven Russian cities of various sizes—St. Petersburg, Moscow, Tver, Ryazan, Vladimir, Chelyabinsk and Gus-Khrustalnyi. Questions to the cities sought to arrive at an overview of current practices, and not their details. The responses to the general inquiries about land development charges and fees in those cities can be generalized as follows:

- Only two of the seven cities are presently imposing infrastructure exaction charges which clearly meet the definition provided in this paper.
- Cities may take into account the value of infrastructure provided to a land plot when determining land prices, rents and taxes, but the component of these items attributable to infrastructure costs is not readily apparent. While amounts collected from land rents and taxes are required by law to be segregated in the budget and reserved for land related projects—specifically including urban infrastructure improvements—how much of the amounts collected, if any, is actually dedicated to infrastructure projects depends upon the city.
- Infrastructure exactions are imposed in-kind or in cash on a negotiated basis under a “development agreement” system which includes lease and other land disposition agreements (use, ownership) between the cities and the developers. These agreements are negotiated on a case by case basis and frequently reflect the infrastructure payments or work to be carried out by the land developer.
- In cases where infrastructure is constructed or extended to serve a particular development project, it is today almost always done by the developer or by the city with 100% reimbursement from the developer.
- The connection charge to municipal utility networks remains a main form of charge for infrastructure, and the procedures for imposing and using the proceeds of connection charges vary widely among the cities.

### ***Fees and Charges***

Most cities impose various fees and charges for city services connected to land allocation and development, including processing fees for land allocation; land use and construction permit applications; review of architectural land engineering plans; preparation of architectural and planning permits; site survey work and permits for survey work; and in a few cases fees for use of “common lands” and for temporarily holding land off the market pending project approval.<sup>4</sup> While

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<sup>4</sup> The City of Chelyabinsk charges a negotiated fee for “use of common lands,” which are defined to include streets, roads, parks and other public spaces, and uses the proceeds of the charge to fund the planning work of the Chief Architect and road improvements in the city’s districts. However, the charge is not a general charge against all new development, but rather a charge based on actual use of the spaces by kiosks, signage or



there may occasionally be a margin of “profit” in some of these fees and charges, in most cases these fees are related to the actual overhead costs of the city bureaucracies involved in land issues and are not applied to capital construction; in most cases the fees are returned directly to the budget of the agency which imposes them.

### ***Land Rents and Taxes***

All cities are collecting land rent and taxes under the provisions of the Russian Federation Law On Payment for Land. Land rents and taxes collected under the Law On Payment for Land are virtually interchangeable, with taxes applying if the land is held in private ownership and rents applying if otherwise. For the most part, the law establishes a normative approach to rents and taxes, in which the charges are imposed in accordance with fixed schedules based upon land area, adjustable among districts or areas to account for location, quality of the land and, in cities, the quality of urban services and infrastructure in a particular district.

Most cities suggest that they do take the value of infrastructure and urban services into account when setting land rents and taxes in specific districts of the city. In Ryazan for example, there is a regulation that requires the availability and relative condition of the infrastructure to be taken into account when establishing rents and taxes in the city’s districts.<sup>5</sup> The regulation provides specific coefficients for deriving land rents and taxes from the city’s base rates, depending upon the availability and quality of infrastructure services.

In addition to the normative land rents and taxes set under the RF Law On Payment for Land, in the case of new allocations of land through targeted use applications and in competitive auctions and tenders land rents are generally negotiable and it is conceivable that the cost or value of infrastructure may be taken into account to some extent.

With few exceptions, it was not possible in the context of this paper to determine what portion, if any, of the city’s land rents and taxes is specifically calculated on the basis of the value of infrastructure benefits provided to certain districts of the city. Nor was it possible to determine what portion of the collected revenues were actually dedicated to infrastructure construction and improvement. Answers to these questions would be necessary to determine whether the land taxes and rents approximated an infrastructure exaction as defined in this paper.

Land rents and taxes are intended by law to support land programs and infrastructure development. However, despite the legal requirement most cities presently concede that the money is placed into the city’s general fund and they have no precise idea of how much is allocated to infrastructure, but estimate that it is roughly proportionate to the proportion of infrastructure expenditure in the city’s budget. In one case where a higher estimate was given it was estimated that about 80 percent of the land rents and taxes were allocated to land matters, which included not only infrastructure but also creation of a local real estate registration system.

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other activities—in other words, a rent for actual use of public spaces for commercial purposes.

<sup>5</sup> See Resolution of Mayor of Ryazan No. 744, March 27, 1995.



### **Land Sales**

Almost all of the cities questioned are able to take into account the costs of infrastructure in the sale of land or land leases. All cities reported negotiating land leases which include the developer's obligations to provide contributions to infrastructure facilities in-kind or in cash, and that the process of land allocation through lease or other means generally included some consideration of utility infrastructure costs.

It appears that in most cities the costs of new infrastructure provided to a land site allocated for development are borne entirely by the developer of the site, either in the form of in-kind construction or reimbursement to the city. For example, shortly before completion of this paper the cities of St. Petersburg and Tver completed large land auctions in which the city offered to developers land parcels fully serviced with new infrastructure constructed by the city, and included proportionate allocations of the cities' costs in the starting auction prices of the land parcels.

### **Network Connection Fees**

In all cities charges are imposed for connection to the city utility networks. The system of imposing network connection charge is largely unregulated and differs from city to city in the following respects:

- the manner of calculation—in a minority of the cities contacted connection charges are by fixed schedule, while in the others they are calculated on the basis of other considerations, including the actual technical conditions of each project, but often going beyond that to general considerations of system-wide plans for capital expansion and improvement;
- use of proceeds—in some cities the charges are allocated specifically to the communal services budget and used for general maintenance of the utility system, while in others the charges are reserved for capital improvements and expansions to networks;
- degree of regulation—one city had addressed connection charges by local regulation, several were considering such regulation at the time this paper was prepared, and others had not yet addressed the issue. At the time this report was prepared local regulation on utility connection fees existed only in the city of Gus-Khrustalnyi in the form of a resolution of the Head of the local Administration which required that fees be based on the actual costs of maintaining the city infrastructure system and that they be imposed on the basis of a fixed schedule of charges. Local regulation governing utility connection fees were under consideration—in some cases in very early stages—in the cities of Ryazan, Chelyabinsk and St. Petersburg.

In some cities the amount and unpredictability of network connection charges is viewed as a major barrier to private investment. Connection charges can range from 5 percent of a project's construction budget, as estimated in Moscow, to 60 percent, with 20 percent apparently being a typical charge. In one case the city's connection charge is a lump sum payment equal to the estimated costs of utility services (heat, water, etc.) consumed by the project in one year. The



construction costs on which the connection fee is based are typically determined on the basis of estimated costs at the start of the project or actual, certified costs upon completion of construction.

It should also be noted that most cities confirm that in lieu of a connection charge it is not unusual for the developer of a new project to be required to construct new infrastructure facilities in other parts of the city.

### ***Infrastructure Exactions***

Of the seven cities in which information was gathered, only two—Chelyabinsk and St. Petersburg—employed what can be characterized as infrastructure exactions as defined in this paper.

At the time this report was prepared the city of Chelyabinsk imposed a fee equal to twenty percent (20 percent) of the construction costs of an object to be constructed and connected to municipal utility networks, plus a connection fee base upon the technical conditions of the project. The flat charge based upon construction costs is clearly intended as a general charge for infrastructure support. Proceeds of the charge were deposited in an “extra-budgetary” fund of the city and used for capital construction which was not limited to infrastructure; funds could be used, for example, for housing construction.

The city was preparing another approach to infrastructure charges in a draft resolution of the Head of the Local Administration which would base future charges on a calculation of annual expenditures from the city budget in the prior year per square meter of a land site allocated for development. While on its face this calculation is related to the city’s actual costs from new development, obviously there is no necessary relationship between the city’s expenditures from one year to the next and the amount of land allocated for development.

The city of St. Petersburg began a system of infrastructure exactions several years ago by establishing a charge against all new construction in the city equal to approximately 85 percent of the construction costs of the object to be constructed. The charge was imposed as a condition of issuance of construction permits. All proceeds of the charge were deposited in a Fund for the Capital Development of St. Petersburg, which was allocated, with the Mayor’s approval, for various city rehabilitation projects. Projects include infrastructure repair and upgrading, but also include a wide variety of other capital projects, including restoration of buildings and monuments or construction of new housing.

The infrastructure charge in St. Petersburg was widely criticized by the city’s private development industry as excessive, and in 1995 the amount of the charge was reduced to 50 percent of construction costs, and more recently, toward the end of 1996, the charge was reduced to 25 percent of construction costs and the possibility of waiving the fee entirely for projects of social significance—such as new housing and restoration of historic buildings—was permitted. (In the past, the total charge was often negotiated and certain developers or projects would receive favorable treatment without apparent grounds.)



The city generally acknowledges that the infrastructure fee has had no necessary relationship to the actual costs imposed by the project or the benefits received by it—and that the charges collected do not necessarily go to the development or improvement of infrastructure at all. More recently, the city has proposed a further refinement of the approach to exactions which would base the calculation on an independent appraisal of the economic value of the project, adjusting the exaction charge on a case by case basis to reflect the economic realities of desirable projects, assuring a reasonable rate of return to developers and not discouraging good projects through excessive charges. The concept was still in development at the time this paper was completed.



## **IX. CONCLUSIONS AND RECOMMENDATIONS**

### **A. General Conclusions On the Russian Context**

The approach taken to infrastructure exactions is a complex outgrowth of many factors, including a country's legal and economic systems and its traditional approach to urban development. For example, Dutch municipalities assume a substantial role in providing new urban land for development which would be considered inappropriate in most American cities, though American cities do from time to time engage in direct acquisition and improvement of urban land for sale to private developers. Nevertheless, there are strong common threads running through the approaches take in most western nations, described above, which perhaps can be attributed to their established principles of private property rights and their fundamental similarities as market economies.

On the basis of the preliminary investigation done for this report several general conclusions can be made regarding the comparison of practices in developed market economies and prevailing practices in Russia today, including:

- There are both similarities and differences between Russia and developed market economies in the approaches taken to these issues. In practically all countries the ability to extract infrastructure contributions is enhanced by the authority to grant or deny land use and construction permits. Moreover, most countries now use some form of negotiated development agreement between cities and developers. However, imposition of infrastructure exactions tends to be more tightly controlled by law and regulation in the market economies of Europe and the USA, and nowhere is this clearer than in the case of the largely unregulated network connection charges in Russia.
- Russia does not use, and does not have the legal structure to support, many of the techniques which predominate in other economies, such as special taxing and infrastructure districts.
- Other places, perhaps because they have more assured sources of financing and long term municipal revenue, tend to spread the costs of infrastructure over more users and over longer periods of time than is presently achieved in Russia.

With respect to the situation prevailing in Russia today, the following conclusions are possible:

- In cases where land is allocated for development through negotiated lease or other disposition agreement it seems that the basis for calculating the developer's contributions to infrastructure is clear, at least with respect to the particular transaction at hand. It appears that at a minimum, new infrastructure which is constructed specifically to enable a land development project either will be constructed by the land developer or by the city with reimbursement from the land developer. In addition, however, it often is the case that the contributions required of any single developer may go beyond the needs of his single



project and include infrastructure improvements of a more general nature serving a wider area of the city.

While this approach is often clear and simple, it may have several drawbacks. First, the infrastructure constructed to enable any particular project may have far broader benefits than the immediate project, meaning that the developer will pay a disproportionate burden for infrastructure while some later land developers may receive benefits without costs. It may be possible also that the size of the burden may be prohibitive for any particular project, while if there were some means of sharing costs over time and among projects more projects could proceed. In addition, it is possible that in the absence of a standardized approach the contributions negotiated on a case by case basis may differ among projects, again unfairly distributing burdens and benefits and distorting investment decisions.

The use of negotiated agreements is not inappropriate, as it can have some positive benefits in terms of tailoring contributions to actual costs imposed by a project. One step toward improving this approach may be to establish a regulatory framework for imposing exactions in which negotiations may proceed with more certainty and fairness.

- In most cities there may be a component of infrastructure costs in land prices, rents and taxes—but in most cases how that component is calculated is not generally apparent. The laws on land rents and taxes allow the cities to consider several variables when distinguishing tax rates across city districts, only one of which is the value of infrastructure and urban services provided in the district. As a result, collection of infrastructure charges may be imprecise, inconsistent across projects or across different areas of cities. Nevertheless, it appears that in cities that have taken care to differentiate land tax and rental rates among districts, properties in districts with better infrastructure will likely pay higher rates.

Use of general land taxes and rentals to support infrastructure costs has certain benefits, including that such taxes and rentals are imposed generally on all property owners and tenants, and not just on new projects. In the law, however, there are limitations on the absolute amount of taxes which may be imposed on land, which limits the ability to fit exaction payments to actual costs of particular projects. When tax rates are differentiated it is on a district basis, and not among individual projects. Moreover, under the present system a wide variety of limitations on and exemptions from the land tax are established. For example, tax rates on residential property are limited to a small percentage of the average tax rate in the municipality, while in most places it is residential development that places the greatest burden on municipal infrastructure.

A great deal more investigation would need to be done to gauge the efficiency of using general land taxes and rents as infrastructure exactions, particularly in light of the limitations included in the present law on both the amount of the taxes and the method of their calculation .

- The fee for connection to utility networks seems to be a common approach to raising funds for infrastructure purposes. The nature of connection charges differs widely among cities, and may depend upon the extent of the independence from local administrations held by



municipal utility enterprises. However, as a general matter connection fees are unregulated and often may be high and unpredictable. Only a few of the cities investigated are actively considering a regulatory program for network connection charges. In addition, in most places there is no indication that network connection fees are integrated into a city-wide approach to infrastructure exactions designed to achieve city development objectives

- Whatever the source of fees and charges, it is likely that the collected revenues will be used for various purposes, including, for example, restoration of buildings and construction of social housing stock, and not only for infrastructure projects. Network connection fees, in particular, are likely to be included in the general revenues of the utility provider and used for a routine system operations. While land taxes and rents are intended to be dedicated to land related projects, including infrastructure development, the law allows a wide variety of such projects in addition to infrastructure. In the two cases where actual infrastructure exactions were imposed, the revenues were placed into non-budgetary funds maintained by the cities for capital construction of several types.
- Reflected perhaps in the growing concern with network connection charges in some of the cities, there appears to be increased interest in infrastructure charges and their possible impact on city development. Several of the cities investigated are already on a second generation of infrastructure exactions, attempting to refine ideas that were implemented some time ago and to base the approach more on actual costs and actual benefits received by the land charged with the exaction.
- Given the several possible sources of revenues to support infrastructure development costs—including land prices, rents and taxes and network connection fees—and the lack of precise techniques for calculating the infrastructure component of each of these sources, it is unlikely that the cities have a firm grasp on how such costs are distributed throughout the population, or the extent to which costs are actually reimbursed to the city. It does not appear that the various sources of reimbursement are related to each other in an integrated city development and financial policy.

## B. Suggested Policies

Based on the experience of other places, it may be possible to make several suggestions about implementation of program of infrastructure exactions in Russian cities. These suggestions would include:

- ***Critically evaluate proposals to impose discriminatory taxation on new development activities or place a disproportionate infrastructure burden on new development activities.***

There is considerable temptation to single out real estate development as a source of revenues for general municipal purposes. It is generally believed that real estate development is very profitable and can afford to pay significant fees and charges. It is also convenient because in Russian municipalities the city enjoys considerable power to extract payments from prospective



developers as the price of obtaining land rights or development permits. Further, federal law limits the types of taxes that may be imposed by cities, and the infrastructure exaction now appears to have escaped the characterization as a tax, allowing the city to impose them with few constraints. However, the likelihood is that the longer term effects of excessive exactions will be to discourage development of real estate or induce it to move to other geographic areas. In that sense, the real price of exactions may be paid by the city's residents in the form of fewer jobs and lower tax collections.

- ***Develop a clear understanding of both the burdens and the benefits of new development and its role in the local economy.***

New development activities produce income as well as costs to the city, though the income may be indirect and produced over a longer period of time. Municipal income increases from increased business activity, more jobs from construction and increased business activity, and increased tax revenues. In the long run, the financial benefits to the city from new development may outweigh its costs. Moreover, private investment in real estate development and rehabilitation can relieve the city of a long term financial burden by rehabilitating deteriorating structures and providing alternative housing outside of the social housing sector.

While new development should pay its fair share of costs, and appropriate infrastructure exactions may contribute to rational land use and development, a broad analysis of the costs and benefits of new development may suggest that city economic development policies and the general level of welfare would be better served by lower rather than higher exactions imposed on new development. Moreover, a comprehensive analysis of financial benefits from new development may justify spreading the costs over a broader population by using general tax revenues to support new infrastructure development.

- ***Consider whether the system of exactions results in more or less city revenue; will a higher volume of transactions compensate for a reduction of charges to individual projects?***

At any given time there will perhaps always be some development projects that are economically feasible despite a high burden of exactions. However, feasibility of a limited number of projects is not evidence that the existing system of charges maximizes the city's welfare. An alternative view is whether a decrease in burdens would encourage more projects over which costs could be spread, ultimately resulting in lower costs for each project and greater total revenue for improvement of city infrastructure. The question is whether city development objectives are better met by charging 10 percent of the development costs of 50 projects rather than 100 percent of the development costs of 5 projects.

- ***Develop a clear understanding of the types of infrastructure to be financed, the techniques available for financing, who will ultimately pay the costs, and the effects of the chosen techniques on such factors as distribution of wealth and public benefits in society.***



The process of implementing infrastructure exactions should be a careful one of identifying city objectives for growth and economic development and the potential impact of exactions on those objectives, both spatially and as a matter of the overall level of public investment. Secondly, it should consider other policy objectives of the city in terms of the fair allocation of costs and benefits among various segments of society. It is helpful to identify all of the sources of municipal revenue and how each source is used to support infrastructure development as a means of determining whether exactions are fair and achieve a proper relationship between use of infrastructure and financing of its costs.

- ***Impose infrastructure exactions on the basis of well developed plans for actual improvements. Limit infrastructure charges to the actual costs imposed on the city by the charged project or the value of benefits actually conferred on the charged project.***

Basing exactions on actual improvements to be constructed provides a means of measuring the economic costs and benefits of the proposed municipal project, determining a fair allocation of costs among land owners and users, and monitoring expenditure of exaction revenues. Limiting exaction charges to actual costs or the value of actual benefits has the least distorting affect on investment decisions. In addition, all of these policies help to create a perception of legitimacy for the process of imposing exactions.

- ***Charge exactions on a transparent, predictable basis known before a project commences.***

Uncertainty regarding costs is a disincentive to real estate development. Where costs imposed on the developer are arbitrary and imposed late in project planning or development the developer may be unable to protect himself by shifting costs either forward to consumers or backward to land owners. Likely results can be an overall devaluation of land, as developers reduce what they will pay for land in the expectation that arbitrary fees may be imposed at some later point in the development process, or an overall decline in real estate investment.

- ***Avoid the temptation to place the greatest burden on the projects which are next in line; attempt where feasible to defer payment of costs over a period of years.***

There is frequently a strong temptation to burden the next project in line with the costs of infrastructure development or improvement for a wide area, regardless of the fact that the development will actually use only a small portion of the infrastructure capacity in the area. Few projects can afford such costs. A more rational approach is to attempt to spread costs over time and over all real estate in an area, even if this means deferring repayment of the infrastructure development costs to a later time. This issue is a serious challenge for Russia today, as it requires development of techniques of long term finance either by the municipalities or by the companies that provide utility services. For example, the use of special infrastructure improvement and taxing districts, coupled with long term municipal infrastructure bonds, would be a model worth exploring.



- ***Integrate public utility connection charges into an overall city policy for infrastructure exactions.***

To the extent that network connection charges comprise one of the most significant, and unpredictable, elements of infrastructure exactions in Russian cities, it is advisable to attempt to integrate those charges into an overall regulatory policy which establishes transparent and reasonable charges for utility services.

- ***Place appropriate emphasis on user fees and charges as a means of providing for the usual maintenance and repair of utility networks.***

It is clear that city's cannot continue to finance capital maintenance and repair of utility networks by taxing new development; new development simply cannot afford to bear the burden alone and there is a basic issue of fairness insofar as existing structures receive a considerable windfall. To accomplish this transition it is vital that increased attention be paid to utility user fees and what they are meant to finance. It is not only fair to finance much of the cost of utility networks through user fees, but also an important means of inducing rational and economic use of utility resources.

### **C. Additional Legislation**

Some issues connected to infrastructure exactions may need to be addressed in federal or local laws or regulations. In particular, consideration may be given to the following:

- 1. Legislation granting authority to subjects of the Federation to authorize and regulate imposition of infrastructure exactions by local governments.***

Further consideration is necessary of the division responsibility in this sphere between the federal and local governments. There are several aspects of such legislation that suggest that some federal enactment may be necessary, including the need to assure that infrastructure exactions are not subject to challenge under the laws of taxation and the need to protect rights of private property against indirect confiscation through excessive exactions. Moreover, the enactment of national legislation could provide some uniformity. At the same time, the authority given in the Law On Organization of Local Government to subjects of the Federation and local governments to regulate urban and infrastructure development may be sufficient authority on which to base local legislation.

Any legislation should include the following provisions:

- **Definitions.** The type of mechanism authorized should be defined to distinguish it from other available tools, such as taxes on land and real estate, and to assure that all conceivable variations will be captured by the definition and subjected to the regulatory aspects of the law.

- **Authorization.** If federal legislation, it should authorize the subjects to enact their own legislation, and if legislation of the subjects of the Federation the law would delegate authority to municipalities and other sub-units of local government.
- **Types of infrastructure for which exactions may be imposed.** The law should consider the types of public improvements for which infrastructure exactions may be imposed, for example: roads and streets, parks, green space, water and sewer, district heating, and drainage management. By implication, the costs of other types of facilities, such as education and health care, would be left to general taxation. The law would further define what costs of infrastructure may be included in exactions, for example, land and construction; the imputed cost of land even if the city already owns it; etc.
- **Type of exactions permitted.** The law would define the specific types of exactions permitted, including cash payments or in kind contributions of land or infrastructure, and whether under some circumstances a certain type of exaction might be mandatory. The rule would be established that cash and in-kind contributions are to be equivalent in value, and that property owners would receive credit against cash exactions for any in-kind contributions.
- **Subjects of exactions.** The law would define the types of projects on which exactions could be imposed, for example new construction; rehabilitation of a certain value; or on all real property in a defined infrastructure improvement area which derives benefits from the infrastructure improvement. The law would deal with the issue of state sponsored projects and their obligation to pay exactions.
- **Limitations on exactions.** The law would include any desirable limitations on exactions, for example:
  - imposed only pursuant to an actual plan of infrastructure construction which includes cost estimates;
  - imposed only for new construction of infrastructure;
  - imposed only on property receiving the benefit of the new infrastructure;
  - allocation to property must be fair and proportional to the benefits provided;
  - exactions imposed only for the actual costs of improvements;
- **Allocation among projects.** The law would provide the possible bases for allocation among projects and authorize reasonable distinctions among residential, commercial and industrial projects based upon differing impacts of development; require that governments which impose exactions have a rational basis for distinguishing among projects on the basis of their impacts; and identify various means of allocation, including size, value, bedrooms, etc. The law would specify whether exactions were to be imposed by formula according



to fixed schedules, negotiated on a project by project basis, or whether both methods were permitted. To protect property owners the law could provide that cities could not impose higher exactions through negotiations than they would otherwise be entitled to under the law.

- **Timing of payments.** The law would define the times at which payments would be made, including, for example, at issuance of building permits, completion of construction, or, with respect to projects which are not new construction, at sale of the property. The law would allow exactions to be paid over a period of time connected to the financing for the infrastructure construction.
- **Use of proceeds of exactions.** The law would establish rules for use of proceeds, including, for example:
  - requiring segregated accounts;
  - allowing use only for planned infrastructure and in accordance with cost estimates;
  - requiring that funds be used within a period of time related to the project construction estimates;
  - requiring that money be returned to property owners if the planned infrastructure is not provided within the allotted time period or if the project is constructed for less than estimated costs.
- **Pledge of receipts.** The law would allow the city to pledge its receipts from infrastructure exactions to support municipal borrowing, including by municipal bonds.
- **Rights and grounds of appeals.** The law might set out the grounds on which property owners could appeal the imposition of exactions, such as violation of the permitted allocation mechanisms or disproportionate imposition of burdens

## 2. ***Enactment of a law on development agreements between cities and property owners.***

Related to the law on authorization of infrastructure exactions would be a law regulating the use of development agreements by cities. Regulation of infrastructure exactions would be of limited effectiveness if regulation could be circumscribed by the ability of municipalities to negotiate exactions using the leverage they have in the control of land use and construction permits. It appears that the use of development agreements is already legally within the authority of local governments under the federal laws of urban development. A likely approach to this issue would then perhaps be legislation enacted at the level of the subjects of the Federation.

A law on development agreements might include the following provisions:



- **Required contents of development agreements.** The development agreement should contain certain mandatory information and legal protections for the city and the property owners. These might include:
    - duration of the agreement;
    - the agreed uses and limitations on uses of the property;
    - the financial commitments of the property owner, in cash and in-kind;
    - the commitments of the city to provide local infrastructure, approvals and permits;
    - whether the agreement is assignable to successors of the developer;
    - the procedure for enforcing the agreement and the remedies available to the parties if the agreement is violated or cannot be fulfilled because of changes in law or circumstances.
  - **Procedure for approving and modifying development agreements.** These procedures may include a vote of the city council or another authorized board or agency, and may include also a requirement for public hearings on the proposed agreement or publication of the terms of the agreement in the local press prior to approval.
  - **Application of local laws and procedures.** The law should specify the extent to which a development agreement may waive or modify any existing laws or regulations of urban planning and development, including the general plan or any zoning laws, and whether the development agreement would be affected by any changes to the laws and regulations.
3. ***Laws might specifically allow special infrastructure taxing districts in which local taxes may be imposed specifically for the purpose of financing infrastructure.***

The tax laws do not presently contemplate special taxing districts within municipalities. Such districts are a typical tool of municipal finance throughout the world and may in some cases be useful in Russia. A law authorizing and regulating creation of special taxing districts could be enacted as part of a general law on municipal finance, which is beyond the scope of this paper, as part of the tax legislation, or as separate legislation. Determination of whether such a law should be enacted as federal legislation or legislation of the subjects of the federation would depend upon the issues to be addressed and further analysis of the existing laws, including the Law On Organization of Local Government and the laws of taxation. Typically the provisions of such a law would include the following:

- **Form of legal entity.** Special taxing districts can be simply designated on paper or can be independent public corporations with the ability to collect and manage the tax.



- **Criteria for creation.** In most cases there needs to be justification for creation of the special taxing district, and criteria may be established. The purposes for which special districts may be created would be identified. Special taxing districts have been created for purposes such as water and sewer infrastructure; transportation infrastructure; educational infrastructure; and general improvement and maintenance of important retail thoroughfares. Creation of the district may have to be supported with planning and fiscal projections.
  - **Method of creation.** Methods of creation may often include public hearings on the proposed district. In most cases the special district is established for a specific infrastructure project, but they have been used in some cases for ongoing management and maintenance of certain types of infrastructure facilities.
  - **Uses of tax revenues.** The purpose of the special taxing district is to reimburse the city for the costs of specific benefits provided to the district and property owners within the district. By definition the revenues cannot be used for other purposes. It is therefore necessary to specify the purposes for which the tax revenues could be used; whether they would be held in segregated funds; and whether there were special conditions for expenditure of the funds.
  - **Powers.** If created as a separate legal entity, the powers of the entity would need to be specified. These might include the general powers of a corporation as well as the powers to issue debt instruments and pledge the revenues of the tax collections.
  - **Method of allocation.** The law would provide the method of allocation of the tax among the property owners in the district.
  - **Methods of payment.** The law would specify the terms and timing of payment, including whether payment may be extended over a period of time and whether interest would be payable on unpaid balances.
  - **Penalties for non-payment and powers of enforcement.** The law would provide the penalties for non-payment of the tax and the means of enforcement. In many cases such taxes are by deemed to be in the nature of mortgages on all real property in the district, meaning that they are payable by any present owner of the land. Many laws make such mortgages superior to any other interest in the land, and they are automatically superior to the interest of any person who acquires rights to the property after the special district is created.
4. ***Enact a law of urban renewal or redevelopment which authorizes local urban development corporations with the authority to acquire and sell land, finance and install infrastructure improvements.***

Most developed nations have authorized special legal structures for urban development and redevelopment, usually in the form of specially created government or nonprofit corporations with the power to finance and construct infrastructure in city areas meeting certain criteria or



development and redevelopment. Such legal structures have demonstrated certain advantages, including the ability to act in private markets in a more efficient way than governments. While there are many models available, and investigation of the best models for Russian city's is only now underway, the concept may deserve further investigation. It seem clear that under the present laws such municipal legal structures could be authorized by legislation of subjects of the Federation. Typically, such laws include the following provisions:

- **Legal structure of the agency.** Often such agencies are independent public corporation under the direction of a board of director consisting of city officials and appointees of the mayor and local legislature.
- **Powers.** The powers of the agency are generally defined to include the usual corporate powers as well as the powers to:
  - acquire land and other real estate for redevelopment
  - undertake land clearance and development
  - undertake development of infrastructure
  - develop real estate
  - own and manage real estate
  - sell land and real estate
  - engage in urban planning of designated districts
  - borrow money, including through issuance of bonds and other debt obligations
  - impose fees for infrastructure within the district
  - pledge revenues
- **Project criteria.** The law will frequently define the types of project which the agency may undertake.
- **Area criteria.** Frequently the work of such agencies is based on the area or district concept, and the laws define the types of districts in which the agency may work, for example in terms of the level of physical deterioration, and the process of designating a district.
- **Assembly of land.** Special attention is frequently paid to the ability of the agency to assemble land or buildings for clearance or redevelopment through purchase or withdrawal and the conditions under which this is permitted.



- **Charges for infrastructure.** Special attention is paid to the ability of the agency to impose charges or exactions on property owners in a district to support infrastructure development.
  - **Sale of land.** Special attention is paid to the ability of the agency to sell land through negotiation or public tender.
  - **Awarding of contracts.** Generally the agency may award contracts for construction and services only through competitive procedures.
  - **Finance.** Generally, such agencies are permitted to borrow money and issue bonds and to pledge their revenues and property in support of borrowings.
  - **Contributions from the city.** The laws frequently authorize the city to make contributions to land and other resources to the agency to be held in ownership or trust management.
  - **Relationship to other urban development regulations.** Frequently the law will specify whether and to what extent within the designated development areas the agency is subject to or may override the existing urban planning criteria.
5. ***In the laws of utility regulation, address the specific issue of the conditions for network connection fees and the use of proceeds from connection fees, subjecting network connection fees to the same level of oversight and regulation as utility rates generally.***

The laws relating to regulation of local utility providers are only now in development. It seems that except in the specific cases provided in the federal laws relating to regional electric networks and gas networks, regulation of rates and connection fees of local utility providers can be undertaken pursuant to laws of the subject of the Federation and perhaps even local regulation. The primary targets of such legislation or regulations would be to:

- define the permitted purposes of connection fees;
- define the relationship of connection fees to other city infrastructure exactions;
- define the legal relationship between expansion and upgrading plans of the utility provider and the urban development plans of the city;
- provide a framework for establishing rate schedules for connections, including appearances and hearings before local utility commissions;
- define the permitted uses for connection charges, for example whether they may be used for ongoing maintenance operations or only to pay for the costs of capital projects;



- define the scope of capital costs on which connection fees may be based; whether it is permissible to include planned or actual projects; whether rates must be established by district in relation to specific projects or can include projects undertaken in the entire city; etc.;
- provide a procedure and grounds for appealing connection charges.



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## APPENDIX A EXAMPLES OF LEGISLATION PERTAINING TO INFRASTRUCTURE EXACTIONS

### UNITED STATES

#### State of California, Government Code<sup>\*\*\*\*\*</sup>

**Section 66477.** The legislative body of a city or county may, by ordinance, require the dedication [contribution] of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative [site] map or [land subdivision] map, provided that:

- (a) The ordinance has been in effect for a period of 30 days prior to the filing of the tentative map of the subdivision or parcel map.
- (b) The ordinance includes definite standards for determining the proportion of a subdivision to be dedicated [contributed] and the amount of any fee to be paid in lieu thereof. The amount of land dedicated [contributed] or fees paid shall be based upon the residential density, which shall be determined on the basis of the approved or conditionally approved tentative map or parcel map and the average number of persons per household. There shall be a rebuttable presumption that the average number of persons per household by units in a structure is the same as that disclosed by the most recent available federal census.... However, the dedication [contribution] of land, or the payment of fees, or both, shall not exceed the proportionate amount necessary to provide three acres of park area per 1,000 persons residing within a [land] subdivision subject to this section, unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed five acres per 1,000 persons residing within a [land] subdivision subject to this section.
  - (1) The park area per 1,000 members of the population of the city, county, or local public agency shall be derived from the ratio that the amount of neighborhood and community park acreage bears to the total population of the city, county, or local public agency as shown in the most recent available federal census. The amount of neighborhood and community park acreage shall be the actual acreage of existing neighborhood and community parks of the city, county, or local public agency as shown on its records, plans, recreational element, maps, or reports as of the date of the most recent available federal census.
  - (2) For cities incorporated after the date of the most recent available federal census, the park area per 1,000 members of the population of the city shall be derived from the ratio that the amount of neighborhood and community park acreage shown on the records,

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<sup>\*\*\*\*\*</sup> Edited material; does not necessarily contain the full text of the code.



maps, or reports of the county in which the newly incorporated city is located bears to the total population of the new city ... . Fees shall be payable at the time of the recording of the final [site] map or [land subdivision] parcel map or at a later time as may be prescribed by local ordinance.

- (c) The land, fees, or combination thereof are to be used only for the purpose of developing new or rehabilitating existing neighborhood or community park or recreational facilities to serve the [land] subdivision.
- (d) The legislative body has adopted a general plan or specific plan containing policies and standards for parks and recreation facilities, and the park and recreational facilities are in accordance with definite principles and standards.
- (e) The amount and location of land to be dedicated or the fees to be paid shall bear a reasonable relationship to the use of the park and recreational facilities by the future inhabitants of the subdivision.
- (f) The city, county, or other local public agency to which the land or fees are conveyed or paid shall develop a schedule specifying how, when, and where it will use the land or fees, or both, to develop park or recreational facilities to serve the residents of the [land] subdivision. Any fees collected under the ordinance shall be committed within five years after the payment of such fees or the issuance of building permits on one-half of the lots created by the [land] subdivision, whichever occurs later. If the fees are not committed, they, without any deductions, shall be distributed and paid to the then record owners of the [land] subdivision in the same proportion that the size of their lot bears to the total area of all lots within the subdivision.
- (g) Only the payment of fees may be required in [land] subdivisions containing 50 parcels or less, except that when a condominium project, stock cooperative, or community apartment project exceeds 50 dwelling units, dedication (contribution) of land may be required notwithstanding that the number of parcels may be less than 50.
- (h) Subdivisions containing less than five parcels and not used for residential purposes shall be exempted from the requirements of this section. However a condition may be placed on the approval of such parcel map that if a building permit is requested for construction of a residential structure or structures on one or more of the parcels within four years the fee may be required to be paid by the owner of each such parcel as a condition to the issuance of such permit.
- (i) If the [land] subdivider provides park and recreational improvements to the dedicated land; the value of the improvements together with any equipment located thereon shall be a credit against the payment of fees or dedication [contribution] of land required by the ordinance. Land or fees required under this section shall be conveyed or paid directly to the local public agency which provides park and recreational services on a community-wide level and to the area within which the proposed development will be located, if such agency elects to accept the land or fee. The local agency accepting such land or funds shall develop the land or use the funds in the manner provided in this section.



If park and recreational services and facilities are provided by a public agency other than a city or a county, the amount and location of land to be dedicated or fees to be paid shall, subject to subdivision (b), be jointly determined by the city or county having jurisdiction and such public agency.

This section does not apply to commercial or industrial subdivisions or to condominium projects or stock cooperatives which consist of the subdivision of airspace in an existing apartment building which is more than five years old when no new dwelling units are added.

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**Section 66483.**

There may be imposed by local ordinance a requirement for the payment of fees for purposes of defraying the actual or estimated costs of constructing planned drainage facilities for the removal of surface and storm waters from local or neighborhood drainage areas and of constructing planned sanitary sewer facilities for local sanitary sewer areas, subject to the following conditions:

- (a) The ordinance has been in effect for a period of at least 30 days prior to the filing of the tentative map or parcel map if no tentative map is required.
- (b) The ordinance refers to a drainage or sanitary sewer plan adopted for a particular drainage or sanitary sewer area which contains an estimate of the total costs of constructing the local drainage or sanitary sewer facilities required by the plan, and a map of such area showing its boundaries and the location of such facilities.
- (c) The drainage or sanitary sewer plan, in the case of a city situated in a county having a countywide general drainage or sanitary sewer plan, has been determined by resolution of the legislative body of the county to be in conformity with such a county plan; or in the case of a city situated in a county not having such a plan but in a district having such a plan, has been determined by resolution of the legislative body of the district to be in conformity with the district general plan; or in the case of a city situated in a county having such a plan and in a district having such a plan, has been determined by resolution of the legislative body of the county to be in conformity with such a plan and by resolution of the legislative body of the district to be in conformity with the district general plan.
- (d) The costs, whether actual or estimated, are based upon findings by the legislative body which has adopted the local plan, that subdivision and development of property within the planned local drainage area or local sanitary sewer area will require construction of the facilities described in the drainage or sewer plan, and that the fees are fairly apportioned within such areas either on the basis of benefits conferred on property proposed for subdivision or on the need for such facilities created by the proposed subdivision and development of other property within such areas.



- (e) The fee as to any property proposed for subdivision within such a local area does not exceed the pro rata share of the amount of the total actual or estimated costs of all facilities within such area which would be assessable on such property if such costs were apportioned uniformly on a per-acre basis.
- (f) The drainage or sanitary sewer facilities planned are in addition to existing facilities serving the area at the time of the adoption of such a plan for the area. Such fees shall be paid to the local public agencies which provide drainage or sanitary sewer facilities, and shall be deposited by such agencies into a "planned local drainage facilities fund" and a "planned local sanitary sewer fund," respectively. Separate funds shall be established for each local drainage and sanitary sewer area. Moneys in such funds shall be expended solely for the construction or reimbursement for construction of local drainage or sanitary sewer facilities within the area from which the fees comprising the fund were collected, or to reimburse the local agency for the cost of engineering and administrative services to form the district and design and construct the facilities. The local ordinance may provide for the acceptance of considerations in lieu of the payment of fees.

A local agency imposing or requesting the imposition of fees pursuant to this section, including the agencies providing the facilities, may advance money from its general fund to pay the costs of constructing such facilities within a local drainage or sanitary sewer area and reimburse the general fund for such advances from the planned local drainage or sanitary sewer facilities fund for the local drainage or sanitary sewer area in which the drainage or sanitary sewer facilities were constructed.

A local agency receiving fees pursuant to this section may incur an indebtedness for the construction of drainage or sanitary sewer facilities within a local drainage or sanitary sewer area; provided that the sole security for repayment of such indebtedness shall be moneys in the planned local drainage or sanitary sewer facilities fund.

#### **Section 66483.1.**

After completion of the facilities and the payment of all claims from any "planned local drainage facilities fund" or any "planned local sanitary sewer fund," the legislative body of a county or city shall determine by resolution the amount of the surplus, if any, remaining in any of those funds. Any surplus shall be used, in those amounts as the legislative body may determine, for one or more of the following purposes:

- (a) For transfer to the general fund of the county or city, provided that the amount of the transfer shall not exceed 5 percent of the total amount expended from the particular fund, and provided that the funds transferred are used to support the operation and maintenance of those facilities for which the fees were collected;
- (b) For the construction of additional or modified facilities within the particular drainage or sanitary sewer area; or
- (c) As a refund in the manner provided in Section 66483.2.



## Section 66483.2.

Any surplus remaining shall be refunded as follows:

- (a) There shall be refunded to the current owners of property for which a fee was previously collected, the balance of such moneys in the same proportion which each individual fee collected bears to the total of all individual fees collected from the particular drainage or sewer area;
- (b) Where property for which a fee was previously collected has subsequently been subdivided into more than one lot, each current owner of a lot shall share in the refund payable to the owners of the property for which a fee was previously collected in the same proportion which the area of each individual lot bears to the total area of the property for which a fee was previously collected; and
- (c) There shall be transferred to the general fund of the county or city any remaining portion of the surplus which has not been paid to or claimed by the persons entitled thereto within two years from the date either of the completion of the improvements, or the adoption by the legislative body of a resolution declaring a surplus, whichever is later to occur.

## State of Arizona, State Code

### Section 9-463.05—Development fees: imposition by cities and towns

- A. A municipality may assess development fees to offset costs to the municipality associated with providing necessary public services to a development.
- B. Development fees assessed by a municipality under this section are subject to the following requirements:
  1. Development fees shall result in a beneficial use to the development.
  2. Monies received from development fees assessed pursuant to this section shall be placed in a separate fund and accounted for separately and may only be used for the purposes authorized by this section. Interest earned on monies in the separate fund shall be credited to the fund.
  3. The schedule for payment of fees shall be provided by the municipality. The municipality shall provide a credit toward the payment of a development fee for the required dedication of public sites and improvements provided by the developer for which that development fee is assessed. The developer of residential dwelling units shall be required to pay development fees when construction permits for the dwelling units are issued.
  4. The amount of any development fees assessed pursuant to this section must bear a reasonable relationship to the burden imposed upon the municipality to provide additional necessary public services to the development. The municipality, in determining the extent

of the burden imposed by the development, shall consider, among other things, the contribution made or to be made in the future in cash by taxes, fees or assessments by the property owner towards the capital costs of the necessary public service covered by the development fee.

5. If development fees are assessed by a municipality, such fees shall be assessed in a non-discriminatory manner.
6. In determining and assessing a development fee applying to land in a community facilities district established under title 48, chapter 4, article 6, the municipality shall take into account all public infrastructure provided by the district and capital costs paid by the district for necessary public services and shall not assess a portion of the development fee based on the infrastructure or costs.

C. A municipality shall give at least thirty days' advance notice of intention to assess a new or increased development fee and shall release to the public a written report including all documentation that supports the assessment of a new or increased development fee. The municipality shall conduct a public hearing on the proposed new or increased development fee at any time after the expiration of the thirty day notice of intention to assess a new or increased development fee and at least fourteen days prior to the scheduled date of adoption of the new or increased fee by the governing body. A development fee assessed pursuant to this section shall not be effective until ninety days after its formal adoption by the governing body of the municipality. Nothing in this subsection shall affect any development fee adopted prior to July 24, 1982.

## **Commonwealth (State) of Virginia, State Code**

### ***Road Impact Fees***

**Section 15.1-498.2. Authority to assess and impose impact fees.** Any county, city or town may, by ordinance pursuant to the procedures and requirements of this article, assess and impose impact fees on new development to pay all or part of the cost of reasonable road improvements attributable in substantial part to such development.

Prior to the adoption of such ordinance, any such county, city or town shall establish an impact fee advisory committee. Such committee shall be composed of not less than five nor more than ten members appointed by the governing body of the locality and at least forty percent of the membership shall be representatives from the development, building or real estate industries. The planning commission or other existing committee that meets the membership requirements may serve as the impact fee advisory committee. The committee shall serve in an advisory capacity to assist and advise the governing body of the locality with regard to such ordinance. No action of the committee shall be considered a necessary prerequisite for any action taken by the locality in regard to the adoption of such ordinance.

"Cost" includes in addition to all labor, materials, machinery and equipment for construction, (i) acquisition of land, rights of way, property rights, easements and interests, including the costs of moving or relocating utilities, (ii) demolition or removal of any structure on land so acquired,



including acquisition of land to which such structure may be moved, (iii) survey, engineering and architectural expenses, (iv) legal, administrative and other related expenses, (v) interest charge and other financing costs if impact fees are used for the payment of principal and interest on bonds, notes, or other obligations issued by the county, city or town to finance the road improvements.

"Impact fee" means a charge or assessment imposed against new development in order to generate revenue to fund or recover the costs of reasonable road improvements necessitated by and attributable to such new development. Impact fees may not be assessed and imposed for road repair, operation and maintenance, nor to expand existing roads to meet demand which existed prior to the new development.

"Impact fee service area" means land designated by ordinance within a county, city, or town having clearly defined boundaries and clearly related traffic needs and within which development is to be subject to the assessment of impact fees.

"Road improvement" includes construction of new roads or improvement or expansion of existing roads as required by applicable construction standards of the Virginia Department of Transportation to meet increased demand attributable to new development. Road improvements do not include on-site construction of roads which a developer may be required to provide pursuant to [the land subdivision law].

**Section 15.1-498.3. Impact fee service areas to be established.** The county, city or town shall delineate one or more impact fee service areas within its jurisdiction. Impact fees collected from new developments within an impact fee service area shall be expended for road improvements within that impact fee service area. An impact fee service area may encompass more than one road improvement project.

**Section 15.1-498.4. Adoption of road improvements program.** Prior to adopting a system of impact fees, the county, city or town shall conduct an assessment of road improvement needs within any impact fee service area and in the county, city or town and shall adopt a road improvements plan for the area showing the new roads proposed to be constructed and the existing roads to be improved or expanded and the schedule for undertaking such construction, improvement or expansion. The roads improvement plan shall be adopted as an amendment to the required comprehensive plan and shall be incorporated into the capital improvements program ...

The county, city or town shall adopt the roads improvement program after holding a duly advertised public hearing. The public hearing notice shall identify the impact fee service area or areas to be designated, and shall include a summary of the needs assessment and the assumptions upon which the assessment is based, the proposed amount of the impact fee, and information as to how a copy of the complete study shall be available for public inspection and copying at reasonable times prior to the public hearing.

The county, city or town shall at a minimum include the following items in assessing road improvement needs and preparing a road improvements plan:



1. An analysis of the existing capacity, current usage and existing commitments to future usage of existing roads, as indicated by (i) current valid building permits outstanding, (ii) approved conditional rezoning, special exceptions, and special use permits, and (iii) approved site plans and subdivision plats. If the current usage and commitments exceed the existing capacity of such roads, the locality also shall determine the costs of improving such roads to meet such demand. The analysis shall include a plan the fund the current usage and commitments that exceed the existing capacity of such roads,
2. The projected needs for and costs of construction of new roads or improvements or expansion of existing road attributable in whole or in part to projected new development. Road improvement needs shall be projected for the impact fee service areas when fully developed in accord with the comprehensive plan and, if full development is projected to occur more than ten years in the future, at the end of the ten year period. The assumptions with regard to land uses, densities, and population upon which road improvement projections are based shall be presented.
3. The total number of new service units projected for the impact fee service areas when fully developed and, if full development is projected to occur more than ten years in the future, at the end of the ten year period. A "service unit" is a standardized measure of traffic use or generation. The locality shall develop a table or method of attributing service units to various types of development or land use, including but no limited to commercial, residential and industrial land uses. The table shall be based on the ITE manual (published by the Institute of Transportation Engineers) or locally conducted trip generation studies.

**Section 15.1-498.6. When impact fees assessed and imposed.** The amount of impact fees to be imposed on a specific development or subdivision shall be determined before or at the time the site plan or subdivision is approved. The ordinance shall specify that the fee is to be collected at the time of the issuance of certificate of occupancy. The ordinance shall provide that fees (i) may be paid in a lump sum or (ii) be paid on installment at a reasonable rate of interest for a fixed number of years. The county, city or town by ordinance may provide for negotiated agreements with the owner as to the time an method of paying the impact fees.

The maximum impact fee to be impose shall be determined by dividing (i) projected road improvement costs in the service area when fully developed by the number of projected service units when fully developed, or (ii) for a reasonable period of time, but not less than ten years, by dividing the projected costs necessitated by development in the next ten years by the service units projected to be created in the next ten years.

The ordinance shall provide for appeals from administrative determinations, regarding the impact fees to be imposed, to the governing body or such other body as designated in the ordinance. The ordinance may provide for the resolution of disputes over an impact fee by arbitration or otherwise.



No impact fees shall be assessed or imposed upon a development or subdivision if the subdivider or developer has [offered to construct ] off-site road improvements and such [offer] has been accepted by the local government.

**Section 15.1-498.7. Credits against impact fee.** The value of any ...contribution or construction from the developer for off-site road improvements within the impact fee service area shall be treated as a credit against the impact fees imposed on the developer's project. The local governing body may by ordinance provide credits for approved on-site in excess of those required by the development.

The locality also shall calculate and credit against impact fees (i) the extent to which developments already have contributed to the cost of existing roads which will serve the development, (ii) the extent to which the new development will contribute to the cost of existing roads, and (iii) the extent to which the new development will contribute to the cost of road improvements in the future other than through impact fees.

**Section 15.1-498.9. Use of proceeds.** Separate road improvement fund account shall be established for the impact fee service area and all funds collected through impact fees shall be deposited in such interest-bearing account. Interest earned on deposits shall become funds of the account. The expenditure of funds from the account shall be only for road improvements within the impact fee service area as set out in the road improvement plan for the impact fee service area.

**Section 15.1-498.10. Refund of impact fees.** The county, city or town shall refund any impact fee or portion thereof for which construction of a project is not completed within a reasonable period of time, not to exceed fifteen years.

Upon completion of a project, the county, city or town shall recalculate the impact fee base on the actual cost of the improvement. It shall refund the difference if the impact fee paid exceeds actual cost by more than fifteen percent. Refunds shall be made to the record owner of the property at the time the refund is made.

## **GREAT BRITAIN**

### **Town and Country Planning Act of 1990**

#### **Section 106. Agreements regulating development or use of land.**

- (1) A local planning authority may enter into an agreement with any person interested in land in their area for the purpose of restricting or regulating the development or use of the land, either permanently or during such period as may be prescribed by the agreement.
- (2) Any such agreement may contain such incidental and consequential provisions (including financial ones) as appear to the local planning authority to be necessary or expedient for the purpose of the agreement.



- (3) An agreement made under this section with any person interested in land may be enforced by the local planning authority against persons deriving title under that person in respect of that land as if the local planning authority were possessed of adjacent land and as if the agreement had been expressed to be made for the benefit of such land.
- (4) Nothing in this section or in any agreement made under it shall be construed:
- as restricting the exercise, in relation to land which is the subject of any such agreement, of any powers exercisable by any Minister or authority under this Act so long as those powers are exercised in accordance with the provisions of the development plan, or in accordance with any directions which may have been given by the Secretary of State as to the provisions to be included in such a plan; or
  - as requiring the exercise of any such powers otherwise than as mentioned in paragraph (a).

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## Planning and Compensation Act of 1991

### Section 12. Planning obligations.

(1) For section 106 of the (Town and Country Planning Act of 1990) ... there is substituted:

**106. Planning obligations.** (1) Any person interested in land in the areas of a local planning authority may, by agreement or otherwise, enter into an obligation (referred to in this section and sections 106A and 106B as a "planning obligation"), enforceable to the extent mentioned in subsection (3):

- restricting the development or use of land in any specified way;
- requiring specified obligations or activities to be carried out in, on, under or over the land;
- requiring the land to be used in any specified way; or
- requiring a sum or sums to be paid to the authority on a specified date or dates or periodically.

(2) A planning obligation may:

- be unconditional or subject to conditions;
- impose any restriction or requirement mentioned in subsection (1) (a) to (c) either indefinitely or for such period or periods as may be specified; and
- if it requires a sum or sums to be paid, require the payment of a specified amount or an amount determined in accordance with the instrument by which the obligation is entered



into and, if it requires the payment of periodical sums, require them to be paid indefinitely or for a specified period.

(3) Subject to section (4) a planning obligation is enforceable by the authority identified in accordance with subsection 9 (d):

- against the person entering into the obligation; and
- against any person deriving title from that person.

(4) The instrument by which a planning obligation is entered into may provide that a person shall not be bound by the obligation in respect of any period during which he no longer has an interest in the land.

(5) A restriction or requirement imposed under a planning obligation is enforceable by [court order].

(6) Without prejudice to subsection (5), if there is a breach of a requirement in a planning obligation to carry out any obligations in, on, under or over the land to which the obligation relates, the authority by whom the obligation is enforceable may:

- enter the land and carry out the operations; and
- recover from the person or persons against whom the obligation is enforceable any expenses reasonably incurred by them in doing so.

(7) Before an authority exercise their power under subsection (6) (a) they shall give not less than twenty-one days' notice of their intention to do so to any person against whom the planning obligation is enforceable.

(8) Any person who willfully obstructs a person acting in the exercise of a power under section (6) (a) shall be guilty of an offense and liable on summary conviction for a fine not exceeding level 3 on the standard scale.

(9) A planning obligation may not be entered into except by an instrument executed as a deed which:

- states that the obligation is a planning obligation for the purposes of this section;
- identifies the land in which the person entering into the planning obligation is interested;
- identifies the person entering into the obligation and states what his interest in the land is; and
- identifies the local planning authority by whom the obligation is enforceable.



## **Section 106A. Modification and discharge of planning obligations.**

(1) A planning obligation may not be modified or discharged except:

- by an agreement between the authority by whom the obligation is enforceable and the and the person or persons against whom the obligation is enforceable; or
- in accordance with this section and section 106B.

(2) ...

(3) A person against whom a planing obligation is enforceable may, at any time after the expiration of the relevant period, apply to the local planning authority by whom the planning obligation is enforceable for the obligation:

- to have effect subject to such modifications as may be specified in the application; or
- to be discharged.

(4) In subsection (3) "the relevant period" means:

- such period as may be prescribed; or
- if no period is prescribed, the period of five years beginning with the date on which the obligation us entered into.

(5) An application under subsection (3) for the modification of a planning obligation may not specify a modification imposing an obligation on any other person against whom an obligation is enforceable.

(6) Where an application is made to an authority under subsection (3), the authority may determine:

- that the planning obligation shall continue to have effect without modification;
- if the obligation no longer serves a useful purpose, that it shall be discharged; or
- if the obligation continues to serve a useful purpose, but would serve that purpose equally well if it had effect subject to the modifications specified in the application, that it shall have effect subject to those modifications.

(7) The authority shall give notice of their determination to the applicant within such period as may be prescribed.



(8) Where an authority determines that a planning obligation shall have effect subject to modifications specified in the application, the obligation as modified shall be enforceable as if it had been entered into on the date on which notice of the determination was given to the applicant.

(9) Regulations may make provision with respect to:

- the form and content of applications under subsection (3);
- the publication of notice of such applications;
- the procedure for considering any representations made with respect to such applications; and
- the notices to be given to applicants of determinations under subsection (6).

#### **Section 106B. Appeals.**

(1) Where a local planning authority:

- fails to give notice as mentioned in section 106A(7); or

determine that a planning obligation shall continue to have effect without modification, the applicant may appeal to the Secretary of State.

### **GERMANY**

#### **German Federal Building Code<sup>\*</sup>** **Chapter One: General Urban Planning Legislation** **Part Six: Provision of Local Public Infrastructure** **Subdivision One: General Provisions**

**Section 123. Responsibility for the Provision of Local Public Infrastructure.** (1) Responsibility for the improvement of land by the provision of local public infrastructure and road access rests with the municipality unless this duty is incumbent on some other body under the statutory provisions or other obligations under the public law.

(2) Improvements shall be undertaken to meet the requirements of the development and of traffic and be available for use no later than on the completion of the physical structures to be services.

(3) No legal claim exists to provision of local public infrastructure.

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<sup>\*</sup> English Trans. by Profs. Carl-Heinz David and Graham Cass, German Federal Ministry for Regional Planning, Building and Urban Development



- (4) The maintenance of local public infrastructure is subject to provisions under federal state law.

**Section 124. Land Improvement Contract, Urban Development Contract.** (1) The municipality may transfer the provision of local public infrastructure to a third party.

- (2) Nothing here shall affect the admissibility of other contracts, in particular contracts governing urban development projects and measures.

**Section 125. Ties to the Legally Binding Land Use Plan.** (1) The provision of local public infrastructure within the meaning of Section 127 assumes the existence of a legally binding land use plan.

- (2) Where no such legally binding land use plan exists, this infrastructure may only be provided with the permission of the higher administrative authority. This does not apply in the case of infrastructure within the built-up areas for which the preparation of a legally binding land use plan is not required. Permission may only be refused where construction of the infrastructure contravenes the requirements of [this law].

- (3) The legality of the provision of local public infrastructure is not affected by deviations from the provisions of the legally binding land use plan, provide that such deviations are compatible with the basic principles of the development, and

1. the local public infrastructure falls short of the said provisions, and
2. those parties liable to pay charges for the recoument of public money spent on local public infrastructure are not burdened with higher costs than would otherwise have been the case had construction been in accordance with the binding land use plan, and the deviations do not substantially impair use of the land affected.

**Section 126. Duties of the Owner.** (1) The owner shall tolerate on his land the erection of

1. fixtures and supply lines for street lighting including streetlamps and accessories, and
2. identification plats and signs for local public infrastructure.

The owner shall be given advance notification.

- (2) The body charged with the provision of local public infrastructure is responsible for repairs in respect of damage suffered by the owner in the course of erecting or removing the objects mentioned in paragraph 1; reparation may be made in the form of suitable financial compensation. Where no agreement can be reached on the level of compensation to be paid, the matter shall be adjudicated on by the higher administrative authority; the parties involved shall be heard prior to a decision being taken.



- (3) The owner shall display on his property the number assigned by the municipality. Any other matters are subject to provisions under federal state law.

### **Subdivision Two: Recoupment of Charges for Local Public Infrastructure**

**Section 127. The Collection of Recoupment Charges.** (1) Municipalities shall collect charges for the recoupment of otherwise unrecoverable public expenditure on local public infrastructure in accordance with the following provisions.

- (2) Local public infrastructure for the purpose of this Subdivision shall comprise
1. public roads, paths and public spaces scheduled for development;
  2. public thoroughfares within specific land use areas which, for either legal or physical reasons, are not accessible to motorized vehicles (e.g. footpaths, walk-ways in residential development);
  3. collecting roads within specific land use areas; collecting roads are public roads, paths, and spaces which are themselves not scheduled for building, but which are necessary to provide access to areas of development;
  4. parks and green spaces, excluding children's playgrounds, to the extent that these form part of the thoroughfares included under nos. 1 and 3, or are required in accordance with principles of urban development to service specific land use areas;
  5. physical structures to provide protection in specific land use areas against harmful environmental influences ...
- (3) The recoupment charge may be collected separately in respect of land purchase, groundworks, or for individual components of the land improvement provision (cost splitting).
- (4) Nothing in this act shall affect the right to collect a charge for physical structures which do not form part of the local public infrastructure within the meaning of this subdivision. This applies in particular in respect of structures for sewerage and electricity, gas, heat and water supply.

**Section 128. The extent of Expenditure on Local Public Infrastructure.** (1) Expenditure on local public infrastructure within the meaning of Section 127 comprises costs in respect of

1. the acquisition and preparation of spaces for local public infrastructure;
2. initial construction, including installations or drainage and illumination;
3. the adoption of existing structures as part of municipal local public infrastructure.



Expenditures on local public infrastructure also includes the value of land made available by the municipality from its own resources assessed at the time at which this land is made available. ...

(2) Nothing in this act shall affect any rights municipalities may have under federal state law to collect contributions toward the costs in respect of extension and enhancements to local public infrastructure. The federal states may determine that costs relating to illumination are not to be included as part of the expenditure on local public infrastructure.

(3) Expenditure on local public infrastructure does not include the cost of

1. bridges, tunnels, underpasses and accompanying ramps;
2. the carriageways of federal highways...

**Section 129. Legitimate Recoupment Charges.** (1) Charges may only be collected for the recoupment of otherwise unrecoverable expenditure on local public infrastructure where the land improvement thus achieved is essential to allow the relevant building land or spaces scheduled for commercial use to be utilized in accordance with the existing regulations under building law (legitimate recoupment charges). Where infrastructure within the meaning of Section 127, paragraph 2 has been constructed by the property owner, or is required by him under building law regulation, charges are not to be collected. At least ten percent of the legitimate charges for land improvements are to be borne by the municipality.

(2) Any costs previously incurred by the owner or his predecessor in title in respect of public infrastructure measures shall not be charged again on their adoption as part of the municipal infrastructure.

**Section 130. Assessment of Legitimate Recoupment Charges.** (1) Legitimate recoupment costs may be assessed on the basis either of costs actually incurred or of standard rates. Standard rates are to be determined on the basis of average costs customarily incurred in the municipality in respect of comparable local public infrastructure.

(2) The legitimate recoupment charges may be assessed for an individual unit of infrastructure or for particular sections of a unit of infrastructure. Sections of an infrastructure unit may be defined in terms of locally familiar features or with reference to legal criteria (e.g. the boundaries of the plan areas of legally binding land use plans, reallocation areas, formally designated development areas.) In the case of a number of structures combining to form a single unit for the servicing of several plots, recoupment charges may be assessed in total.

**Section 131. Criteria for Allocation of Recoupment Charges.** (1) The legitimate recoupment charge for a unit of local public infrastructure shall be spread over the plots serviced by this infrastructure. In assessing shared recoupment charges for one unit of infrastructure (Section 130, paragraph 2, clause 3) and determining the individual allocation of recoupment charges, land which is multiply serviced shall only be subject to one charge..



- (2) The criteria for allocating charges shall be
1. the type and extent of use for building or otherwise;
  2. plot area;
  3. the width of the plot adjacent to the infrastructure facility.

The criteria for allocating charges may be linked.

- (3) In the case of areas serviced subsequent to the Federal Building Act coming into force, and where a divergent use of land either for building or for other purposes is permissible, the criteria contained in paragraph 2 shall be applied in accordance with the variety of uses in respect of type and extent.

**Section 132. Regulation By Statute.** Municipalities shall regulate by statute

1. the type and extent of local public infrastructure within the meaning of section 129;
2. the manner of assessment and allocation of recoupment charges and the level of the standard rate;
3. cost splitting (section 127, paragraph 3); and
4. the characteristics for the final construction of a public infrastructure facility.

**Section 133. The Subject and the Commencement of the Duty to Make Recoupment Charges.** (1) The duty to make recoupment charges applies in respect of land designated for use for building or for commercial purposes from the point when this land is permissible for it to be either built on or put to commercial use. Serviced land which has not been designated for use for building or for commercial use is subject to the collection of recoupment charges where it is held to be building land and has been released for development in accordance with ordered development in the municipality. The municipality shall announce what land is subject to recoupment charges under clause 2; such an announcement does not have the effect of establishing a right.

- (2) The duty to make recoupment charges takes effect on the completion of public infrastructure facilities, and, in the case of installments, on completion of the measure in respect of which each installment is due. In the case of section 128, paragraph 1, clause 1, Number 3, the duty to make recoupment charges take effect on adoption by the municipality.
- (3) Advance payment of recoupment charges up to the estimated amount due may be required in the case of land in respect of which a duty to make recoupment charges has not yet, or not to the full extent taken effect, and where permission has been granted

for a proposed development on the land, or construction of the public infrastructure facilities has commenced and can be expected to reach completion within a period of four years. Any advance payment shall be credited against the final amount due, even where a party who makes such a payment is under no obligation to make recoupment charges. Where the duty to make recoupment charges does not take effect within a period of six years of the issuing of a demand for advance payment, and the public infrastructure facility has not been completed, the said payment may be reclaimed. The amount reclaimed is subject to the payment of interest ... . The municipality may make provision for the anticipatory payment of recoupment charges in full prior to the duty to make such charges taking effect.

**Section 134. Liability to make Recoupment Charges.** (1) Liability rests with whoever is the owner of the land in question at such time as the demand for payment is issued. In the case of land encumbered with a building lease, it is the tenant under the building lease rather than the owner who is liable for payment. In the case of a plot being encumbered by a real right of use under article 233. Section 4 of the Introductory Act to the German Civil Code, the holder of this right is liable to pay recoupment charges in place of the property owner. Where liability extends to a number of individuals, these are jointly and severally liable; in the case of part-ownership or where ownership extends to an individual private flat in a multiple-unit building, the individual owners and part-owners are liable in proportion to their share in the ownership of the property.

- (2) The charge rests on the property as a public charge: in the case of paragraph 1, clause 2 on the building lease, in the case of paragraph 1 clause 3 on the real right of use, and in the case of paragraph 1 clause 4 on the part-ownership or condominium.

**Section 135. Due Date and Payment.** (1) Payment of the charge is due one month subsequent to the issuing of the demand for payment.

- (2) The municipality may in individual cases permit the recoupment charge to be paid in installments or in the form of an annuity, where such action would prevent undue hardship, in particular where this is required to allow the realization of a permitted building development to go ahead. Where the financing of a development has been secured, the schedule of payment shall be aligned with the funds becoming available, but shall not extend beyond two years.
- (3) Where the municipality permits payment in the form of an annuity pursuant to paragraph 2, the recoupment payment shall by notification be transformed into debt to be paid off in not more than ten annual installments. The notification shall indicate the amount set for annual payment and the date on which payment is due. The balance due is subject to annual interest ... .
- (4) Where the land concerned is under agricultural or forestry use, the charge shall be deferred without interest until such time as the land is required to be put to use in order to preserve the economic functioning of the agricultural operation. ...



- (5) In individual cases the municipality may decide to refrain from collecting the recoupment charge, either in part or in total, where this is deemed to be in the public interest, or in order to prevent the creation of undue hardship. Provision may also be made for exemption from payment in cases where the duty to make recoupment charges has not yet taken effect.
  
- (6) Noting in this Act shall affect more far-reaching provisions on equity under federal state law.





## APPENDIX B

### CALCULATION OF INFRASTRUCTURE FEES

#### Standard Models

Development fees are often calculated using one of several standard models.<sup>1</sup> At the risk of over-simplification, the models break down into two basic categories—those which rely on average costs calculated on the basis of gross parameters for an entire city, and those which are based on detailed analysis of the costs and benefits of specific projects.

Average cost models may simply divide the total actual cost of providing a municipal service by the gross number of users of the service to arrive at an average cost per user, and then multiply the average cost per user by the estimated additional number of users created by the proposed new project. The alternative, detailed analytical model—sometimes referred to as a marginal cost model—would instead look at the actual, additional costs and benefits of the specific project which, depending on the case, might result in cost estimates which are either less or more than the average costs of delivering services.

When considering the material in this Appendix several points should be kept in mind:

- Models for calculating the municipal costs and benefits of real estate development have become complex and sophisticated analytical tools which are frequently embodied in computer software programs. It is not possible nor useful to duplicate that level of detail in this paper, which is meant to provide only an introduction to the topic.
- In many cases a city's analysis will be based both on average cost calculations and specific project factors, depending upon the nature of the impact to be evaluated. It is also likely that in any given case fees may be charged on the basis of fixed schedule as well as through a process of negotiation.
- Costs imposed on a municipality by new development can be defined broadly or narrowly. For example, costs can be defined to include the operating as well as the capital costs of delivering services, and even attempt to allocate all administrative and overhead costs of local government. In this paper it has been assumed that infrastructure exactions deal exclusively with the capital costs of providing public infrastructure, as in most places operating costs are covered by other, recurring taxes, rates and communal services charges. However, in Russia, where communal services charges and local taxation have

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<sup>1</sup> Standard models used for calculating land development costs and benefits are described in Burchell, R. W. & Listokin, D., Fiscal Impact Handbook: Estimating Local Costs and Revenues of Land Development (Center for Urban Policy Research, New Brunswick; 1978) and Burchell, R. W., et al., The New Practitioner's Guide to Fiscal Impact Analysis (Center for Urban Policy Research, New Brunswick; 1986).



not yet caught up with the actual costs of operating municipal services, this may not be an accurate picture.

While cost calculations can generally be adjusted to include operating and administrative as well as capital costs, it must be kept in mind that as the categories of costs charged to real estate development are broadened, the categories of municipal revenues derived from the real estate projects that should be credited against the costs must be widened also. For example, if the general costs of the city's administrative overhead are to be included, all additional tax revenues created by the new project, and not just those related to the capital costs of infrastructure, should probably be included in the calculation also.

- No model is absolutely precise, as all need to make assumptions and compromises with respect to data. Moreover, real precision would be based on actual usage, which is simply not possible, and even a high degree of precision can entail such high administrative costs that it make more sense to make reasonable compromises. The objective in most cases is not absolute precision, but a high degree of fairness.

## Costs

A typical cost calculation might be as follows:

$$(1) \quad PC_i = (N_i U_i) C_i, \text{ where:}$$

$PC_i$  = costs imposed on the municipality by the new development project

$N_i$  = units of measure of additional usage, for example families; school children; office workers; square meters of building space, etc.

$U_i$  = units of service required per unit of  $N_i$ , for example gallons; kilowatts; square meters; road trips; etc.

$C_i$  = projected cost per additional unit of service

The measure of additional use,  $N_i$ , can be calculated many ways, depending upon the type of the development project or the type of service provided. For example, if additional use is measured in terms of square meters of building space,  $N_i$  would simply be the number of square meters of the proposed project. Frequently, however, the measure of additional use is not simply square meters of space, but rather the number of persons who might actually use and occupy the space. For example, to determine the number of additional trips on local roads cause by a new factory the city would want to know how many persons would be working at the factory. Similarly, if the proposed project is residential and the issue is adequacy of educational facilities, the city would want to know the number of rooms in the proposed housing and the average number of children per room. (Sophisticated calculations might adjust the number of children per room to reflect the portion of occupants of the new housing which will simply relocate from another part of



the city, or which will not attend public schools.) In such cases the calculation might need a prior calculation of:

(2)  $N_i = SP$ , where:

S = the unit of project space measurement, for example number of bedrooms; square meters of usable area; etc.

P = local average number of users per unit of project space measurement

Actual costs may differ depending upon the type of project. For example, water usage per office employee is lower than usage for residential occupant. Identifying different patterns of use and consumption of municipal services can often be difficult. For example, how should the costs of a new fire station be allocated between residential and non-residential uses? (In many cases allocations of consumption between residential and non-residential uses are made simply on the basis of the relative area or total value of the real estate they occupy in the city.)

The projected costs of a unit of service,  $C_i$ , can also be determined in several ways. The simplest way is to divide the actual capital cost of existing facilities by the total number service units produced. Often this may be possible only where the infrastructure assessment is for a new project and the precise costs are known. In other cases, exactions may be imposed with respect to existing facilities, the costs of which are not well known or were paid long ago. The objective in such cases might be to provide reserves for future expansion and replacement of the existing facilities, and substitutes for actual costs would need to be considered. Such substitutes might include a combination of annual debt service on existing facilities; the capital budget for expansion of the system (including expansion necessary for the new project); and the annual capital maintenance budget. Such a calculation might be as follows:

(3)  $C_i = (D_i + I_i + M_i) / TUI_i$ , where:

$D_i$  = the annual debt service on the existing facilities

$I_i$  = the annual budget for capital investment for system expansion, including investment related to the new project

$M_i$  = the annual capital maintenance budget

$TUI_i$  = the total number of service units produced annually

"Debt service" is of course the payment of principal and interest on loans taken by the city to construct capital facilities. It is likely that in Russia today there is little actual debt service, as most facilities are financed solely through the city's capital budget. However, if the actual costs



of the facilities are known there is no reason why the city should not calculate debt service on its own opportunity cost or cost of capital.

### **Note On Use of Present Values**

Average cost analysis is frequently based only on present costs and levels of service. It assumes not only that costs are the same for all persons and locations, but that the costs today will remain constant in real terms, regardless of what changes occurs to the system and the city. This is a convenient and not unreasonable approach. However, it is possible that in some cases it would be desirable to look at the long term picture in order to calculate actual costs. To do this it would necessary to calculate the "present value" of future payments or expenditures.

Present value is essentially the mathematical technique of adjusting future payments or expenditures to discount the effects of inflation and express such payments and expenditures in the value of today's money.<sup>2</sup> It gives the true value or cost to the city of a stream of payments or expenditures stretching out into the future. It assumes that if the present value of the costs were in the city's hands today, it would be able to invest the funds and accumulate the money to pay all future costs when needed. Necessarily, the present value of a future payment or expenditure is lower than the nominal value of that payment or expenditure.

A good example of this is formula 3, above, which bases the cost calculation on the sum of debt service, investment and maintenance in the present year's city budget. In fact, a current budget may be unusual in terms of costs, for example if major investment projects and capital replacements are anticipated in the future. In such cases the analysis would be more accurate if it considered all of the potential future costs as streams of expenditures and used the present value analysis to express them in terms of today's values. To do this it is necessary to make several decisions, including: the period of time over which the cost will be measured,<sup>3</sup> the economic effects of growth and expansion of the system, and the interest rate ("discount rate") which will be assumed for purposes of making the present value calculation.<sup>4</sup>

### **Project Analysis Distinguished**

These simple calculations would be made for each category of municipal service to arrive at a total project cost of the municipality caused by the new project. While this average cost

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<sup>2</sup> The "present value" or "discounted present value" formula is a standard financial formula that can be found in any text on basic financial analysis, and is not described in this paper.

<sup>3</sup> In most instances the present value calculation will result in giving negligible values to revenues or expenditures which occur more than 10-15 years in the future, unless they are extraordinary, which makes the selection of longer time frame for measuring costs unnecessary.

<sup>4</sup> A simple and frequently used alternative to the complete present value calculation is the "capitalization" calculation which simply divides the payment or expenditure in the current year by the discount rate chosen for the present value calculation. This approach assumes that the steam of payments or expenditure will be basically constant in the future, which results in a rough approximation of the present value calculation which may suffice for many purposes of estimation.



approach may be related to the total costs of new development, it is not necessarily related to the actual costs of any specific project. For example, the calculation does not take into account the capacity of the existing systems, which might determine whether new development imposes any additional costs at all. Nor does it consider that the actual costs of serving one project may differ widely from costs of another, depending upon location and physical characteristics. Nevertheless, charging infrastructure fees on the basis of average costs of service, regardless of actual costs of adding new users, would serve to amortize the costs of the fixed assets already in place and create reserves against future replacement and expansion. Moreover, it would treat all users the same regardless of when they developed their project in the life cycle of the infrastructure or city development.

The alternative approach is different than this insofar as it looks at the actual costs imposed by the project based on the project's technical parameters. As important, it looks at the actual condition the city's own facilities and systems—for example, whether there is excess capacity and therefore very low marginal costs of producing additional unit of service. In the end, this approach will charge the proposed project only for the additional costs which it imposes, and not for a general share of all fixed costs, which are presumed to be covered by other sources of city revenue.

## Revenues

The objective of infrastructure exactions is to assess land developers only for those costs which the developer will not pay through other taxes and charges imposed by the city—that is, the exaction should be based on the net project cost to the city. Thus, the fee actually charged to the developer would be expressed as follows:

(4)  $F = PC - PR$ , where:

$F$  = the fee charged to the project

$PR$  = other charges and taxes paid by the project and its occupants toward the costs of infrastructure

Determining the other fees and charges paid by the project and its users can be difficult, and again can be based either on average figures established on historical experience or on an actual calculation based on the specific project. In cases where only the capital costs of infrastructure are to be charged, the typical sources of revenue that must be considered include:

- *Municipal taxes and rents on land and real estate.* Under Russian law land taxes and rents must be applied toward a variety of land related costs, including infrastructure. In fact, many cities do use tax and rent proceeds to provide infrastructure.
- *Communal services charges.* In most instances the communal service charges aid in a regular basis by users will include some component, presently quite small, for amortization of the costs of the physical facilities.



- *Network connection charges.* In theory at least, connection charges are related to the costs of the capital facilities, but how they are related may differ among jurisdictions.
- *Other land development related fees and permit charges.* Fees and charges incurred in the land development process would have to be reviewed on a case by case basis to determine how much, if any, is applied toward infrastructure costs.

In addition, if total costs to the community (operating, administrative overhead, etc.) are included in exaction charges, the locality should also consider the following additional sources of revenue credited against the fees to be charged to the new project:

- Transfers and subsidies from other levels of government
- Local share of profits tax on businesses using the new project
- Local share of employment (income) taxes from additional employment created by the new project
- New local taxes on other forms of business property, such as equipment and inventory

It is possible that each one of these taxes will be paid by the users of the real estate charged with the infrastructure exaction, and that some portion of the proceeds of each of these taxes will be allocated to infrastructure purposes. Accordingly, revenues from the project for purposes of calculating impact fees would be derived as follows:

$$(5) \quad PR = (T1P1) + (T2P2) + (T3P3) \dots (TiPi) \quad \text{where:}$$

$T_i$  = the value of total taxes or charges from source  $i$

$P_i$  = the portion of tax  $T_i$  historically allocated to infrastructure costs

This calculation would become more complex if the exactions were to be imposed only with respect to a specific project, in which event it would be necessary to estimate what portion of these other fees, taxes and charges would be allocated to payment of the costs of the specific project and what portion to other city infrastructure.

### Data

All models are based on actual data, and are only as good as the data available. For example, to perform even the simple average calculations described above it would be necessary or helpful to have access to at least the following data for each category of municipal service:

- Total local budgetary expenditures (capital and operating)
- Number of city employees involved in delivery of service
- Labor costs per unit of service



- Capital investment per employee
- Per unit development/replacement costs of capital facilities
- Long term capital investment program and schedule
- Long term capital maintenance costs and schedule
- Debt service on capital facilities
- Total current population
- Projected future population
- Land and real estate costs/values
- Total number of housing units
- Total value of residential property
- Total number of businesses
- Total value of non-residential property
- Service consumption patterns of residential, office and manufacturing/industrial uses
- Consumption per user by category of service
- Estimated number of users/service units per space measurement (rooms, square meters, etc.)
- Gross revenues
- Revenue (population, usage, etc.) growth
- Portions of specific revenue sources allocated to infrastructure

### **Case Study**

Developer has proposed to build a multifamily residential building on a land plot of 12,000 square meters located in the city center. There will be 200 apartments broken down as follows:

50	-	1 room
100	-	2 room
50	-	3 room

In addition, on the ground floor there will be 1,000 square meters of store space and on the first and second floors 2,000 square meters of office space. The building will need to be connected to hot and cold water, both of which are municipal services. Heating will be provided by an on-site gas boiler for which the developer will make separate arrangements with the gas company, which has been privatized. In addition, local building standards show that there will need to be additional green space provided in the neighborhood to accommodate the new residential occupants and perhaps an additional kindergarten or additional rooms on the existing kindergarten to accommodate additional school children.

The city refers to its accumulated data for the following facts:

**General:**

- Present population: 250,000
- Average population over the next 10 years: 260,000
- Number of housing units: 80,000
- Square meters of housing: 2,400,000
- Square meters of store space: 70,000
- Square meters of other non-residential space: 300,000

**Consumption of services:**

- Average annual service usage per residential occupant:
  - cold water 5,475 gallons
  - hot water 2,575 gallons
- Per square meter of store space:
  - cold water 15 gallons per square meter
  - hot water 10 gallons per square meter
- Per square meter of other non-residential space:
  - cold water 30 gallons per square meter
  - hot water 10 gallons per square meter
- The present charge per unit of service is:
  - cold water \$.001 per gallon
  - hot water \$.003 per gallon

**Cost of services:**

- Total number of service units presently delivered by the system:
  - cold water 1,473 million gallons
  - hot water 653 million gallons
- Annual debt service on existing facilities is presently:
  - cold water \$150,000
  - hot water \$400,000
- Annual capital maintenance costs:
  - cold water \$100,000
  - hot water \$250,000
- Annual cost of the capital investment program:
  - cold water \$50,000
  - hot water \$100,000

**Education:**

- The building is expected to have 500 occupants, 200 of which will be school aged children, based on the following facts:
  - there are presently an average of 1.5 persons per room in the city
  - the city can anticipate additional school children in accordance with the following formulas:



1 room—.5  
2 rooms—1  
3 rooms—1.5

- Only 50% of the school children will be newcomers, the remainder being relocated from overcrowded existing housing.
- The normative requires one square meter of class space per pupil.
- The cost of a square meter of school space, with land costs, is presently \$550.

#### Streets and Roads:

- Total number of annual automobile trips on the roads of the city is approximately 365 per resident, or 92 million.
- The total number of additional automobile trips the city expects per day from the new project are:
  - residential— 500
  - stores — 1,000
  - office — 600
- The present cost to the city of maintaining streets and roads is \$400,000.
- The cost per trip of maintaining streets and roads is \$.0043.
- The present level of service at the intersections adjoining the project are acceptable and won't be worsened because of the additional traffic to be added by the project. However, one intersection has a marginal level of service and with the traffic created by the new project will be deemed unacceptable by local normatives. The traffic department determines that the problem can be solved by creating an additional turning land in the adjoining road for length of 100 meters at a cost of \$100 per meter.

#### Green space:

- Normative for green space per residential occupant: 1 meter
- Normative cost of land: \$100 per meter.

#### Other taxes and fees:

- Annual land tax/rent: \$1 per square meter
- Proportion of land tax/rent allocated to infrastructure facilities: 25%.
- The connection fee for utility services:
  - cold water \$ .001 per projected service unit
  - hot water \$ .003 per projected service unit
- The proportion of connection fees allocated to infrastructure facilities: 20%.
- The amount of communal services charges allocated to infrastructure facilities:
  - cold water 15%
  - hot water 20%



### Discount Rate:

When calculating the value of a stream of future expenditures or revenues in real terms—that is, in the value of money today—the city assumes that the future stream of revenues or expenditures will remain constant and will lose value at the rate of 10% per year. The city follows the practice of “capitalizing” streams of future income or expenditures by dividing the amount of the first year payment by 10%.

### Negotiations

At the start, the city advises the developer that there must be a payment for additional green space equal to \$40,000, which is calculated by multiplying 400 additional residents by 1 square meter per resident by the value of 100 dollars per square meter of land. Having paid less than the normative price for the land, the developer decides instead to convey to the city 400 square meters located in a convenient corner of the building lot, which the city and developer agree will be preserved as park space for the entire neighborhood. As a gift, the developer also agrees, voluntarily and as an expression of good will, to provide the city with benches, lighting and playground equipment for the new park.

In addition, the city advises the developer that the city will not allow the project to go forward without the road improvement to the local intersection at a cost of 1,000 dollars to the city. The developer review the city costs and decides that the actual cost to him would be in the range of 80 dollars per meter, or only 800 dollars, and proposes to perform the work to the intersection himself if he receives credit against exactions to the extent of the costs to the city. The city agrees.

The city has also advised the developer that there will be a fee for educational infrastructure based upon a calculation of 100 new students requiring a total of 100 additional square meters of class space at a cost to the city of \$350 per square meter. The developer having obtained a bargain the land, offers instead to provide a combination of cash plus 500 meters of land at the normative price. The city again agrees.

### Preliminary Calculations

The city then makes the following calculations:

#### Streets and Roads:

(1)	Additional Trips:	Residential	182,500	
		Stores	365,000	
		Office	219,000	
	Total:		766,500	
(2)	$(766,500) (\$400,000 / 92,000,000) =$			\$3,333



$$(3) \quad \$3,333 / .10 = \$33,330$$

**Cold Water:**

$$(1) \quad (500 \times 5,475) + (1,000 \times 10) + (2,000 \times 30) = 2,812,500 \text{ gallons}$$

$$(2) \quad (\$150,000 + \$100,000 + \$50,000) / 1,473,000,000 = \$0.0002$$

$$(3) \quad (2,812,500) (\$0.0002) = \$572$$

$$(4) \quad \$572 / .10 = \$5,720$$

**Hot Water:**

$$(1) \quad (500 \times 2,575) + (1,000 \times 10) + (2,000 \times 10) = 1,317,500 \text{ gallons}$$

$$(2) \quad (\$400,000 + \$250,000 + \$100,000) / 653,000,000 = \$0.0015$$

$$(3) \quad (1,317,500) (\$0.0015) = \$1,976$$

$$(4) \quad \$1,976 / .10 = \$19,760$$

**Fee Calculation**

**Costs:**

1.	Cold Water	\$5,720
2.	Hot Water	\$19,760
3.	Education	\$55,000
4.	Green Space	\$40,000
5.	Streets and Roads	\$33,330
6.	Intersection Improvements	\$10,000
7.	Total Costs:	\$163,810

**Less Revenues:**

8.	Land Taxes\Rents	\$22,750
9.	Connection Charges	\$505
10.	Communal Services Charges	\$12,110
11.	Donation of land for green space	\$40,000
12.	Donation of land for kindergarten	\$50,000
13.	Donation of Intersection Improvements	\$10,000
14.	Total Deductions:	\$135,365
15.	Total Fee (6-14)	\$28,445





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