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KEY ISSUES IN SUBSIDY POLICIES AND STRATEGIES FOR REFORM *

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KEY ISSUES IN SUBSIDY POLICIES AND STRATEGIES FOR REFORM

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EXECUTIVE SUMMARY

Subsidy policies may unintentionally be major causes of environmental degradation and unsustainable practices. They distort efficient price and incentive structures and lead to unsustainable production and consumption patterns. Subsidy policies are pervasive in both industrial and developing countries. Analyses show that subsidies are expensive policies that often do not serve their purposes while also causing severe damage to the environment. The first priority to promote sustainable development is to identify and reform subsidies that are ecologically destructive, economically inefficient and socially inequitable.

Applying a broad subsidy concept, covering a wide spectrum of both on- and off-budget support measures, studies show that subsidy policies involve large amounts of resources. OECD countries subsidize *energy* production by about $75 billion per annum, mainly fossil fuels and nuclear energy. Developing countries heavily support energy consumption by keeping domestic prices below market level. Such subsidies to fossil fuels amounted to $220 billion annually in the early 1990s, with another $80 billion for electricity subsidies to be added, but since then, several major countries have increased domestic prices substantially and reduced fossil fuels subsidies by $100 billion. Subsidies to private *road transport* refer to the uncovered costs of providing roads, space and traffic services to road users. Such subsidies are between $85 to $200 billion in the USA, Japan and Germany, although other OECD countries like the Netherlands and France tax their road users. In developing countries, about $15 billion each year is spent on premature road rehabilitation, while these resources could have been saved by better road management and maintenance. Subsidies to *water use* in developing countries amount to $45 billion each year, while water prices in OECD countries generally do **not** cover capital costs. Irrigation is most heavily subsidized in both regions. *Agriculture* support in the OECD amount to $335 billion in 1995 while developing countries tend to subsidize agricultural inputs.

Many subsidy policies are motivated by economic and social objectives such as to stimulate economic development, to support (poor) population groups or to provide access to basic living conditions. In sectors like energy and agriculture, the motive to subsidize may also be to protect sectoral employment or investments or

to reduce the susceptibility of the economy to external shocks. However, analyses show that subsidies often do **not** serve their purposes but rather work against them. Furthermore, they generally entail a huge fiscal drain and cause serious harm to the environment while often ending up benefitting richer population groups. Particularly subsidies linked to economic activities cause major distortions. Reshaping subsidies would in most cases yield economic, environmental and fiscal gains and may create greater equity as well. Policy makers should also be cautious and reserved before introducing any new subsidies, because once they exist, subsidies are hard to remove. The bottom line is that markets should take care of allocating resources whereas governments should refrain from interfering and surely from linking subsidies to production, consumption or inputs. Governments do have a fundamental role to play but rather towards defining and enforcing conditions for a better functioning of markets and ensuring fair competition. Sound pricing of resources, goods and services, covering at least private but preferably full costs of production and consumption, is a key element of sound governance. Policy objectives can often best be addressed by direct measures.

In practice, however, several obstacles may impede subsidy reform. The single most important barrier is opposition from vested interests. Subsidy policies favour particular interests and rent-seeking behaviour becomes dominant. Because subsidies get enshrined in price and income structures and affect the distribution of wealth, they create **"addiction"**: removing subsidies will affect more groups than was originally envisioned and, as with all addictions, breaking the habit will be difficult and painful. Furthermore, a full appreciation of the subsidy issue at hand is often lacking, because the costs are dispersed among a broad public while the benefits are much more clearly visible. Distributional consequences, in particular when subsidies get capitalized in assets and create addiction and economic dependence, may be serious barriers. Uncertainty surrounding the outcomes of reform may become so dominant that it may result in a status-quo bias in which even people that would benefit from subsidy reform, may want to avoid any risk of losing. Countries may also be reluctant to act unilaterally because they fear to lose competitiveness or that benefits of domestic reform will leak away. Developing and transition economies may lack temporary financial resources to bridge the first stages of transition or require non-monetary foreign aid such as technical assistance. Administrative and skill barriers may also impede subsidy reform.

Creating ***more transparency*** is the key issue to subsidy reform. Making subsidies more visible and transparent contributes to a better and more balanced assessment of objectives. Second, transparency often implies ***direct policy measures*** which are generally more effective in reaching their objectives while minimizing the costs of economic distortions. Third, more transparency increases the political costs of irresponsible policies and creates incentives for policy makers to act responsibly. A practical way to create more transparency is to develop an informational framework on subsidy policies. Governments could introduce a formal ***public burden of proof*** and commit themselves, or clearly identified groups of subsidy recipients, to assess and report regularly on the need for subsidies, their (in)effectiveness, costs and distributive implications. A key issue is also to apply ***alternative policies*** that better target their objectives and to ***compensate losers.*** Such compensation may ultimately take the form of buying out existing stakeholders. Accompanying retraining and educational programs may be necessary to cushion transition.

There are no single or simple factors that determine the path or pace of subsidy reform. Practice shows that, whenever feasible, rapid reform should be attempted. However, when political commitments are solid and there is a need to build constituencies for change, gradual reform, allowing sufficient time to adjust, may be preferred. Furthermore, an international dialogue on subsidies must be initiated and stimulated. Such a dialogue would not only have to take place globally, but more importantly, on regional and local levels since many subsidy issues deal with specific problems and details. International organisations will have a pivotal role to play, but NGOs may be key participants by bridging the various levels and actors and actively building support for reform. International donors can contribute by targeting their funds to projects that may catalyse domestic reform, without formally linking both together. Instead, donors may shape their responsibility more in line with the intended market philosophy by setting the example for private capital flows.

Key issues in subsidy policies and strategies for reform[1]

I. INTRODUCTION

Subsidy policies may unintentionally be major causes of environmental degradation and unsustainable practices. They distort efficient price and incentive structures and lead to unsustainable production and consumption patterns. Subsidies may become perverse incentives and adversely affect both the economy and the environment while they often end up benefitting rich groups primarily. The key priority in promoting sustainable development is to bring about the right incentive structure. Subsidy reform may not only establish the appropriate economic incentives but also mobilize domestic resources. Removing or reshaping subsidies would yield several dividends and improve economic efficiency, the environment and the public budget while leading to greater equity as well. The first and most fundamental step is to identify and remove existing policy failures: subsidies that are ecologically destructive, economically inefficient and socially inequitable.

This paper presents some of the results of the Earth Council project Economic Incentives for Sustainable Development and elaborates and extends the paper that was presented at the Third Expert Group Meeting on Financial Issues of Agenda 21 in Manila (Moor, 1996). This paper is organised as follows. Section II starts by briefly explaining what a subsidy is and, in view of recurrent confusion, what it is not. Next, revised and more comprehensive estimates will be given concerning the size of subsidy policies in energy, road transport, water and agriculture in both developed and developing countries. Sections IV will evaluate subsidy policies and identify the key motives for support and assess whether subsidies have lived up to their expectations. In section V, major barriers to subsidy reform will be identified, followed in section VI by a discussion of potential strategies to overcome them. Section VII will conclude the paper by summing up several guiding principles for subsidy reform.

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[1] This paper is a draft version and will be revised after the Expert Group Meeting. Participants are therefore wholeheartedly invited to provide comments and guidance to improve the current draft.

II. THE CONCEPT OF A SUBSIDY: WHAT IT IS AND WHAT IT IS NOT

There is often still much debate what a subsidy is or, more specifically, what it should be. Partly, this discussion reflects the evolution of the subsidy concept but the debate has also contributed to some confusion what a subsidy is and what it is not. A subsidy was initially regarded a payment or a tax concession from the government, but later extended to include policies that create transfers through the market mechanism. Some would also argue that the non-internalisation of external costs should be regarded a "social" subsidy. Recently, it is suggested to capture this conceptual diversity by referring to subsidies as the externalisation of costs.

The key issue to define a subsidy is what one regards as the right benchmark, both in theory ànd in practice. People from different countries and cultures or with different professional backgrounds may have different opinions on the choice of the benchmark and the definition of a subsidy. What in one country is regarded as a concession from the government and thus a subsidy, is part of the current standard in another country and surely not a subsidy. A subsidy can also be much broader than cash transfers alone and include (quantity) regulations with monetary implications. The problem is then again to determine the proper standard of rules and regulations. An even broader perspective on subsidies is to include alternative economic opportunities that have been foregone.

The latter view comprises a broader, economic approach towards defining a subsidy. From this perspective, the benchmark to define a subsidy is the efficient solution that maximises welfare. In theory, prices set equal to marginal costs will, in principle, generate the economically most optimal outcome.[2] Therefore, any government intervention that leads to a deviation from marginal cost pricing will create inefficiencies and can be regarded a subsidy. In practice, however, marginal costs are hardly useful as an operational concept and a more feasible approach is often to focus on opportunity cost pricing (see Moor, forthcoming). World market prices are generally taken as the benchmark in the case of tradables, while cost recovery is a practical alternative reference point to identify subsidies to non-tradables.

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[2] In theory, fully competitive markets are regarded as efficient; those markets must satisfy conditions such as complete information, perfect knowledge, no price-setting or price-influencing behavior, and so on.

In words, applying a broad subsidy concept, we define subsidies as comprising *all measures that keep prices for consumers below market level or keep prices for producers above market level or that reduce costs for consumers and producers by giving direct or indirect support*. To facilitate the identification and enumeration of subsidies in practice, we use the following *subsidy guide,* covering a wide spectrum of both on- and off-budget support measures:[3]

- budgetary effect of tax policies:
  - direct expenditures such as direct grants or payments;
  - tax subsidies such as tax credits, exemptions, deferrals, preferential rates;
- public provision of goods and services below cost such as provision of infrastructure services;
- capital cost subsidies such as preferential loans, favourable interest rates, debt forgiveness;
- policies that create transfers through the market mechanism:
  - domestic oriented policies such as price regulation, quantity controls, legislation;
  - trade oriented policies such as import and export tariffs and non-tariff barriers.

This subsidy guide has been used as a tool for sectoral reviews to identify subsidy policies and indicate their quantitative implications. To avoid confusion in what our subsidy estimates represent, we would like to emphasize that they are much broader than cash money being transferred from the government to subsidy recipients. Our estimates may also include the *economic* costs of foregone alternative opportunities and represent the amount of resources that is being shifted from one group to another. Consequently, removing an X amount of subsidies does *not* necessarily imply an equal amount of cash money generated for the public budget but reflects the amount of resources that may come available for the economy.

Also note that our subsidy guide does *not* include externalities, for both more fundamental and practical reasons. A fundamental difference is that subsidies in our definition arise from *active* government interventions while externalities refer to the *lack* of government policy. Furthermore, there are considerable methodological differences in measuring subsidies and external costs, in particular concerning their reliability. Estimates on subsidies and external costs are hardly comparable and do

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[3] See Moor (1996) for a detailed explanation of subsidy components.

not add up easily. Finally, political consideration also warrant separate concepts and analyses.

III. THE SIZE OF SUBSIDY POLICIES: HOW LARGE ARE THEY?

The subsidy guide has been used to identify subsidies in the energy, road transport, water and agricultural sector, covering both developed and developing countries. Not all subsidy components have been covered because of data limitations, but table 1 highlights the main results by presenting our current estimates on the quantitative extent of subsidy policies in the four sectors.

Table 1: *Current global and partial estimates of sectoral subsidy policies (in US$ bln)*[a]

	global estimates		partial estimates	
	non OECD	OECD	non OECD	OECD
energy	150-200	70-80		
road transport	15			85-200[a]
water use	42-47[b]		(20%-50%)[c]	
agriculture	10[d]	335		

a Includes USA, Japan and Germany.
b Includes subsidies to drinking water and irrigation.
b Subsidies as percentage of capital costs.
c Includes food and input subsidies but not irrigation.

Governments in both developed and developing countries are widely and deeply involved in their *energy* sectors. OECD countries mainly subsidize energy production, presumingly motivated by the concern for industrial investment and employment creation. Producer subsidies in selected OECD countries range from $70 to $80 billion, including cross subsidies between electricity consumers. OECD subsidy policies take all kinds of forms, from direct grants to cover losses in coal production and tax allowances for fuel producers to price support to domestic producers and providing them with loans at low interest rates or favourable conditions. The bulk of OECD subsidies go to polluting fossil fuels, in particular coal and oil. Also nuclear energy receives a large share of subsidies, mainly for R&D purposes.

Developing countries, on the other hand, subsidize energy consumption by keeping domestic prices below world market level, apparently to support households. Fossil fuels were heavily subsidized by about $220 billion in the early 1990s, with another $80 billion for electricity subsidies to be added. Two-thirds of the total amount was attributed to the former Soviet Union. Recently, however, several major subsidizing countries have started to reform their energy sectors. Russia, for example, has steadily removed most energy controls and regulations since 1992, which has driven domestic energy prices up from 20-40% in 1991 to about 70% of world prices by the end of 1995. China has phased out coal subsidies by allowing coal prices to rise to world market level and they are now close to parity with international prices. Ongoing research by the World Bank and own tentative calculations indicate that the reduction in fossil fuel subsidies, as measured by the price wedge, may well amount to $100 billion. Energy subsidies in developing countries would now be in the range of $150 and $200 billion per annum.

Subsidies to *private road transport* basically comprise the uncovered costs of providing road users with roads, space and complementary traffic services. Such subsidies are estimated between $85 to $200 billion in the USA, Japan and Germany, reflecting different estimates for parking subsidies and the costs of providing traffic services in the USA. Cost coverage in the USA is between 20% and 50%, while road users in Japan cover about 80% but that is without parking subsidies. Higher fuel levies and prices make that road transport subsidies are generally lower in OECD Europe and sometimes even turn into net taxation. In Germany, cost coverage is about 70%, but road users in the Netherlands and France are taxed and pay 20% in excess of their share. Irrespective of subsidization or net taxation, - cross subsidies may exist in most countries, from passenger to freight transport, from rural to urban road users and from gasoline to diesel vehicle users. Note that the subsidy estimates do not include the external costs of pollution, climate change, accidents and congestion caused by road transport which may be much higher.[4]

It is generally believed that there are likely to be huge road transport subsidies in developing countries as well. However, comprehensive transport studies for developing countries are yet lacking and only some fragmentary evidence on road transport subsidization exists. A World Bank study by Swaroop (1994) finds somewhat mixed results when separating road user charges from government revenue. It shows that for five out of the seven developing countries involved, the ratio of road related charges to spending is well under 50%, indicating huge

[4] Roughly speaking, "reliable" literature of external costs estimates range from 1.7% to 7% GDP, suggesting a range of $350 to $1400 billion in the entire OECD and reflecting a wide margin of uncertainty that is commonly involved in valuating external costs. Without wanting to enter the debate on external costs, we only wish to put our estimates of road transport subsidies into a broader perspective of total costs of road transport and point to the crucial importance of road transport pricing to cover all those costs.

subsidies. On the other hand, in the case of Turkey, the ratio is as high as 217%, pointing to net taxation. In addition, the World Bank (1994) estimates that developing countries spend $15 billion each year on premature road rehabilitation. These resources could have been saved with more efficient road maintenance. The question arises whether these potential savings can be regarded as "subsidies", but they are maintaining and supporting an inefficient condition and use of road infrastructure. Furthermore, sooner or later, these losses will have to be absorbed by the public budget. The poor condition of road infrastructure in developing countries may also become an obstacle for economic development.

Water is woefully underpriced in both developed and developing countries. Water prices in OECD countries are generally **not** sufficient to cover capital costs with subsidy rates between 20-50%, while in some cases, they do not even cover operating and maintenance costs. Water subsidies vary greatly within the OECD but are generally higher in Australia, Japan, Turkey and the USA. The highest subsidies are found for irrigation projects with subsidy rates up to 80%. An absolute estimate of subsidies is difficult to give because cost data are lacking but they may well run into tens of billions of dollars.[5]

Cost recovery of providing drinking water services in developing countries is about 35% on average. Together with inefficiencies in production and illegal connections, the fiscal burden is estimated at $22 billion each year (see World Bank, 1994). This amount is very likely to grow, since future unit costs of new water supplies will double and in some cases even triple compared with the cost of water from the current supply systems, and that is even before environmental costs are factored in. Because water will be increasingly difficult to obtain, large and growing urban areas, in particular, will face rising costs. In developing countries, cost recovery for irrigation is even much lower. Repetto (1988) estimated cost recovery rates for irrigation already below 10% to 20% in the 1980s with actual revenues often not sufficient to cover operating and maintenance costs, let alone capital costs. Currently, cost recovery rates are about 20-25% with total irrigation subsidies tentatively estimated between $20 and $25 billion per annum.[6] Together, subsidies for drinking water and irrigation in developing countries amount to roughly $45 billion each year.

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[5] Irrigation subsidies in the USA, for instance, resulting from underpricing alone, can be calculated at $2 to $2.5 billion per annum.

[6] Based on total costs of $25 billion and a ratio recurrent/capital costs of 20/80.

OECD governments heavily protect *agriculture* by subsidizing production through a wide variety of price and non-price measures. Typical examples of market price support measures, which make up about 60% of total assistance, are minimum entry and intervention prices, border measures, such as import taxes and export subsidies, and market withdrawals. Non-price support measures range from production-linked supports such as deficiency payments and budgetary payments for inputs to more sector-wide support such as inspection services, research and training. Total transfers in OECD countries amount to $335 billion in 1995, equal to $380 per capita or $16,000 for each full-time farmer.[7] Based on a narrower definition, OECD support is equal to 40% of OECD agricultural production or about two-thirds of border prices. Although committed to reduce the high level of support, many OECD policies continue to maintain quotas, administered prices and border measures.

One of the main problems in developing countries in the past has been the net taxation of agriculture through various macro-economic policies and interventions. A World Bank study by Schiff and Valdés (1992) concludes that in the period 1960-1984, 18 developing countries taxed their agricultural producers by 30% on average. Overvalued real exchange rates, usually the result of expansive macroeconomic policies and large budget deficits, and industrial protection policies effectively taxed agriculture by raising domestic prices relative to world prices and reducing purchasing power of farm households. As a result, the income transfers out of agriculture have been enormous, 46% of agricultural GDP on average, and depressed output and growth. To compensate farmers for these losses, governments in developing countries heavily subsidized credit and agricultural inputs such as

[7] The estimates on agricultural transfers are sometimes criticized for being too simplistic; the values for total transfers per full time farmer would imply that support comprises a very large part of value added and, in some cases, may actually be larger than value added which would be economically irrational. Furthermore, it would not be entirely justified to take world prices as the reference level to measure transfers, because removing OECD support would have significant changes on agricultural production and hence, world prices; OECD transfers would decrease automatically. It is indeed noted that OECD support comprises much more than cash transfers alone; it reflects the monetary transfers to maintain domestic production and imports at their current levels. Although static, the measure does give some indication about the far-reaching implications and quantitative extent of agricultural subsidy policies in the OECD.

irrigation, fertilizers and pesticides. Consumers have in some cases also been subsidized by keeping food prices low. These food subsidies have been a major drain on the public budget, particularly in food-importing countries. It is difficult to come up with an accurate and comprehensive estimate of agricultural subsidies in developing countries; evidently, their size is only a fraction of total transfers in the OECD. Recognizing that subsidy trends have been declining, a cautious estimate would indicate agricultural subsidies in developing countries at about $10 billion per annum, but that is without irrigation subsidies of $20 to $25 billion.

IV. SUBSIDY EVALUATION: IDENTIFYING MOTIVES AND IMPACTS

In evaluating the sectoral subsidy policies, it is important to avoid too much generalization beforehand and emphasize that not all subsidies are "bad". In fact, what makes the subsidy issue so complicated, is that the difference between beneficial and distortionary subsidies may sometimes be in the details. The key issues, though, are to assess whether subsidy policies actually serve their purposes or not, at what cost, how the costs and benefits are distributed and whether subsidies are detrimental to sustainable development; in short, to determine whether subsidies live up to their expectations.

Evaluating the sectoral analyses and the types of support, the following *key motives* seem to underly most subsidy policies:[8]

- to stimulate (rural) economic development or growth;
- to protect (sectoral) employment and investments;
- to safeguard domestic supply and reduce external dependency;
- to abate poverty or to support the poor;
- to provide access to basic living conditions.

Table 2 reveals the key motives for subsidy policies in the energy, road transport, water and agricultural sector, in both industrialised and developing countries.

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[8] This classification is, undoubtedly, a simplification, since there may be a wide variety of (detailed) objectives in practice. It must also be added that there may be large subsidies in other sectors as well, for instance in the manufacturing, forestry and fishery sector, that may have different motives as indicated. Further research on subsidy policies in those sectors are recommended.

Table 2: *Key motives for sectoral subsidy policies*

	industrialised countries	developing countries
energy	protect employment and investments secure domestic supply	economic development support the poor
road transport	economic development	economic development provide access
water use	(farm) production growth	support the poor provide access (farm) production growth
agriculture	maintain farm income secure domestic supply	maintain farm income (farm) production growth

There can be important differences in subsidy motivation between industrialized and developing countries in some sectors, but the objectives might be quite similar in others. Many subsidy policies are motivated by economic and social considerations. In sectors such as energy and agriculture, the motive may also be to protect domestic industries and reduce the susceptibility of the national economy to external shocks.

Sectoral analyses reveal that many existing subsidy policies work against their motives. Support to both *energy* producers and consumers, in particular for fossil fuels, fail in most cases to achieve their (stated) purposes of promoting economic efficiency and may actually be counterproductive. There is overwhelming evidence to conclude that removing and reshaping energy subsidies is a "win-win" policy and would yield economic, environmental and fiscal gains.[9] Removing all energy subsidies would reduce global carbon emissions by about 10% and similar declines of other forms of air pollution and, at the same time, improve economic development, or at least not hamper it. The goals of securing domestic energy supply and protecting the national economy from external energy shocks in industrialised countries may have been legitimate in the 1970s and early 1980s, but they now offer weak support for subsidies to energy production. Instead, it is fair to say that producer support in OECD countries have become very expensive ways to protect sectoral investments and employment. On the other hand, countries may argue, in defence, that they feel forced to support their domestic sector, because other

[9] See Birol, Aleagha and Ferroukhi (1995), Burniaux, Martin and Oliveira-Martins (1992), Larsen (1994), Larsen and Shah (1994), Okogu and Birol (1993) and Organisation for Economic Co-operation and Development (forthcoming).

countries apply similar subsidy policies. When they contemplate reducing subsidies, competition might induce investment capital to go abroad.[10]

Fossil fuel subsidies to consumers in developing countries also do not serve their purpose; they do not stimulate economic development but rather create and contribute to greater inefficiencies. Nor are such subsidies very effective in supporting the poorest population groups. In fact, the main conclusion of empirical case studies of energy reform policies in developing countries show that raising energy prices did not harm growth, industrial competitiveness or the poor (Hope and Singh, 1995). Furthermore, subsidizing energy is very costly and extremely harmful to the environment, contributing to air pollution, climate change and other forms of environmental damage.

In most cases, it would be more cost-effective to decouple support from production or consumption and target the original policy objectives directly, for example, by switching to direct income support or direct employment subsidies, preferably accompanied by retraining programs. For social purposes, it would be more cost-effective to provide targeted support to the poor, such as fuel coupons or vouchers or micro credit, rather than imposing overall price controls.

Economic development seem to be the key motivation behind subsidies for *private road transport,* in both developed and developing countries. Increasing factor mobility may indeed be an important consideration in promoting and enhancing economic development. More specifically, encouraging physical mobility of the poor may improve their employment opportunities and living conditions. However, subsidizing road transport through less than full cost recovery will not achieve these objectives, but instead, will work against them and induce overuse and lead to a higher than optimal mobility. This, in turn, will increase pollution and congestion, particularly in and around cities, of which there are so many examples worldwide.

National and city level studies indicate that pricing and cost internalization measures can be "no-regret" policies that may reduce carbon emissions without hampering economic development. For instance, removing road transport subsidies in the USA, either by targeted user fees or by gasoline taxes, would reduce CO_2 emissions by 10% to 15% over a 20 year period while growth in economic activity is hardly affected (OECD, forthcoming). Practical experience of area licensing in

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[10] This type of argument typically leads to a prisoner's dilemma in which no country would, in principle, be willing to act unilaterally.

Singapore, license fees in inner London roads, entry fees in Milan, toll rings in Bergen and a gasoline tax in Mexico City show that pricing measures can indeed be successful in reducing traffic and pollution in cities. Specific price measures are even more effective when internationally implemented. A Dutch study by the Central Planning Bureau (1996) shows that a substantial increase in excises would reduce car use by 40% and emissions by more than 60% when internationally - coordinated within the European Union, two to three times more when implemented in the Netherlands alone. This study concludes that such an internationally coordinated policy would lead to significant changes in consumption patterns without creating major distortions to the economy.

Subsidizing private road transport also does not contribute to equity objectives; they tend to accrue to richer population groups, that is car owners. Studies by the World Bank (1994) show that price subsidies to infrastructure in developing countries almost always benefit the non-poor disproportionally. Removing private road transport subsidies is therefore likely to have no or limited impact on the poor. What governments should do, is to charge road users at least the (private) costs of supplying them with roads, space and traffic services. Such a pricing policy will not only provide the incentive for more efficient use, but will also generate the funds to build and maintain infrastructure. Furthermore, instead of subsidizing all road transport, it would be more cost-effective to target the transport demand of the poor directly by providing them with income and physical access or by stimulating the provision of alternative or non-motorized forms of transport.

Apart from irrigation purposes, *water* subsidies in developing countries seem to be motivated predominantly by social objectives. Subsidies to drinking water aim to ensure water availability to the poor because it is assumed that the poor would not be able to afford to pay high water prices. The facts, however, show the opposite and expose the myth that current water subsidies would actually serve these purposes (see World Bank, 1994 and Briscoe, 1995). Instead, water subsidies tend to benefit the "haves" instead of the "have-nots". Furthermore, the poor often pay high water prices in practice, since they do not have ready access to the public water system and usually will have to buy expensive water from private vendors. In fact, current water subsidies act as a barrier to improve the conditions of the poor, because governments lack the financial resources to enhance and expand the public water system.

To stimulate agricultural production seem to be the motive to subsidize water for irrigation practices in both industrialized and developing countries. However, studies show that irrigation water is so cheap that farmers tend to use water at will without any consideration to costs or cost-effectiveness; they tend to over irrigate their lands, causing severe salinisation and declining fertility (Bhatia, Cestti and Winpenny, 1995, Food and Agricultural Organization, 1994 and Tsur and Dinar, 1995). Removing water subsidies would generate large efficiency gains and typically reduce water use by 20% to 30%. In general, there is scope for improved efficiency whenever the pricing method affects the demand for water. Current practices of per area irrigation pricing in developing countries provide no incentive at all for efficient water use.

The woeful underpricing of water in both developed and developing countries offer the wrong incentives for water users. Water is simply so cheap that it causes massive squandering, a bitter observation when realising that over 20 countries face acute water shortages and more than 1.2 billion people still lack adequate access to safe water. Excessive water use also leads to ecologically destructive practices by causing salinisation of rivers and aquifers, land subsidence and loss of biodiversity. In general, proper water pricing is the key in addressing current and future water problems. Sound pricing policies would provide the incentive for efficient use and may generate the resources to ensure an (equitable) access. To enhance water availability, governments may consider providing micro-credit to the poor to ensure income access, to issue water stamps or to apply lifeline pricing.

Agricultural subsidies are generally intended to support farm incomes. Countries may also subsidize to encourage agricultural production, an objective that may be particularly relevant to food-importing (developing) countries. A related motive is to secure a domestic food supply. However, analyses show that agricultural subsidies are very costly and ineffective ways to achieve these objectives, particularly those support measures linked to production or inputs.

A general conclusion is that consumers and taxpayers in the OECD would stand to gain substantially more from subsidy reform than farmers would lose (Organisation for Economic Co-operation and Development, 1995 and Blandford and Dewbre, 1994). This conclusion can simply be demonstrated by pointing to the low efficiency ratio of OECD agricultural transfers in achieving the objective of maintaining farm household income. Research shows that input subsidies, price support and production-linked measures are most distortionary as regard their impacts on resource allocation and the extent to which they deter trade, far more than direct support measures.[11] Furthermore, these measures show a much greater proportion of

[11] The main reason is that market support and production-linked measures raise prices received by farmers and encourage them to produce more and use more inputs. The distortionary impacts of input subsidies may be even larger.

leakage, implying that such support generally does *not* accrue to the intended recipients. It is estimated that only 20% of OECD support by either taxpayers or consumers ends up as additional farm household income. About 55% is spent to purchase additional inputs, another 20% covers opportunity costs and 5% reflects additional costs from terms of trade effects. Moreover, OECD support, in particular those linked to economic activities, mostly accrue to large and rich(er) farmers.

Gradual reform towards free trade through an international policy of decoupling subsidies from production, would yield welfare gains for farmers, taxpayers and consumers. Multilateral decoupling would improve efficiency in agricultural production and reduce the fiscal burden. The environment is likely to benefit as well, in particular from a targeted subsidy reform; the environmental gains could be enhanced when farm support is reshaped towards promoting nature conservation practices. Subsidy reform need not hurt farm incomes, but in cases that small individual income losses would occur, accommodating direct income support could easily compensate.

Subsidy reform may also improve agricultural performance in developing countries. Although input subsidies may partly compensate the implicit tax on output in financial terms, both types of policies create various distortions in agricultural production. The use of inputs such as pesticides and fertilizers may be essential for production, but up to a certain point. Lowering their costs encourages farmers to use them more than they would have to and may well turn out to be counterproductive as well as destructive to the environment. Case studies show that removing input subsidies in developing countries will reduce the fiscal drain, improve efficiency and generally *not* hurt small farmers; furthermore, the environment would benefit as well by reducing excessive use of irrigation and pesticides.

In conclusion, many subsidy policies do not live up to their expectations. The main reason is that subsidies divert resources away from economically more profitable uses with large opportunity costs involved. Therefore, they generally lead to lesser instead of more economic growth. In particular, subsidies linked to production, consumption or inputs are distortionary: they have the largest economic costs and the greatest leakages. Subsidies give the wrong sets of signals, leading to ecologically destructive practices. Subsidy structures also tend to be socially inequitable, generally ending up benefitting the rich and the "haves".

V. IDENTIFYING MAJOR BARRIERS TO SUBSIDY REFORM

After evaluating the motives and impacts of subsidy policies, it is important to identify possible other reasons for their existence or why subsidies tend to persist, particularly in those cases when subsidies do not live up to their expectations. Furthermore, identifying major barriers is of vital importance when suggesting proposals for subsidy reform. Experience shows that the key factors blocking subsidy reform are:

- opposition from vested interests and stakeholders;
- distributional consequences;
- entitlements of existing stakeholders;
- uncertainty surrounding reform outcomes;
- international considerations;
- lack of (foreign) assistance;
- administrative, institutional and skill barriers.

Opposition from vested interests and stakeholders is often the single most important barrier to reform. Subsidy policies favour particular interests and rent-seeking behaviour becomes dominant. Defensive coalitions of recipients and beneficiaries of subsidies are often very effective in mobilizing support, among others by pointing heavily to specific motives and objectives. Their arguments may be quite selective but they are often well capable in turning the public and political opinion against subsidy reform.

Furthermore, a full appreciation of the subsidy issue at hand is often lacking, because the costs of support policies are dispersed among a broad public and do not impact on individual groups greatly while the benefits are much more clearly visible. This may also explain why subsidy policies are often hidden or implicit in practice; it is politically more comfortable to cover their costs while at the same time pointing to more visible benefits for specific groups. Linking support to production or consumption may be politically more attractive because it implies paying for efforts instead of handing out money, literally a "get-value-for-money" approach. Subsidy recipients may also prefer implicit forms of support or linked to production, because they fear that explicit subsidies will be cut first in times of fiscal stress. However, support linked to products or services gets enshrined in price and income structures and affects the distribution of wealth; it creates "addiction" to subsidies. Removing subsidies will affect more groups than was originally envisioned. As with all addictions, breaking the habit will be difficult and painful.

Closely related are barriers that arise from potential distributional consequences of subsidy reform. Without sufficient measures that compensate or cushion negative effects of reform or assist in transition, distributional implications, or how they are perceived, may be unacceptable for groups or countries that would lose from subsidy reform. It is also important that their (economic) interests are considered and adequately addressed. Subsidies often get capitalized in assets and may create legitimate claims by subsidy recipients when support policies have created and contributed to entitlements. Subsidy beneficiaries will have based decisions on support policies and may have grown dependent on them; in a way, they have become "addicted" to subsidies. For instance, (production-related) agricultural subsidies generally get capitalized in land values, so that removing them may cause land values to drop dramatically, which may make farmers insolvent and even drive them out of business. Particularly in sectors that matter politically, addiction to subsidies can be so strong, that (perceived) negative financial impacts may be a major barrier to reform.

Uncertainty surrounding progress and outcomes of reform is postulated as a potential barrier to reform. Rodrik (1996) asserts that uncertainty may become so dominant that it may result in a status-quo bias. When the outcomes of subsidy reform are unclear or uncertain, people, even those who would benefit from policy reform, may prefer consolidating the existing situation rather than risking to lose at all. In plain language, they know what they have but they are not sure what they will get.

International considerations may also become an impediment to reform. As noted earlier, countries may be reluctant to act unilaterally and lose international competitiveness. A country may also fear that progress of domestic reform will leak away through an increase in imports and reform may thus not be effective in achieving the intended objectives. In fact, in both cases, the benefits of reform may be unclear or uncertain that countries may want to await international action before implementing reform domestically. It may also be politically opportune *not* to initiate domestic reform, particularly in times of elections.[12]

In international context and in particular for developing countries and transition economies, the lack of foreign assistance can be a major barrier, both in monetary

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[12] Obviously, countries that wish to (continue to) be less dependent on foreign products and imports, will not be motivated to initiate subsidy reform. However, as noted, one may question the validity of such objectives in the present trend of continuing market globalization.

and non-monetary terms. Countries may lack temporary financial resources to bridge the first stages of the transition process and they may need short run foreign funds to get started. Furthermore, countries may also require non-monetary foreign aid, such as technical assistance and administrative skills in setting up legislative and control systems. Countries can also assist each other to promote and sustain reform through mutually and gradually exchanging and implementing policy changes.[13]

Finally, administrative and institutional barriers may block subsidy reform. There may not be a great deal of enthusiasm on the part of management and organizations that administer the subsidies. They might be sceptical about the need to reform or feel threatened that their expertise will lose its value, or their jobs will be lost. Generally, it would take (high) political-level action to slice through bureaucratic inertia and engage in administrative changes. In addition, there may also be a lack of training and juridical skills; many countries may lack the level and range of skills to assess policies, to develop alternatives or to efficiently and effectively implement reform policies.

VI. STRATEGIES FOR SUBSIDY REFORM: HOW TO OVERCOME THE BARRIERS

This section identifies the main strategies to overcome barriers to subsidy reform. The key messages and strategies are:

- to create more *transparency* in subsidy issues;

Creating more transparency in the motives, costs and impacts of subsidy policies will raise questions about their effectiveness and existence. Exposing the costs and implications of subsidies will reveal more clearly the often implicit choices and priorities. More transparency also increases the political costs of irresponsible policies and provides incentives for policy makers to act responsibly. It is also easier to expose and reform a targeted, explicit subsidy than a hidden one. At the same time, such transparency is often the main underlying reason that support is made implicit, hidden or linked to activities; it is more attractive for both subsidy providers and recipients to hide their addiction to subsidies and disperse the costs.

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[13] For instance, country A may remove certain sectoral barriers for which country B eliminates other obstacles, which in turn may induce country A to further continue its reform, and so on.

Nevertheless, one should aim to expose the facts on subsidies by demonstrating their costs, their (in)effectiveness in achieving the intended goals and showing who benefits and who pays. Such exposure may raise questions on subsidies, assess their existence and open up a debate, which in turn may lead to more pressures to make subsidies more visible. Governments may start creating more transparency by developing an informational framework and evaluating subsidies regularly (see further) but non-governmental organizations may also take a responsibility in exposing subsidy policies.

- develop an *alternative* policy that better addresses and targets the same objective and compensate losers in some way;

Although subsidies are set up to achieve certain policy objectives, they often do not serve these ends and may even be counterproductive. The original objectives may remain valid, but they need to be addressed more cost-effectively with policies better targeted. In most cases, direct (income) support is a superior policy option than subsidies linked to production, consumption or inputs. Direct subsidies are the least distortionary as regard their impacts on resource allocation and the extent to which they deter trade, while they generally accrue to the intended recipients far more than other forms of support that show greater leakages. Therefore, if the aim is to provide support to specific population groups, direct subsidies are superior policies. This would back up the urge for more transparency in subsidy policies.

- *to buy out existing stakeholders*;

As noted earlier, removing subsidies may have severe implications for recipients when they have economically grown dependent on them and become addicted. Governments may have to recognize existing entitlements and consider buying out existing stakeholders and breaking the habit once and for all. Some would regard this option as politically unacceptable because it would imply a confession to past failures or a surrender to vested interests but buying out stakeholders can be a pragmatic, structural solution. Buy-out may be costly in the short run but not necessarily costlier in the long run than maintaining current subsidies. Furthermore, it can create the opportunity to start with a clean slate and allow a more efficient resource allocation in an ecologically sounder way.

- to initiate an *institutional mode shift*;

A long run, comprehensive strategy for reforming subsidies is to remove the foundations on which many subsidies seem to rest by initiating an institutional mode shift. Such a fundamental reform may be particularly relevant for countries that are far away from being a market economy. In general, the purpose of an institutional mode shift is to reorganize ownership and incentive structures. A policy reform that involves liberalizing markets, restructuring sectors and creating ample room for (fair) competition eliminates many root causes of subsidy policies. Privatization and deregulation are first steps towards such a transition, although it must be borne in mind that the way these market-oriented reforms are put in place matters greatly; they are the *means* to an end. Another key element is to impose and sustain financial discipline, which is not only vital to enhance the restructuring of the economy, but may also contribute to control inflation. A comprehensive study by the World Bank (1996) on the transition of economies has shown that economic growth deteriorates dramatically when inflation rates rise above a critical threshold of about 40% per annum.[14] But restructuring existing firms and enterprises and imposing financial discipline is not enough to establish an incentive-based economy. The second key step is to create and distribute property rights. Free entry by new businesses, both domestic and foreign, are crucial for a proper functioning of a market economy and essential for economic development.

- introduce or reverse the *burden of proof* for subsidy policies;

One concrete way to create more transparency on subsidies is to develop an informational framework on subsidy policies and introduce a burden of proof for their need and implications. As noted earlier, there is usually an information asymmetry in the costs and benefits of subsidies; the benefits and winners of subsidies are often more visible than the costs and the losers, while the opposite applies to subsidy removal. However, introducing a burden of proof by a formal commitment or assessment to report on the need for subsidies, their effectiveness, costs and distributive impacts may lead to more and better information. The informational framework and the burden of proof could be further institutionalized by requiring governments to draft and issue public monitoring reports on subsidies regularly, say each or every two years. When there are clearly identified groups, a step further would be to reverse the burden of proof towards those subsidy recipients and impose them to report on subsidies. Obviously, such monitoring reports would need predetermined, objective criteria.

[14] Huge inflation can also wipe out private savings and pensions and create dramatic social problems, in particular for the elderly.

- to set up *retraining and educational programs*;

Building further on the need for an informational framework on subsidies, retraining and education programs may be needed to overcome administrative and skill barriers. Providing the tools and skills raises awareness and enables the identification and assessment of subsidies. It will also enable policy makers to develop and implement alternative policy measures. Sometimes, it will take (high) political-level action to overcome administrative inertia and initiate necessary changes. Another key condition for successful subsidy reform is congruence of interests on the part of treasuries, environmental and sectoral agencies. Interdisciplinary teams consisting of fiscal and environmental experts, together with communication and sectoral specialists, may be well equipped to make transition successful.

- to use *crises* to question and expose subsidy policies;

As regards the timing for subsidy reform, one could initiate a debate and question their existence when governments contemplate (fiscal) reform during times of fiscal stress or environmental crises. Particularly in times of fiscal stress, defensive coalitions of interest groups may have been weakened, and their arguments in favour of subsidizing may be less valid or persuasive; alternatively, interest groups may be more readily convinced that they would have more to lose from overall reform. Environmental problems or crises may also trigger public attention and make people more receptive towards subsidy evaluation.

There are various timing strategies towards implementing subsidy reform. For argument's sake, we limit ourselves to two opposite, stylized options: rapid reform versus gradual change.

- *rapid reform*;

Governments could launch a vigorous, drastic reform in a shortest possible time. Such a "shock therapy" may be particularly relevant in cases where political commitments and stability are uncertain in the long run. Rapid reform may also be preferred when countries are already in or moving towards transition; many problems and barriers are then already being addressed. Governments could consider integrating subsidy reform as part of a package of overall policy reform. Another potential advantage of shock therapy is that it may produce "early" results that enable governments (politically) to sustain reform policies.[15] Finally, experience seems to demonstrate that, whenever feasible, rapid reform should be attempted. The World Bank (1996) concludes from a wide range of transition practices that countries, in which liberalisation has been most rapid and comprehensive, have been more successful than "slow" reformers. Advanced liberalisers have generally experienced an earlier and stronger recovery and also come out far ahead over a longer period.

- gradually *phasing in* reform;

However, rapid reform is far from a general panacea for all countries in all cases. Instead, governments are in practice constraint by initial, country-specific conditions such as the level of development and industrialization. But trade location, institutional settings, historical practices and cultural attitudes are also decisive factors.[16] Perhaps more importantly, governments may want to build a constituency that supports change and transition. Another way to implement subsidy reform is through a piecemeal approach and gradually phasing in necessary changes. Phased reform could start with localized experiments that allow them to expand as lessons come available and successes emerge. Phasing in reform may build support from subsidy recipients, because it would give them time to adapt along the way, where necessary accompanied by government programs, in this way minimizing the social costs of adjustment. However, gradually phasing in reform requires a long term (political) commitment to sustain adjustment, also when motivations diminish.

- *to initiate and stimulate an international dialogue* on subsidy reform;

Since multilateral or common action is often a condition for successful reform, an international dialogue on subsidies and subsidy reform should be initiated and stimulated. Given sufficient support, it may be worth considering to organise a series of Green Rounds on Subsidies to discuss and agree upon actions towards

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[15] As a warning, the World Bank (1996) observes that official data tend to overstate output declines. First, they often fail to capture output growth from "second" or informal sectors that compensate declines in formal sectors. Second, measured output before reform is often not entirely reliable and lost output may consist of goods no longer wanted.

[16] For many developing countries, the size of the rural sector is a key factor that may determine the start and pace of reform.

subsidy reform and providing (mutual) assistance.[17] Such a dialogue would not only have to take place globally, but also, and perhaps even more importantly, on regional and local levels. Many subsidy issues encompass specific problems which often need to be dealt with at the lowest possible level. International and multilateral bodies will have a pivotal role to play but non-governmental organisations (NGOs) may be key participants in such a dialogue by bridging the various levels and actors and actively building support for reform. NGOs, and the Earth Council in particular, with its wide network across sectors and interests, could catalyse the debate and use its convening power to engage political representatives into the subsidy debate and bring them together to discuss and agree upon common actions towards subsidy reform. It is vital that some major countries get convinced of the necessity to take the (political) leadership and set the example and initiate progress.

- *to support and fund catalytic initiatives* to reform;

International donors may contribute by supporting and funding projects and initiatives that would catalyse domestic reform, without necessarily formally linking both together. Foreign assistance should refrain, whenever possible, from conditional assistance; this would be in sharp contrast with the intended market philosophy. Instead, donors may shape their responsibility by setting the example for private capital flows. For instance, donors could consider supporting start-up businesses that use innovative and environmentally friendly techniques which may also contribute to realizing an institutional mode-shift. Foreign support may also overcome the potential lack of sufficient, short run financial resources to bridge the first stages of transition; or even longer, since a fundamental change towards an incentive-based market economy may take many years to develop.

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[17] A broader suggestion has been made by Bergsten (1996) to move towards an open global economic system through consultations and negotiations in order to strike a "grand bargain" between Northern and Southern countries as a kind of insurance policy against the potential re-emergence of protectionism. Although Bergsten's proposal is inspired by all benefits of free trade and not only by environmental gains, subsidies could play an initiating role.

VII. SUMMING UP: GUIDING PRINCIPLES FOR SUBSIDY REFORM

Subsidies are often motivated by economic and social considerations primarily. However, analyses show that many sectoral subsidy policies do *not* serve their purposes and do not live up to their expectations. The main reason is that subsidies shift costs from one group to another: from producers or consumers to one another, or to the government and thus to taxpayers. They distort efficient price and incentive structures and lead to unsustainable production and consumption patterns. Subsidies favour particular, often vested, interests and divert resources away from economically more profitable uses with usually large opportunity costs involved. This shift goes at the expense of economic efficiency and the environment while subsidy structures also tend to be socially inequitable, ending up benefitting the rich and the "haves". Because subsidies favour particular interests, rent-seeking behaviour becomes dominant and through various ways, subsidy recipients get "addicted ". Proposing subsidy reform will, therefore, raise heavy opposition of vested interests. A full appreciation of subsidies and their reform is further complicated, because the costs of subsidies are dispersed among a broad public while the benefits are more clearly visible; vice versa, the costs and pain of removing subsidies are more visible and more certain than the benefits.

Transparency is the key issue in subsidy reform, for several reasons. Making subsidies more transparent contributes to a better and more balanced assessment of objectives and enables a sound and open discussion with the arguments, impacts, costs and distributive implications made explicit as possible. Second, transparency often implies direct policy measures which are generally more effective in targeting their objectives. Furthermore, direct measures are the least distortionary; they reduce the costs of economic distortions to a minimum. Third, more transparency increases the political costs of irresponsible policies and creates incentives for policy makers to act responsibly; it enhances control of government policies.

One should thus create pressures to stimulate transparency in subsidy policies. Key priorities are to raise awareness, to initiate a debate on subsidies and to build support for reform. Raising awareness can only be done when one has the *proper tools* to analyse subsidies. The first step is to identify a subsidy, for which our subsidy menu may serve as a helpful guide. Next, its size should be measured, both in fiscal and economic terms. Particularly, the fiscal impact of subsidies may be a key factor in the subsidy debate. The next step is to determine and assess the economic, environmental and social implications of subsidy policies. Choosing relevant criteria is important but may depend on the subsidy issue at hand.[18]

Governments should be encouraged to develop an informational framework on subsidy policies. They should commit themselves, or clearly identified groups of subsidy recipients, to assess and report regularly on the need for subsidies, their effectiveness, costs and distributive implications. Introducing a *public burden of proof* for the need and impacts of subsidy policies is a concrete and practical way to create more transparency and initiate an open debate.

Raising more awareness and initiating a dialogue on subsidies should also be organised at the international level, in particular on regional and local levels to effectively deal with specific subsidy issues. It is vital that (major) countries get convinced of the responsibility and necessity to take action and initiate real progress.

A key principle is also to focus on distributive implications and *identify winners and losers* of subsidies and their reform. This aspect is of particular importance in the political debate and in mobilizing support. Making clear who benefits and who pays, who wins and who loses creates the basis for reshaping subsidies and developing cost-effective alternatives and complementary measures to smooth the adjustment process.[19] Compensation for groups and countries that (initially) may lose from subsidy reform is vital to give them ample room and time to adjust. Such compensation need not necessarily be in money terms, but may also take the form of providing technical, administrative or skills assistance, for example by setting up programs to retrain workers or assisting in developing a legislative, administrative and institutional system.

To provide some practical guidance in pursuing subsidy reform, we can formulate the following *set of guiding principles for policy makers*. First and foremost, although it may seem obvious, policy makers should be really cautious and reserved before introducing any (new) subsidy policies and carefully consider their need and implications. Once they exist, subsidies tend to persist and hard to remove. Avoiding or preventing the introduction of new subsidies that may turn out to be economically inefficient and ecologically destructive may already be a grand

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[18] Compare the work on a framework of pressure-state-response indicators as developed by international organisations.

[19] Naturally, a formal assessment report on subsidies as suggested will assist in providing the necessary information.

achievement. But more needs ànd can be done; existing subsidy policies and structures need to be re-examined and evaluated. Keeping the policy objective clearly in mind, a key guideline is to refrain from linking subsidies to inputs, production or consumption. As pointed out, subsidies divert resources away from more profitable uses and coupling subsidies to economic activities will move us only further away from an efficient allocation of resources. Moreover, subsidies are expensive and usually put a heavy burden on the public budget. Instead, from a fiscal, economic and environmental point of view, it is better to apply the general rule *not* to link subsidies to economic activities but to (re)shape support into other, more direct forms and more align with environmentally sound practices. To minimize economic distortions, policy objectives should be targeted directly as possible, choosing transparent measures; more specifically, those that enhance or at least do not interfere with cost recovery or full-cost pricing principles. For instance, instead of subsidizing jobs through production, governments could aim to support employment directly, preferably accompanied by retraining programs for labourers. Rather than subsidizing (poor) households, it is often more effective to provide them with targeted income support or stamps and vouchers for basic goods and services. Providing income access is a better guideline than imposing overall price controls or other measures that intervene in allocation mechanisms.

The bottom line is that *markets should take care of allocating resources* whereas *governments should refrain from interfering but rather move towards defining and enforcing conditions for a better functioning of markets*. Governments do have a fundamental role to play, particularly in creating a framework for the efficient allocation of property rights and developing the institutional framework to maintain fair competition.

Proper pricing of resources, goods and services is a vital part of sound governance and the key to many existing sectoral problems. Sound pricing will provide the incentive for efficient use, enhance environmental concerns and reduce fiscal drain. As a general guideline, sound pricing policies should at least reflect private costs of production and consumption and, preferably, their full costs. Targeted user pricing, where possible, may avoid cross subsidies and intra-sectoral inefficiencies. Governments may also wish to consider applying mixed pricing systems such as lifeline pricing or two-tier pricing methods. These practices charge a low price for a basic subsistence level and a (sharply) increasing rate above that level, to reflect its "luxury" character. The advantages of such pricing policies is that they combine social and economic purposes while still feasible to implement.

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